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BIOMASSTRADECENTRE II

WORK PACKAGE 5:

PROMOTION OF QUALITY STANDARDS AND SUSTAINABILITY CRITERIA

STATE OF THE ART REGARDING QUALITY CERTIFICATION SCHEMES AND LABELLING

Country: Italy

Work package leader: Slovenian Forestry Institute

Date and place: Legnaro (PD) – October 2011

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1. Scope of report

Definitions of wood fuels (according to EN 14588:2010)

Wood fuels, wood based fuels, wood-derived biofuels: all types of *biofuels* originating directly or indirectly from *woody biomass.*

Woody biomass: *biomass* from trees, bushes and shrubs

Fuelwood; energy wood: *wood fuel* where the original composition of the wood is preserved (Adapted from FAO unified bioenergy terminology (UBET)).

Firewood: cut and split oven-ready *fuelwood* used in household wood burning appliances like stoves, fireplaces and central heating systems (NOTE Firewood usually has a uniform length, typically in the range of 150 mm to 1000 mm.)

Log wood: cut *fuelwood* in which most of the material has a length of 200 mm and above.

Wood chips: chipped *woody biomass* in the form of pieces with a defined *particle size* produced by mechanical treatment with sharp tools such as knives. (NOTE 1 Wood chips have a subrectangular shape with a typical length 5 mm to 50 mm and a low thickness compared to other dimensions.)

Green chips: *wood chips* made of fresh *logging* and *thinning residues,* including branches and tops.

Whole-tree chips: *wood chips* made of *whole trees (*EXAMPLE *Wood chips* containing stems with bark, branches, needles/leaves.)

Wood pellet: densified biofuel made from pulverised woody biomass with or without additives usually with a cylindrical form, random length and typically 5 to 40 mm, with broken ends.

Wood briquette: densified biofuel made with or without additives in the form of cubiform or cylindrical units, produced by compressing pulverised biomass.

Wood fuels in Combined Nomenclature (CN), 2011:

4401 Fuel wood, in logs, in billets, in twigs, in faggots or in similar forms; wood in chips or particles; sawdust and wood waste and scrap, whether or not agglomerated in logs, briquettes, pellets or similar forms

4401 10 Fuel wood, in logs, in billets, in twigs, in faggots of in similar forms

4401 10 00- Fuel wood, in logs, in billets, in twigs, in faggots or in similar forms

4401 20 Wood in chips or particles

4401 21 00 - Coniferous

4401 21 00 - Non-coniferous

4401 30 Sawdust and wood waste and scrap, whether or not agglomerated in logs, briquettes, pellets or similar forms

4401 30 20- Pellets

- Other

4401 30 40 - Sawdust

4401 30 80 - Other

4402 Wood charcoal (including shell or nut charcoal), whether or not agglomerated

4402 10 00- Of bamboo

4402 90 00 - Other

Wood fuels in Standard International Trade Classification, Rev.4 (SITC Rev. 4)

245.01 - Fuel wood, in logs, in billets, in twigs, in faggots or in similar forms (excluding wood waste).

246.1 - Wood in chips or particles

246.11 - ....coniferous

246.15 - ....non-coniferous

246.2 - Sawdust and wood waste and scrap, whether or not agglomerated in logs, briquettes, pellets or similar forms

Wood fuels in Statistical Classification of Products by Activity in the European Economic Community, 2008 version:

A PRODUCTS OF AGRICULTURE, FORESTRY AND FISHING

02.20.14 Fuel wood

C MANUFACTURED PRODUCTS

16.10.23 Wood in chips or particles

2. Forest management and chain of custody certification

Forest certification is a voluntary, market-based tool that supports responsible forest management to ensure that social, economic, ecological, cultural and spiritual needs of present and future generations are met. Certification provides forest owners and managers – families, communities and companies – with access to the global marketplace for certified products. Forest managers or owners who want to prove that their forest operation are socially beneficial and managed in an environmentally appropriate and economically viable manner can apply for **forest management (FM) certification.**

A forest manager and all companies through the supply chain must also achieve **Chain of Custody certification (CoC).** The **CoC** can be defined as the "*process of handling of information on the origin of forest based products which allows the organisation to make accurate and verifiable claims on the content of certified material*" (PEFC, 2010). More into detail it is an information trail about the path taken by products from the forest or, in the case of recycled materials, from the reclamation site to the consumer including each stage of processing, transformation, manufacturing, and distribution where progress to the next stage of the supply chain involves a change of ownership (FSC, 2007). CoC certification is applicable for companies that manufacture, process or trade in timber or non-timber forest products and want to demonstrate to their customers that they use responsibly produced raw materials. The **forest certification schemes labels** ensure customers and buyers of certified wood products they are from responsibly harvested and verified sources.

Dominant certification schemes for certified forest products are the Forest Stewardship Council (FSC) and the Programme for the Endorsement of Forest Certification (PEFC) schemes. Both, FSC and PEFC, are independent, non-governmental, nonprofit organizations. They promote sustainable forest management through independent third party certification and provide an assurance mechanism to purchasers of wood and paper products that they are promoting the sustainable management of forests.

Figure 1: Labels of major certification schemes (Forest Stewardship Council – left, Programme for the Endorsement of Forest Certification schemes – right)

FSC was established in 1993 as a multi-stakeholder organization aiming to promote the responsible management of the world's forests. PEFC was established few years later, in 1999, under the name of Pan European Forest Certification (therefore limited to the European context) and then in 2003 turned international and adopted the current denomination. Despite sharing the same general aim, the two schemes remain strongly different with regard to their (among others) governance systems, involved actors, standard setting procedures, standard contents, and certification/accreditation mechanisms.
The rate of increase of certified forest area has slowed during the past decade. Since 2009 PEFC and FSC have been dominant certification schemes. This is partly due to the fact that a large amount of national/regional schemes have been mutually endorsed by PEFC.

By May 2011, the global area of certified forests endorsed by one or other of the two international schemes amounted to 375 million hectares, up 7 % (23.5 million hectares) since May 2010. There is a rough overlap of 3.75 million hectares due to double certification. Between 2010 and 2011 the forest area certified according to FSC standards increased by 11% while that certified against PEFC standards by 5 %. However, the trends for both systems have been similar over the past decade. The potential supply of industrial roundwood from certified forests was estimated as 447 million m^3 in May 2011, about 25 % of global roundwood production (UNECE/FAO, 2011).

In terms of certified forest area, PEFC is the largest programme, though FSC has been expanding faster from 2008-2010, due mainly to large areas certified in North America (especially Canada) and the Russian Federation. FSC operates in 81 countries and, by May 2011, its certified forest area totalled 143 million hectares, compared with 129 million hectares in May 2010. Most FSC-certified forest lies in the Northern hemisphere, mostly in Europe (44 %), where there are 62.4 million hectares certified forests, and in North America (38 %) with 54.5 million hectares certified forests.

The PEFC-certified forest area rose from 225 million hectares in May 2010, to 236 million hectares in May 2011– slightly less than two-thirds of the globally certified forest area. Currently, PEFC endorses 29 national certification systems, while 25 countries have active certificates for forest management. The great majority (i.e. more than 93%) of PEFC-certified forest lies in North America (mainly Canada and US) and Europe (mainly Finland, Norway and Sweden). The strong presence of PEFC certified forests is largely to be attributed to large regional certification initiatives.

In the 1990s, the certified forest area grew exponentially but, since 2001, growth has followed a linear path, with an annual increase of 10% - 20% until 2006. That is because a majority of managed forest in the northern hemisphere are already certified while certification in the tropics is still quite limited (only 2 % of tropical forest have been

certified). Within the UNECE region North America has had the largest area of certified forest since 2004: Canada has 153.1 million hectares and the US 47.3 million hectares. The Russian Federation has a very high growth rate of 28.4 %. Finland now ranks fourth and Sweden fifth.

Chain of custody (CoC) certification has been growing exponentially from 2005 with a growth of 20 % between May 2010 and May 2011. In this period the total number of PEFC and FSC CoC certificates issued worldwide increased to 28,423. FSC covers about 74% of them, being by far the leading scheme worldwide, while PEFC covers the remaining 26%. While most of FSC CoC certificates have been issued in Europe, North America, Asia and Central-South America, PEFC tends to be basically concentrated on European countries.

References:

- UNECE/FAO Forest Products Annual Market Review, 2010 – 2011
- www.fsc.org
- www.pefc.org

2.1 Area, share and potential wood fuel supply from certified forests

Forests certified according to FSC and PEFC standard in Italy cover an area of 742,839.49 hectares (ha), i.e. about 7% of the overall forest area as of the National Inventory of Forests and Carbon Sinks (INFC) (2007). FSC certified forests totalize 42.791,43 ha (FSC, 2011), while PEFC ones totalize 741.199,97 ha (PEFC, 2011). A total area of 41.697,99 ha in 3 different regions is certified under both FSC and PEFC standards.

Due to the average small size of Italian forest ownership, more than 92% of certified forests belong to group (FSC or PEFC) or regional (only PEFC) certification. As for the type of forests, semi-natural ones prevail in an almost excusive way (99,6%), the remaining part being represented by poplar plantations. Trentino Alto Adige is the leader region in terms of certified forest area: it hosts more than 70% Italian certified forests with 2 PEFC and 1 joint FSC/PEFC certifications. More generally speaking certified forests are basically concentrated (97%) in four regions, including North-East area (Friuli Venezia Giulia (FVG), Trentino Alto Adige and Veneto) and Lombardy. Table 2.1 summarizes figures on forest management (FM) certification in Italy per certification type, forest type and region.

In order to estimate the potential wood fuel supply from Italian certified forests data from table 2.1 were integrated with information collected from certification public reports (where available) and calculated on the basis of figures on forest increments and harvesting rates as reported by the INFC and (until the recent past) the National Institute of Statistics (Istat). According to the INFC the mean annual increment (MAI) of

the Italian forests is about 4,1 m^3/ha. For the purposes of the estimation we assumed such increment is totally harvested. The ratio of fuel wood to total harvested wood at regional level has been calculated based on Istat figures adjusted with specific information from certification reports. As for the portion of industrial roundwood harvested from certified forest a 20-35% incidence of production waste (branches, tree tops) was considered (APAT, 2003). As for poplar plantations a 10-years long production cycle was assumed, with an average wood waste production of 3,5 ton/ha (i.e. 5.83 m^3/ha fresh wood) (Spinelli, 1998). Moreover wood residues from the removal of tree stubs at the end of the cycle provide an extra average figure of 1,79 ton/ha per year. Finally, with regard to cork-oak forests, they were not included in the estimation due to the limited contribution they can provide in terms of wood fuel supply.

Table 2.1 –**FSC and PEFC certified forests in Italy, area in ha (October 2011)**

Forest	Scheme	Type*	Area	Owners **	Forest type	Region
Agenzie agricole di Torviscosa S.S.	FSC (FM/COC) and PEFC	G	180,82	3	Poplar plantation	FVG
AGRIS SARDEGNA	FSC (FM/COC)	S	66,00	1	Cork oak forest	Sardinia
Associazione Gruppo PEFC Veneto	PEFC	G	65.132,00	57	Semi-natural	Veneto
Associazione regionale Friuli Venezia Giulia	PEFC	R	74.815,00	50	Semi-natural and poplar plantation	FVG
Azienda Agricola Limbara	PEFC	S	20,00	1	Cork oak forest	Sardinia
Azienda Agricola Rosseghini Maria Luisa		S	47,00	1	Poplar plantation	Lombardy
Azienda Agricola Tettoia	PEFC	S	50,00	1	Poplar plantation	Lombardy
Bolzoni Fratelli Societa agricola s.s.	PEFC	S	250,00	1	Poplar plantation	Lombardy
Comunità Montana Colline Metallifere	FSC (FM) and PEFC	S	5.597,97	1	Semi-natural	Toscana
Comunita Montana Valli Orco e Soana	PEFC	S	1.860,60	1	Semi-natural	Piedmont
Consorzio Comuni Trentini- A.R. PEFC Trentino	PEFC	R	247.635,00	311	Semi-natural	Trentino AA
Consorzio Forestale Alta Valtellina	PEFC	S	11.490,00	1	Semi-natural	Lombardy
Consorzio Forestale dell'Amiata	PEFC	S	2.922,91	1	Semi-natural	Tuscany
Consorzio Forestale Lario Intelvese	PEFC	S	2.098,00	1	Semi-natural	Lombardy
Damiano Flavio Agricoltore	FSC (FM/COC)	S	28,51	1	Poplar plantation	Piedmont
ERSAF - Demanio Regione Lombardia	FSC (FM) and PEFC	S	16.348,00	1	Semi-natural	Lombardy
Gr. dei Com. di Usseaux, Pragelato, Fenestrelle	PEFC	G	5.368,00	6	Semi-natural	Piedmont
Gruppo PEFC Sudtiroler Bauernbund	PEFC	G	283.601,00	23.361	Semi-natural	Trentino AA
Magnifica Comunità di Fiemme	FSC (FM/COC) and PEFC	S	19.569,00	1	Semi-natural	Trentino AA
Marchesi De' Frescobaldi Societa Agricola S.r.l.	PEFC	S	1.680,00	1	Semi-natural	Tuscany
Partecipanza dei Boschi di Trino Vercellese	FSC (FM/COC)	S	584,32	1	Semi-natural	Piedmont
Riserva naturale parziale Selva del Lamone	PEFC	S	1.547,00	1	Semi-natural	Lazio
S. Alessandro s.s.	FSC (FM/COC)	S	257,17	1	Poplar plantation	Lombardy
Santa Croce Legnami S.r.l.	PEFC	S	146,00	1	Semi-natural	Abruzzo
Selvamar s.s.	FSC (FM)	S	159,64	1	Semi-natural	Umbria
Soc.agr. di E. Visconti e M.C. Visconti & C. S.a.s	PEFC	S	359,37	2	Poplar plantation	Lombardy
Societa Macchia Faggeta	PEFC	S	529,00	1	Semi-natural	Tuscany
Vicarello	FSC (FM/COC)	S	471,00	1	Semi-natural	Lazio
Vigolungo Stefano Agostino	FSC (FM/COC)	S	26,18	1	Poplar plantation	Lombardy
Total			**742.839,49**	**23.812**		

* S = single certification; G = group certification; R = regional certification; ** owners or managers

Source: Authors' elaboration based on FSC, 2011; PEFC, 2011.

The potential wood fuel supply from Italian certified forests ranges between 1,4 and 1,7 million m^3 (Table 2.2). Fuelwood removals represent 57-70% of such value, while production waste from industrial roundwood harvesting operations ranges 29-41%. Poplar plantations provide a marginal contribution of about 2%. The estimated values are quite high and shall be considered as fully hypothetical because assuming the MAI is fully harvested is not realistic in the frame of the Italian forest sector. According to Istat 2009 data, on average firewood production in Italian forests is around 0,46 m^3/ha. Assuming such value for all certified semi-natural forests would lead to an overall estimation of about 370.447,18 m^3 (i.e. 21-26% of the previously estimated value). Several studies, however, shown Istat strongly underestimates wood removals from Italian forests. It may be considered realistic to prudentially assume 70% of the MAI is harvested: according to this, the potential wood fuel supply from Italian certified forests would range between 0,9 and 1,2 million m^3.

Table 2.2 – **Potential wood fuel supply from Italian FSC/PEFC certified forests, volumes in m^3 (October 2011)**

Forest	Semi-natural			Poplar plantations		Total 1 f+w_{20}+pw+s	Total 1 f+w_{35}+pw+s
	Firewood removals (f)	**Waste (20%)** (w_{20})	**Waste (35%)** (w_{35})	**Waste** (pw)	**Stubs** (s)		
Agenzie agricole di Torviscosa S.S.				1.054,18	538,84	1.593,02	
Associazione Gruppo PEFC Veneto	170.906,37	19.226,97	31.777,90			190.133,33	202.684,27
Associazione regionale Friuli Venezia Giulia	136.848,68	32.520,28	56.910,48	10.368,07	5.299,63	185.036,66	209.426,87
Azienda Agricola Rosseghini Maria Luisa				274,01	140,06	414,07	
Azienda Agricola Tettoia				291,50	149,00	440,50	
Bolzoni Fratelli Societa agricola s.s.				1.457,50	745,00	2.202,50	
Comunità Montana Colline Metallifere	19.463,02	697,73	1.221,03			20.160,75	20.684,05
Comunita Montana Valli Orco e Soana	3.631,15	799,46	1.399,06			4.430,61	5.030,21
Consorzio Comuni Trentini- A.R. PEFC Trentino	304.591,05	142.142,49	248.749,36			446.733,54	553.340,41
Consorzio Forestale Alta Valtellina	18.136,97	5.794,41	10.140,21			23.931,37	28.277,18
Consorzio Forestale dell'Amiata	10.162,37	364,31	637,55			10.526,68	10.799,92
Consorzio Forestale Lario Intelvese	3.311,69	1.058,02	1.851,54			4.369,71	5.163,23
Damiano Flavio Agricoltore				166,21	84,96	251,17	
ERSAF - Demanio Regione Lombardia	25.805,32	2.037,61	3.565,83			27.842,93	29.371,14
Gr. dei Com. di Usseaux, Pragelato, Fenestrelle	10.476,19	2.306,52	5.766,31			12.782,71	16.242,49
Gruppo PEFC Sudtiroler Bauernbund	232.552,82	186.042,26	325.573,95			418.595,08	558.126,77
Magnifica Comunità di Fiemme	24.069,87	11.232,61	19.657,06			35.302,48	43.726,93
Marchesi De' Frescobaldi Societa Agricola S.r.l.	5.841,02	209,40	366,44			6.050,42	6.207,47
Partecipanza dei Boschi di Trino Vercellese	1.140,36	251,07	439,37			1.391,43	1.579,73
Riserva naturale parziale Selva del Lamone	5.055,13	257,51	450,65			5.312,65	5.505,78
S. Alessandro s.s.				1.499,30	766,37	2.265,67	
Santa Croce Legnami S.r.l.	547,12	11,80	20,66			558,92	567,78
Selvamar s.s.	618,53	7,33	12,83			625,86	631,35
Soc.agr. di E. Visconti e M.C. Visconti & C. S.a.s				2.095,13	1.070,92	3.166,05	
Societa Macchia Faggeta	1.839,23	65,93	115,39			1.905,16	1.954,61
Vicarello	1.539,09	78,40	137,20			1.617,49	1.676,29

Vigolungo Stefano Agostino				2.745,93	1.403,58	4.149,51	
Total	**976.535,97**	**405.104,12**	**708.792,81**	**17.205,90**	**8.794,78**	**1.406.047,75**	**1.711.329,46**

Source: Authors' elaboration based on FSC, 2011; PEFC, 2011.

2.2 Companies with FSC/PEFC Chain of Custody certificate

According to FSC (2011) and PEFC (2011) international databases, chain of custody certificate holders in Italy are 1.730: 1.153 hold an FSC certificate, while 577 organisations are PEFC certified. While PEFC figures already cover the total number of certified organisations, including those participating to group certifications, FSC figures shall be improved up to 1.259 to include the 106 sites covered by multisite certificates. To sum-up, 304 organisations hold a dual (i.e. FSC and PEFC) chain of custody certificate, while 849 hold one according only to FSC standards and 273 hold one according just to PEFC standards. During the last 2 years the total number of chain of custody certificates increased very much. At the present Italy ranks 4th at European level in terms of both FSC and PEFC certified organisations.

Table 2.3 provides details with regard to the geographical distribution of certified companies. About 70% of certificates are concentrated in 5 regions (Lombardy, Veneto, Trentino Alto Adige, Emilia Romagna and Friuli Venezia Giulia), with 2 of them (Lombardy and Veneto) hosting about 50% of the total number of certified organisations. Generally speaking, PEFC certificates are mainly concentrated (74%) in the North-East and Lombardy, with a weaker role of Central Italy (13%) and a marginal contribution of Southern Italy (1,5%). Many reasons for this distribution exist, both in technical terms - presence of productive forests and industrial districts - and political ones - decisive direct and indirect support from regional and local authorities. The North-East and Lombardy prevail (64%) in the case of FSC as well, but here every single Italian region hosts at least one FSC certified organisation and Central (17,4%) and Southern (4,2%) Italy count together more than 20%.

When considering FSC/PEFC chain of custody certification in Italy according to the main product categories within the scope of certification (Table 2.4) a slight prevalence (51%) of pulp-paper products – including printed items – on wood products can be observed. Within the wood products group furniture and furniture components (12%), and sawn wood categories prevail (9,7%), followed by wood in the rough (5,5%) and wood based panels (4,9%). In general terms FSC certification tends to prevail with reference to processed products, such as furniture, veneer, and frames, while PEFC certification prevails with regard to primary processing products, such as sawn wood, or even roundwood from harvesting operations. This is in relation to the prevalence of PEFC certified forests in Italy, but also to the creation of group certification nearby such forests, mainly benefiting forest service enterprises, sawmills and wood traders. In terms of structure, certified companies mirror the typical characteristics of national companies in the forestry-wood sector. With really few exceptions for capital-intensive

sub-sectors (wood panels, paper, sometimes furniture production) all certified companies are medium-small or very small in terms of employees and turnover.

Table 2.3 – **FSC/PEFC chain of custody certificates in Italy per region (October2011)**

Region	FSC (F)	% on Total FSC	% Total T	PEFC (P)	% on Total PEFC	% on Total T	Total T (F) + (P)	% on Total T
Abruzzo	19	1,6%	1,1%	4	0,7%	0,2%	23	1,3%
Basilicata	3	0,3%	0,2%	1	0,2%	0,1%	4	0,2%
Calabria	3	0,3%	0,2%	0	0,0%	0,0%	3	0,2%
Campania	26	2,3%	1,5%	6	1,0%	0,3%	32	1,8%
Emilia Romagna	105	9,1%	6,1%	38	6,6%	2,2%	143	8,3%
Friuli Venezia Giulia	97	8,4%	5,6%	38	6,6%	2,2%	135	7,8%
Lazio	39	3,4%	2,3%	17	2,9%	1,0%	56	3,2%
Liguria	8	0,7%	0,5%	2	0,3%	0,1%	10	0,6%
Lombardy	357	31,0%	20,6%	108	18,7%	6,2%	465	26,9%
Marche	37	3,2%	2,1%	14	2,4%	0,8%	51	2,9%
Molise	2	0,2%	0,1%	0	0,0%	0,0%	2	0,1%
Piedmont	54	4,7%	3,1%	25	4,3%	1,4%	79	4,6%
Puglia	7	0,6%	0,4%	1	0,2%	0,1%	8	0,5%
Sardinia	4	0,3%	0,2%	1	0,2%	0,1%	5	0,3%
Sicily	4	0,3%	0,2%	0	0,0%	0,0%	4	0,2%
Tuscany	71	6,2%	4,1%	25	4,3%	1,4%	96	5,5%
Trentino Alto Adige	52	4,5%	3,0%	150	26,0%	8,7%	202	11,7%
Umbria	35	3,0%	2,0%	14	2,4%	0,8%	49	2,8%
Valle d'Aosta	1	0,1%	0,1%	0	0,0%	0,0%	1	0,1%
Veneto	229	19,9%	13,2%	133	23,1%	7,7%	362	20,9%
Total	**1.153**	**100,0%**	**66,6%**	**577**	**100,0%**	**33,4%**	**1.730**	**100,0%**

Source: Authors' elaboration based on FSC, 2011; PEFC, 2011.

Table 2.4 – **FSC/PEFC chain of custody certificates in Italy according to the main product categories (October 2011)**

Product categories (Combined Nomenclature)	FSC (F)	% on Total FSC	% Total T	PEFC (P)	% on Total PEFC	% on Total T	Total T (F) + (P)	% on Total T
4401 (fuel wood)	4	0,3%	0,2%	5	0,9%	0,3%	9	0,5%
4402 (charcoal)	1	0,1%	0,1%	0	0,0%	0,0%	1	0,1%
4403 (wood in the rough)	19	1,6%	1,1%	77	13,3%	4,5%	96	5,5%
4407 (sawn wood)	73	6,3%	4,2%	95	16,5%	5,5%	168	9,7%
4408 (veneer sheets)	27	2,3%	1,6%	3	0,5%	0,2%	30	1,7%
4409 (wood)	18	1,6%	1,0%	19	3,3%	1,1%	37	2,1%
4410 (particle boards)	23	2,0%	1,3%	15	2,6%	0,9%	38	2,2%
4411 (fibre boards)	6	0,5%	0,3%	4	0,7%	0,2%	10	0,6%
4412 (plywood)	23	2,0%	1,3%	12	2,1%	0,7%	35	2,0%
4414 (frames)	33	2,9%	1,9%	6	1,0%	0,3%	39	2,3%
4415 (wood packaging)	9	0,8%	0,5%	44	7,6%	2,5%	53	3,1%
4417 (tools and handles)	38	3,3%	2,2%	6	1,0%	0,3%	44	2,5%
4418 (carpentry)	30	2,6%	1,7%	31	5,4%	1,8%	61	3,5%
4700 (pulp)	15	1,3%	0,9%	2	0,3%	0,1%	17	1,0%
4800 (paper)	245	21,2%	14,2%	106	18,4%	6,1%	351	20,3%
4900 (printing)	427	37,0%	24,7%	96	16,6%	5,5%	523	30,2%
9403 (furniture)	159	13,8%	9,2%	48	8,3%	2,8%	207	12,0%
9406 (prefab. buildings)	1	0,1%	0,1%	4	0,7%	0,2%	5	0,3%
Non-timber products	2	0,2%	0,1%	4	0,7%	0,2%	6	0,3%
Total	**1.153**	**100,0%**	**66,6%**	**577**	**100,0%**	**33,4%**	**1.730**	**100,0%**

Source: Authors' elaboration based on FSC, 2011; PEFC, 2011.

Companies producing certified wood fuel products (categories 4401 and 4402 under the Combined Nomenclature) seem to play a secondary role in the national chain of custody arena: they represent just the 0,6% of the total number of certificate holders at national level. Just 9 of them include fuel wood as the main product category in their certification scope, while 1 includes charcoal. Nevertheless, when extending the analysis to secondary products within the certification scope numbers increase up to 79 certificate holders (i.e. 5,6% of the grand total) producing and trading fuel wood, chipped wood, pellet and sawdust together with different products (Table 2.5). The most common situations include the collection and re-use of production waste or the trade/processing of materials that, because of their size or quality, result unfit to the main production processes. Due to the higher number of sawmills and forest service enterprises (and related waste production) PEFC certification prevails (78%) on FSC ones in terms of certified units. On the other hand, while in general wood fuel products tend not to be further processed, the only relevant exceptions is the one of FSC certified pellets produced from certified sawdust. As a last remark, different wood fuel products are commonly produced and sold together (e.g. fuel wood and chipped wood) by the same company: this is probably intended to further optimize the exploitation of production inputs and their residues.

Certified wood fuel products seems still to be a niche in the national chain of custody arena and many opportunities to improve the system exist, nevertheless such a niche is already more complex and layered than it may seem at a first glance.

Table 2.5 – **FSC/PEFC chain of custody certificates in Italy including wood fuel products as secondary products within their scope (October 2011)**

Wood fuel	Certificates	Main product categories within the certification scope							
		4403	4407	4409	4410	4412	4415	4417	4418
FSC									
440110 (fuel wood)	9	2	5	-	2	-	-	-	-
440121 (chipped wood)	6	2	2	1	-	-	-	-	1
44013020 (pellet)	1	-	-	-	-	1	-	-	-
44013040 (sawdust)	1	-	-	-	-	-	-	1	-
Sub-total FSC (F)	*17*	*4*	*7*	*1*	*2*	*1*	*-*	*1*	*1*
PEFC									
440110 (fuel wood)	55	43	11	-	-	-	1	-	-
440121 (chipped wood)	5	-	-	-	-	-	2	-	-
44013040 (sawdust)	2	-	2	-	-	-	-	-	-
Sub-total PEFC (P)	*62*	*43*	*13*	*-*	*-*	*-*	*3*	*-*	*-*
Total (F) + (P)	**79**	*47*	*20*	*1*	*2*	*1*	*3*	*1*	*1*

Source: Authors' elaboration based on FSC, 2011; PEFC, 2011.

3. National and international labelling schemes for wood fuels

General description of schemes and related requirements.

3.1 International labelling schemes (e.g. EN-plus)

ENplus: the new European pellet certification

The ENplus quality certification is a major step towards establishing pellets as a widely used energy commodity. For the first time numerous national standards and certifications are replaced by one uniform system based on the EN 14961-2 standard for wood pellets. This system has been agreed upon by the European Pellet Council in January 2011 and thus enjoys the support of large parts of the European pellet sector.

Figure 2: ENplus quality certification

Three wood pellet qualities with different demands on the used raw material, as well as the wood pellet characteristics, will be certified. These essentially correspond to the classes of the EN 14961-2.

- ENplus-A1
- ENplus-A2
- EN B

A key advantage of ENplus is that pellet quality is managed throughout the entire supply chain including production, storage and transport all the way to the end consumer. Moreover, in view of the importance of greenhouse gas mitigation, by January 2012 pellet producers must be able to state the amount of greenhouse gases emitted as a consequence of pellet production. The tracking system serves as a self-control and quality assurance aid to find out where the failures in the supply chain occurred and to identify which batches are out of specification. Through the identification number and the analysis of the internal documentation of the involved actors, possible sources of quality defects can be traced through the supply chain.

The independence of the certification system will be guaranteed through the involvement of accredited certification organizations according to EN 45011. Listed inspection bodies have to be accredited according to EN ISO 17020 or EN 45011, and are listed by the EPC on the official homepage of the EPC. Listed testing bodies have to be accredited according to EN ISO 17025 and testing standards specified in EN 14961-2. Testing bodies can cooperate if they are not accredited to all testing standards. Only

listed inspection and testing bodies are accepted for certification within the ENplus system.

The quality requirements for pellet producers and pellet traders that wish to certify are laid down in the ENplus handbook.

The ownership of the ENplus trade mark stays with the European Biomass Association AEBIOM, which hosts the European Pellet Council. The right to award the license to use the ENplus brand to qualifying companies is passed on from AEBIOM to national pellet associations that apply.

The European Pellet Council (EPC) is an umbrella organisation representing the interests of the European wood pellet sector. Its members are national pellet associations or related organisations from 15 countries.

The European Pellet Council is a platform for the pellet sector to discuss the issues that need to be managed in the transition from a niche product to a major energy commodity. These issues include standardisation and certification of pellet quality, safety, security of supply, education and training, and the quality of pellet using devices.

Certification procedure
Certification will be managed by national pellet associations in many countries. These will select a certification body to work with and establish ENplus license use contracts with companies that comply with the requirements. Currently numerous associations are getting prepared to do so.

National pellet associations that license ENplus
Austria - proPellets Austria www.propellets.at
Germany - DEPV www.depv.de
Italy - AIEL www.aiel.cia.it
Spain AVEBIOM www.avebiom.org
Producers from countries in which pellet associations do not license ENplus yet can apply for a license with EPC.

A pellet producer/trader has to take the following steps to become certified and receive a license to use the ENplus trademark:
1. Fill out the application form
2. Select a listed inspection body that audits his plant
3. Submit the auditing report together with a complete laboratory analysis of the pellets to a certifying body that cooperates with EPC/National association
4. Pay half of the expected annual license fee to EPC/National association
As soon as these steps are successfully completed he will receive an ENplus certificate and a license contract allowing him to use the ENplus trademark.

Currently 20 pellet producers are certified as ENplus, mainly from Germany and Austria. Moreover, around 30 pellet traders are already certified.

For more information:
www.pelletcouncil.eu
rechberger@pelletcouncil.eu

3.2 National labelling schemes (e.g. Pellet GOLD)

Pellet Gold

Pellet Gold is the first and till 2011 the unique Italian pellet quality certification, created in 2006 by AIEL. It was the first step towards establishing a pellet quality certification system in Italy. Several quality standards and certification procedures in force at European level and in other countries (e.g. DINplus, Oenorm, European norm) were joined to create a specific quality scheme responding to the characteristics of the Italian market.

Figure 3: Pellet Gold - pellet quality certification

The quality requirements for pellet producers that wish to certify are laid down in the Pellet Gold manual, and its enclosures. Pellet Gold is a typical product certification. Pellets are certified at the beginning of production and need an annual recertification. Certified pellets have been endorsed with a quality/certification mark. AIEL is the owner of trademark and is also the inspection body that audits the pellet plants. The laboratory analyses of the pellets are carried out by an accredited laboratory.

The auditing report together with a complete laboratory analysis is submitted to the Pellet Gold Technical committee and to the Pellet Gold Accreditation committee, which verify the compliance of pellet to the certification requirements.

A key advantage of Pellet Gold is that pellet quality is also controlled for Formaldehyde and Radioactivity contents. Like this, the end consumers are pretty sure that pellets come only from not chemically treated wood and not contaminated wood.

Currently there are 12 Italian pellet producers with Pellet Gold certification. These are the most important Italian producers, covering over the 60 % of domestic production (around 600.000 t). In the coming future some of these companies wish to be also ENplus certified.

For more information:
www.pelletgold.it
paniz.aiel@cia.it

3.3 Other wood fuels related labelling/certification schemes (e.g. Carbon Footprint)

When approaching the complex and dynamic set of standards related to biomass use under development by various international and national bodies, the paper developed by Scarlat and Dallemand (2011) is a leading reference document. As observed by such authors there is a need of harmonising approaches and formulation of criteria and definitions to make them compatible. This is the rationale behind the (expected soon) development of ISO 13065 "Sustainability criteria for bioenergy" by the International Standards Organisation (ISO). The Technical Committe was set-up in 2009 under the co-ordination of the Deutsches Institut für Normung (DIN) (ISO, 2009).

At European level the Renewable Energy Directive 2009/28/EC includes a set of mandatory sustainability criteria as part of an EU sustainability scheme and also monitoring and reporting requirements for biofuels (EC, 2009).

Apart from forest certification according to FSC and PEFC standards, common system-based certification schemes can be implemented in the wood fuel sector, including *inter alia ISO* 9001 (Quality Management Systems), ISO 14001, EMAS (Environmental Management Systems) and OHSAS 18001 (Health and Safety).

The carbon footprint represents an emerging approach and tool. It is intended to measure the greenhouse gas (GHG) emissions deriving from a certain product, service or organisation, and to express them in terms of CO_2 equivalents. Several international standards for the implementation, measuring, auditing and reporting of the carbon footprint exist both at product and organisation level. In the first case the concept of Life Cycle Analysis (LCA) is central and the main international references are represented by ISO 14040 and 14044 standards. Another valid reference is represented by BSI-PAS-2050 "Specification for the assessment of the life cycle greenhouse gas emissions of goods and services", and the associated BSI-PAS-2050 Guide, both developed by the

British Standards Institution (BSI). Moreover a new ISO standard (ISO 14067) for the product carbon footprint is currently under development.

As an alternative the carbon footprint can be calculated at organisation level, following the requirements given by ISO 14064 series. Many different initiatives promote the calculation and verification of the carbon footprint (e.g. Carbon Trust) and they normally are based on the abovementioned ISO standards. An interesting experience is that of the University Consortium for Applied Research (CURA) at Padova University that developed an approach integrating the calculation of the carbon footprint at both product and organisation level.

Both ISO 14040/44 and ISO 14064 standards are mentioned by CEN Technical Committee 383 working on a new normative document - ''Sustainably produced biomass for energy applications'' – that once ready will be available as a basis for certification initiatives.

Another relevant reference is the recently approved ISO 50001 (International Standard for Energy Management) that further develops the previous EN16001 norm.

Finally, with regards to the social and socio-economic dimension many corporate social responsibility (CSR) standards can be mentioned at both international (SA8000, ISO 26000) and national level (Valore Sociale). Fair Trade standards can be mentioned as well, mainly with reference to wood fuel products imported from the Global South. It's worth mentioning that the Faitrade Labelling Organisation (FLO) has developed a new standard for wood products to be integrated with FSC forest management standards for smallholders. The Sustainable Timber Action in Europe project, co-financed by EuropeAid, is working on a deeper integration between FSC and fairtrade requirements.

3.4 State of the art of labelling/certification schemes of wood fuels in individual countries

The implementation at national level of the standards mentioned in the previous chapter in the wood fuel sector is very recent and sometimes has not started yet. Forest certification according to FSC and PEFC standards – already described in paragraphs 2.1 and 2.2 – and quality certification for pellets (ENplus, Pellet Gold) – see paragraph 3.1 and 3.2 – represent the most relevant exceptions. It may be assumed the attention for certified and legally compliant wood is going to grow in the next few years because of the implementation of Regulation CE 995/2010 that will ask all operators introducing wood-based products on the European market (including EU forest operators) to prove they are legally sourced.

With reference to the implementation of the carbon footprint (according to different systems) in the Italian forest-wood sector, few examples already exist: they are limited to companies producing wood and paper or paperboard packaging.

As for CSR requirements, 43 SA8000 certified companies in Italy operate in the wood sector, but none of them is linked to wood fuel production. They only refer to furniture, paper, printing and packaging sectors. Nevertheless the list of SA8000 certified companies in Italy includes Biomasse Italia SpA, a company managing two biomasses power-plants in Calabria (60 MW) (SAI, 2011). Due to its nature and size, however, such a case is not really paradigmatic of the forest-energy sector in Italy, nor it is a model in terms of local and short supply chain: more than 100.000 t/year (15% of the overall consumption) biomasses used to feed the plant are imported from abroad.

4. Industry view and perspectives on wood fuels labelling/certification

In the global market the interest towards qualitative - *sensu lato* - aspects of products and processes, as well as for tools to guarantee them, has been growing in the last decade.

Some tension exists between the wood industry (especially the wood-based panels industry) and the wood-energy sector, mainly because of recent strong criticisms to large energy plants and the competition for wood resources and inputs.

The idea of an integrated vertical system, allowing to recover and reuse virgin wood waste from industrial processes to feed medium-small energy plants at local level, is more likely to accepted and supported. This would also give an extra opportunity to valorise certified forest resources and give continuity to the chain of custody towards the market. Many driving forces for wood fuel certification exist: consumers are more and more aware and informed and can influence producers behaviours; retailers are increasingly adopting supply policies in favour of certified products (e.g. pellet, charcoal, firewood in small boxes); Green Public Procurement, GPP, policies push Public Authorities to adopt environmentally and socially relevant procurement criteria. This could be the case, for instance, of wood fuel for heating systems in public buildings and infrastructures like schools, offices, hospitals, etc.

The increase in certified forest areas and companies will make certified wood waste and residues more and more available for producers. It's interesting, for example, to note that 75% of the Italian pellets are produced in Lombardy region and in the North-East, i.e. the same areas where FSC and PEFC certified companies are concentrated.

Moreover, the potential impact of EC Regulation 995/2010 should not be underestimated: operators will be compelled to pay attention to sources for the wood and wood-based products they buy, manipulate and trade.

While common certification systems, like those for forest certification and those for quality/environmental management systems, are well established and consolidated, a strong need for the development of *ad hoc* standard, procedure and mechanisms for product certification in the wood fuel sector exist. While in the case of pellets the process is well advanced, there's still huge room - at least in Italy - for initiatives regarding products like firewood and chipped wood. The increasing importance of carbon issues, for example with regard to the carbon footprint calculation, should be taken into consideration.

The development of a robust market for wood fuel products as sources for renewable energy is inextricably linked to the definition and effective implementation of clear rules and transparent mechanisms for both companies and consumers.

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APPENDIX I

A list of relevant standards and other normative documents for Solid Biofuels

Data from CEN (http://www.cen.eu/, Avgust 2011)

Standard reference	Title
CEN/TR 15569:2009	Solid biofuels - A guide for a quality assurance system
CEN/TS 15149-3:2006	Solid biofuels - Methods for the determination of particle size distribution - Part 3: Rotary screen method
CEN/TS 15150:2005	Solid biofuels - Methods for the determination of particle density
CEN/TS 15370-1:2006	Solid biofuels - Method for the determination of ash melting behaviour - Part 1: Characteristic temperatures method
EN 14588:2010	Solid biofuels - Terminology, definitions and descriptions
EN 14774-1:2009	Solid biofuels - Determination of moisture content - Oven dry method - Part 1: Total moisture - Reference method
EN 14774-2:2009	Solid biofuels - Determination of moisture content - Oven dry method - Part 2: Total moisture - Simplified method
EN 14774-3:2009	Solid biofuels - Determination of moisture content - Oven dry method - Part 3: Moisture in general analysis sample
EN 14775:2009	Solid biofuels - Determination of ash content
EN 14778:2011	Solid biofuels - Sampling
EN 14780:2011	Solid biofuels - Sample preparation
EN 14918:2009	Solid biofuels - Determination of calorific value
EN 14961-1:2010	Solid biofuels - Fuel specifications and classes - Part 1: General requirements
EN 14961-2:2011	Solid biofuels - Fuel specifications and classes - Part 2: Wood pellets for non-industrial use
EN 14961-3:2011	Solid biofuels - Fuel specifications and classes - Part 3: Wood briquettes for non-industrial use

Standard reference	Title
EN 14961-4:2011	Solid biofuels - Fuel specifications and classes - Part 4: Wood chips for non-industrial use
EN 14961-5:2011	Solid biofuels - Fuel specifications and classes - Part 5: Firewood for non-industrial use
EN 15103:2009	Solid biofuels - Determination of bulk density
EN 15104:2011	Solid biofuels - Determination of total content of carbon, hydrogen and nitrogen - Instrumental methods
EN 15105:2011	Solid biofuels - Determination of the water soluble chloride, sodium and potassium content
EN 15148:2009	Solid biofuels - Determination of the content of volatile matter
EN 15149-1:2010	Solid biofuels - Determination of particle size distribution - Part 1: Oscillating screen method using sieve apertures of 1 mm and above
EN 15149-2:2010	Solid biofuels - Determination of particle size distribution - Part 2: Vibrating screen method using sieve apertures of 3,15 mm and below
EN 15210-1:2009	Solid biofuels - Determination of mechanical durability of pellets and briquettes - Part 1: Pellets
EN 15210-2:2010	Solid biofuels - Determination of mechanical durability of pellets and briquettes - Part 2: Briquettes
EN 15234-1:2011	Solid biofuels - Fuel quality assurance - Part 1: General requirements
EN 15289:2011	Solid biofuels - Determination of total content of sulfur and chlorine
EN 15290:2011	Solid biofuels - Determination of major elements - Al, Ca, Fe, Mg, P, K, Si, Na and Ti
EN 15296:2011	Solid biofuels - Conversion of analytical results from one basis to another
EN 15297:2011	Solid biofuels - Determination of minor elements - As, Cd, Co, Cr, Cu, Hg, Mn, Mo, Ni, Pb, Sb, V and Zn

APPENDIX II

A list of relevant standards and other normative documents under development for Solid Biofuels

Data from CEN (http://www.cen.eu/, Avgust 2011)

Project reference	Title	Candidate citation in OJEU*	
FprEN 16126	Solid biofuels - Determination of particle size distribution of disintegrated pellets	Under Approval	2012-03
FprEN 16127	Solid biofuels - Determination of length and diameter of pellets	Under Approval	2012-03
FprEN 14961-6	Solid biofuels - Fuel specifications and classes - Part 6: Non-woody pellets for non-industrial use	Under Approval	2012-01
FprEN 15234-2	Solid biofuels - Fuel quality assurance - Part 2: Wood pellets for non-industrial use	Under Approval	2012-01
FprEN 15234-3	Solid biofuels - Fuel quality assurance - Part 3: Wood briquettes for non-industrial use	Under Approval	2012-01
FprEN 15234-4	Solid biofuels - Fuel quality assurance - Part 4: Wood chips for non-industrial use	Under Approval	2012-01
FprEN 15234-5	Solid biofuels - Fuel quality assurance - Part 5: Firewood for non-industrial use	Under Approval	2012-01
FprEN 15234-6	Solid biofuels - Fuel quality assurance - Part 6: Non-woody pellets for non-industrial use	Under Approval	2012-01
FprCEN/TR 15149-3	Solid biofuels - Determination of particle size distribution - Part 3: Rotary screen method	Under Approval	2011-09

APPENDIX III
List of bodies/companies/authorities responsible for certification/labelling and testing

Country	Name and address of bodies/companies/authorities	Responsibility (certification/labelling and testing)
Slovenia		
Austria		
Italy		
Germany		
Croatia		
Spain		
Greece		
Romania		
Ireland