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**Swedish Presidency
of the European Union**

INFORMAL SUBMISSION BY SWEDEN ON BEHALF OF THE EUROPEAN UNION AND ITS MEMBER STATES ON DATA ON FOREST MANAGEMENT.

Brussels, 6th of December 2009

The European Union is determined to find agreement in Copenhagen on arrangements for accounting for the LULUCF sector that ensure environmental integrity and maintain necessary incentives in line with the position set out in paragraph 33 by EU Ministers of Environment on the 21st of October 2009:

“RECOGNIZES that future accounting rules for forest management should provide an adequate balance between further incentives for sequestration, for use of wood products and for biomass energy; STRESSES the need for future accounting rules to secure that the environmental integrity of a Copenhagen agreement is preserved; ACKNOWLEDGES that there are still difficulties associated with methodologies for measuring and predicting LULUCF GHG flows with a high degree of accuracy; WELCOMES further discussions with other Parties on accounting rules for forest management where the EU is open to discuss schemes based on the use of a reference level (bar), which includes an environmentally robust interval (band) while being CONSCIOUS that national circumstances, such as age class legacy effects, may require some flexibility for countries regarding the choice of reference level including allowing for historic data or robust and transparent projections open to independent review and verification; the use of gross-net accounting with a discount could also be considered in these discussions; CONSIDERS that accounting rules need to deal with emissions and removals associated with extreme events (force majeure) to reduce the risk that Parties cannot comply with their mitigation

objectives because of such events. CONSIDERS that subject to such flexibility being provided for, accounting for forest management should become mandatory for all Parties taking on quantified commitments in a Copenhagen agreement.”

To facilitate the negotiations in Copenhagen, the EU is informally submitting data, based on the format proposed by co-chairs and made available on the UNFCCC website. Data is covering proposals for forest management accounting included in the co-chairs non-paper (FCCC/KP/AWG/2009/10/Add.3/Rev.3).

National reference levels (paragraph 11, option 3)

In relation to the proposal for national reference levels, the EU is informally submitting data, in addition to that previously submitted including on historical references, taken into account the criteria in paragraph 11, option 3:

11. For the second commitment period, accountable anthropogenic greenhouse gas emissions by sources and removals by sinks [resulting from forest management under Article 3, paragraph 4][from forest land] shall be relative to a reference level. The [forest management][forest land] reference levels [inscribed in the appendix below were set][will be set] transparently, taking into account:

(a) Removals or emissions from forest management as shown in GHG inventories and relevant historical data;

(b) Age–class structure;

[The following elements [where relevant] [could also be] taken transparently into account:]

(c) Forest management activities already undertaken;

(d) Projected forest management activities;

(e) Continuity with treatment of forest management in the first commitment period.

This submission shows how proposed reference levels for the EU and its Member States might be calculated using one of the options we would be willing to explore. This submission is, however, illustrative and without prejudice to the EU's full position which remains as set out above and does not rule out an agreement on other possible options. Should the final agreement provide for setting a reference level, the EU would expect that to be calculated in conformity with the rules that will ultimately be agreed.

When establishing national reference levels, the EU and its Member States have included policies and measures implemented up to mid 2009. Furthermore, age structure has been considered, the models for forecasting can also represent historical data, and all carbon pools reported to UNFCCC are included.

This submission includes updates, revisions of information and, when available, new estimates for previously missing data in comparison to the previous EU submission, and more specifically the 11 November 2009 EU informal submission, which was made available on the UNFCCC website during the Barcelona session.

All data, including forecasts, revisions and updates of historical data, is open for future review.

To facilitate the negotiations in Copenhagen, data are presented based on the format proposed by the co-chairs and made available on the UNFCCC website. In addition, detailed tables are provided to facilitate the understanding of the information presented in the format proposed by the co-chairs. The latter include assessment of the inclusion of harvested wood products in the proposed reference levels under the Production approach and the SCAD¹ approach. An assessment of other options is also included, namely gross-net with a discount factor, net-net based on 1990 and net-net based on 2008-2012. In addition, the EU has included an assessment of the different options for the reference interval.

To date, the most complete time series on emissions and removals from forest management in the European Union comes from the information submitted by the EU in its voluntary submission presented during the Climate Talks in Barcelona (available from the UNFCCC website http://unfccc.int/meetings/ad_hoc_working_groups/kp/items/4907.php).

The general methodology adopted in that submission was maintained, and the only changes in input data come from revisions in historical data from a few Member States and updates from the modelling exercise that the Joint Research centre is conducting or from Member State forecasting results, when those were available.

¹ Stock Change of Domestically produced and consumed harvested wood products.

Party	1990 emissions / removals (MtCO ₂ e/yr)	Proposed reference level & reference interval (if any) (MtCO ₂ e/yr)	Forecast for 1st CP2 (MtCO ₂ e/yr)	Forecast for 2013- 2020 (MtCO ₂ e/yr)	Forecast based on 1990 (MtCO ₂ e/yr) (E = D-A)	Forecast based on Reference Level (MtCO ₂ eq./year) (F=D B)	Forecast based on 1st CP (MtCO ₂ eq./year) (G=D-C)	Forecast under Option B for 2013-2020 (MtCO ₂ eq./year)
Austria	-11.51	-1.52	-3.78	-1.52	9.99	0	2.26	na
Belgium	-3.21	-3.15	-3.01	-3.15	0.06	0	-0.14	na
Bulgaria	-6.16	-6.49	-6.70	-6.49	-0.33	0	0.21	na
Cyprus	-0.12	-0.18	-0.17	-0.18	-0.07	0	-0.01	na
Czech Republic	-5.86	-3.99	-4.01	-3.99	1.87	0	0.02	na
Denmark	-0.93	0.32	0.42	0.32	1.26	0	-0.10	na
Estonia	-8.03	-0.74	-3.29	-0.74	7.29	0	2.55	na
Finland	-23.93	-13.70	-24.71	-13.70	10.23	0	11.01	na
France	-44.73	-50.98	-62.97	-50.98	-6.25	0	11.99	na
Germany	-79.97	0.85	-1.40	0.85	80.81	0	2.25	na
Greece	-1.99	-3.08	-3.45	-3.08	-1.09	0	0.37	na
Hungary	-3.91	-1.25	-2.30	-1.25	2.66	0	1.06	na
Ireland	-1.25	-0.08	-0.65	-0.08	1.17	0	0.57	na
Italy	-46.16	-53.45	-61.27	-53.45	-7.29	0	7.82	na
Latvia	-21.64	-26.03	-27.95	-26.03	-4.39	0	1.92	na
Lithuania	-11.43	-6.34	-7.26	-6.34	5.10	0	0.92	na
Luxembourg	0.21	-0.26	-0.38	-0.26	-0.47	0	0.12	na
Malta	-0.05	-0.05	-0.05	-0.05	0.00	0	0.00	na
Netherlands	-2.53	-1.84	-2.10	-1.84	0.69	0	0.26	na
Poland	-38.63	-34.01	-36.04	-34.01	4.62	0	2.03	na
Portugal	3.35	-0.27	-0.99	-0.27	-3.63	0	0.72	na
Romania	-35.58	-30.25	-33.44	-30.25	5.34	0	3.20	na
Slovakia	-4.44	-2.15	-2.63	-2.15	2.29	0	0.48	na
Slovenia	-3.19	-2.71	-4.89	-2.71	0.47	0	2.18	na
Spain	-19.73	-19.37	-19.81	-19.37	0.36	0	0.44	na
Sweden	-35.57	-21.84	-20.78	-21.84	13.73	0	-1.07	na
UK	-12.18	-3.44	-8.33	-3.44	8.74	0	4.89	na
EU-27	-419.16	-286.00	-341.93	-286.00	133.16	0	55.93	na

	Entry data Net Removals (-) or Net Emissions (+) (1 000 tCO ₂ e _q)																	Sources	
	1990					Average 1990-2007 (2)				Forecast 2008-2012 (2)				Forecast 2013-2020 (2)				Historical data (1990-2007)	Projections (2008-2012) (2013-2020)
	FM net-removals / net emissions	Emissions from natural disturbances in the year(3)	HWP (1)			FM net-removals / net emissions	Emissions from natural disturbances in the period	HWP		FM net-removals / net emissions	Emissions from natural disturbances in the period	HWP		FM net-removals / net emissions	Emissions from natural disturbances in the period	HWP			
			half lives	SCAD value	PA value			SCAD value	PA value			SCAD value	PA value			SCAD value	PA value		
Austria	-11 511	nsq	15Y/1Y	-438	-1 980	-14 061	nsq	-319	-1 640	-3 780	nsq	-392	-2 436	-1 521	nsq	-213	-1 634	Country data (FM) Rueter (HWP)	Country data (FM) Rueter, sce A (HWP)
Belgium	-3 205	nsq	-	-	-	-3 168	nsq	-	-	-3 010	nsq	-	-	-3 150	nsq	-	-	UNFCCC	Models (FM)
Bulgaria	-6 157	nsq	15Y/1Y	432	44	-7 429	nsq	750	519	-6 703	nsq	358	127	-6 490	nsq	395	141	UNFCCC (FM) Rueter (HWP)	Models (FM) Rueter, sce A (HWP)
Cyprus	-116	nsq	15Y/1Y	6	6	-147	nsq	14	14	-172	nsq	17	18	-185	nsq	14	14	EU Monitoring Mechanism (FM), Rueter (HWP)	Linear extrapolation (FM), Rueter, sce A (HWP)
Czech Republic	-5 860	nsq	15Y/1Y	-38	-66	-7 696	nsq	-183	-407	-4 006	nsq	-454	-606	-3 986	nsq	-358	-877	UNFCCC modified / KP reporting	Models
Denmark	-932	nsq	15Y/1Y	-32	-1	-683	nsq	315	299	420	nsq	318	226	323	nsq	255	209	Country data on FM	Country data
Estonia	-8 032	nsq	15Y/1Y	-3	-14	-5 880	nsq	-90	-81	-3 291	nsq	-138	-119	-744	nsq	-157	-148	UNFCCC (FM) Rueter (HWP)	Models (FM) Rueter, sce A (HWP)
Finland	-23 933	nsq	15Y/1Y	-611	-711	-30 530	nsq	-654	-2 677	-24 712	nsq	-525	-1 083	-13 700	nsq	-478	-1 168	Country data	Country data
France	-44 729	nsq	15Y/1Y	-1 466	-2 625	-59 196	nsq	-521	-2 469	-62 970	nsq	-123	-1 914	-50 982	nsq	-24	-1 421	Country data (FM) Rueter (HWP)	Models
Germany	-79 967	13	24Y/2Y	-6 160	-8 697	-54 842	8	-4 171	-10 863	-1 399	nsq	-4 427	-14 462	848	nsq	-3 655	-10 787	Country data	Country data
Greece	-1 990	nsq	15Y/1Y	-193	-25	-2 837	nsq	-129	-149	-3 449	nsq	-193	-215	-3 077	nsq	-24	-1 421	UNFCCC (FM) Rueter (HWP)	linear extrapolation (FM) Rueter, sce A (HWP)
Hungary	-3 913	nsq	15Y/1Y	142	153	-4 012	nsq	441	329	-2 303	nsq	318	174	-1 248	nsq	263	153	Country data (FM) Rueter (HWP)	linear extrapolation (FM) Rueter, sce A (HWP)
Ireland	-1 251	19	15Y/1Y	-281	-470	-974	18	-309	-754	-652	20	-151	-627	-85	20	-150	-530	Country data on FM	Country data
Italy	-46 157	nsq	15Y/1Y	-1 564	-1 854	-65 258	nsq	-816	-1 292	-61 272	nsq	-86	-671	-53 449	nsq	-280	-608	Country data (FM) Rueter (HWP)	Models (FM) Rueter, sce A (HWP)
Latvia	-21 638	nsq	15Y/1Y	-9	-35	-25 648	nsq	-94	-368	-27 945	nsq	-283	-437	-26 029	nsq	-270	-496	UNFCCC modified (FM) Rueter (HWP)	Models (FM) Rueter, sce A (HWP)
Lithuania	-11 432	nsq	15Y/1Y	-6	-18	-9 036	nsq	-57	-108	-7 256	nsq	-245	-296	-6 336	nsq	-225	-277	UNFCCC modified (FM) Rueter (HWP)	Models (FM) Rueter, sce A (HWP)
Luxembourg	205	nsq	-	-	-	-399	nsq	-	-	-376	nsq	-	-	-260	nsq	-	-	EU Monitoring Mechanism (FM),	Linear extrapolation (FM),
Malta	-49	nsq	-	-	-	-49	nsq	-	-	-49	nsq	-	-	-49	nsq	-	-	EU Monitoring Mechanism (FM),	Linear extrapolation (FM),
Netherlands	-2 529	nsq	15Y/1Y	12	-197	-2 445	nsq	105	35	-2 103	nsq	20	159	-1 840	nsq	48	82	UNFCCC (FM) Rueter (HWP)	Models (FM) Rueter, sce A (HWP)
Poland	-38 630	nsq	15Y/1Y	2 253	2 189	-40 595	nsq	178	-305	-36 038	nsq	-1 967	-1 561	-34 008	nsq	-1 305	-2 154	UNFCCC modified (FM) Rueter (HWP)	Models (FM) Rueter, sce A (HWP)
Portugal	3 351	1 755	15Y/1Y	-257	-1 478	92	2 847	38	-414	-994	1 449	240	104	-275	1 892	415	176	Country data (FM) Rueter (HWP)	Country data (FM) Rueter, sce B (HWP)
Romania	-35 583	nsq	15Y/1Y	460	1 836	-37 790	nsq	1 222	991	-33 443	nsq	523	-451	-30 247	nsq	465	-349	UNFCCC (FM) Rueter (HWP)	Models (FM) Rueter, sce A (HWP)
Slovakia	-4 436	nsq	15Y/1Y	-7	-18	-4 098	nsq	-165	-336	-2 626	nsq	-786	-684	-2 146	nsq	-774	-988	UNFCCC (FM) Rueter (HWP)	Models (FM) Rueter, sce A (HWP)
Slovenia	-3 186	878	-	-	-	-4 810	942	-	-	-4 891	1 128	-	-	-2 713	1 382	-	-	UNFCCC (FM)	Country data (FM)
Spain	-19 733	nsq	30Y/2Y	-2 703	-3 318	-19 739	nsq	-2 780	-3 892	-19 809	nsq	-2 170	-3 626	-19 374	nsq	-2 829	-4 727	Country data	Models
Sweden	-35 569	18	15Y/1Y	-1 670	-2 620	-33 835	143	-94	-2 604	-20 778	348	-748	-2 395	-21 844	55	-326	-1 819	Country data	Country data
UK	-12 178	nsq	21Y/15Y	-1 165	-1 456	-12 907	nsq	-557	-696	-8 326	nsq	-2 290	-2 862	-3 438	nsq	-3 010	-3 763	Country data on FM	Country data
EU-27	-419 159			-13 298	-21 355	-447 969						-13 183	-33 636	-286 003		-12 223	-32 392		

(1) PA: Production approach; SCAD: Stock Change Approach on Domestically produced and consumed wood; Default: Instant oxydation approach. Half lives eg 30y/2y for 30 years for solidwood products and 2 years for paper

(2) All intervals are inclusive of start and end years

(3) Natural Disturbances: nsq = non separately quantified

Assessment of accounting options for the period 2013 -2020 (1 000 tCO2eq)										
	Proposed Reference Level (3)		using the proposed Reference Level				Gross-Net w/ D. Factor		Reference level based on	
	value (1 000 tCO2eq)	HWP	RL no interval	RL + assymetrical interv.	RL + symetrical interv.		proposed discount factor	value	1990	average 2008-2012
					proposed interval	value				
Austria	-1 521	inst.oxidation	0	0	±5%	0	85%	-228	9 990	2 259
Belgium	-3 150	inst.oxidation	0	0	±5%	0	85%	-473	55	-140
Bulgaria	-6 490	inst.oxidation	0	0	±5%	0	85%	-974	-333	213
Cyprus	-185	inst.oxidation	0	0	±5%	0	85%	-28	-69	-12
Czech Republic	-3 986	inst.oxidation	0	0	±5%	0	85%	-598	1 874	20
Denmark	323	inst.oxidation	0	0	±5%	0	85%	48	1 255	-97
Estonia	-744	inst.oxidation	0	0	±5%	0	85%	-112	7 288	2 547
Finland	-13 700	inst.oxidation	0	0	±30%	0	85%	-2 055	10 233	11 012
France	-50 982	inst.oxidation	0	0	0%	0	85%	-7 647	-6 253	11 988
Germany	848	inst.oxidation	0	0	±5%	0	85%	127	80 815	2 247
Greece	-3 077	inst.oxidation	0	0	±5%	0	85%	-462	-1 087	372
Hungary	-1 248	inst.oxidation	0	0	±5%	0	85%	-187	2 665	1 055
Ireland	-85	inst.oxidation	0	0	±5%	0	85%	-13	1 166	567
Italy	-53 449	inst.oxidation	0	0	±5%	0	85%	-8 017	-7 292	7 823
Latvia	-26 029	inst.oxidation	0	0	±5%	0	85%	-3 904	-4 391	1 916
Lithuania	-6 336	inst.oxidation	0	0	±5%	0	85%	-950	5 096	920
Luxembourg	-260	inst.oxidation	0	0	±5%	0	85%	-39	-465	116
Malta	-49	inst.oxidation	0	0	±5%	0	85%	-7	0	0
Netherlands	-1 840	inst.oxidation	0	0	±5%	0	85%	-276	689	263
Poland	-34 008	inst.oxidation	0	0	±5%	0	85%	-5 101	4 622	2 030
Portugal	-275	inst.oxidation	0	0	±5%	0	85%	-41	-3 626	719
Romania	-30 247	inst.oxidation	0	0	±5%	0	85%	-4 537	5 336	3 196
Slovakia	-2 146	inst.oxidation	0	0	±5%	0	85%	-322	2 290	480
Slovenia	-2 713	inst.oxidation	0	0	±5%	0	85%	-407	473	2 178
Spain	-19 374	inst.oxidation	0	0	±5%	0	85%	-2 906	359	435
Sweden	-21 844	inst.oxidation	0	0	±18%	0	85%	-3 277	13 725	-1 066
UK	-3 438	inst.oxidation	0	0	±5%	0	85%	-516	8 740	4 889
EU-27	-286 003		0	0		0		-42 900	133 156	55 930

(3) Proposed reference levels exclude harvested wood products

Assessment of accounting options for the period 2013 -2020 (1 000 tCO2eq)										
	Proposed Reference Level (3)		using the proposed Reference Level				Gross-Net w/ D. Factor		Reference level based on	
	value (1 000 tCO2eq)	HWP	RL no interval	RL + assymetrical interv.	RL + symmetrical interv.		proposed discount factor	value	1990	average 2008-2012
					proposed interval	value				
Austria	-3 155	Production App.	0	0	±5%	0	85%	-473	10 336	3 061
Belgium										
Bulgaria	-6 349	Production App.	0	0	±5%	0	85%	-952	-236	227
Cyprus	-171	Production App.	0	0	±5%	0	85%	-26	-61	-16
Czech Republic	-4 863	Production App.	0	0	±5%	0	85%	-729	1 063	-251
Denmark	532	Production App.	0	0	±5%	0	85%	80	1 465	-114
Estonia	-892	Production App.	0	0	±5%	0	85%	-134	7 154	2 518
Finland	-14 868	Production App.	0	0	±30%	0	85%	-2 230	9 776	10 927
France	-52 403	Production App.	0	0	0	0	85%	-7 860	-5 049	12 481
Germany	-9 939	Production App.	0	0	±5%	0	85%	-1 491	78 725	5 922
Greece	-4 498	Production App.	0	0	±5%	0	85%	-675	-2 483	-834
Hungary	-1 095	Production App.	0	0	±5%	0	85%	-164	2 665	1 034
Ireland	-615	Production App.	0	0	±5%	0	85%	-92	1 106	664
Italy	-54 057	Production App.	0	0	±5%	0	85%	-8 109	-6 046	7 886
Latvia	-26 525	Production App.	0	0	±5%	0	85%	-3 979	-4 852	1 857
Lithuania	-6 613	Production App.	0	0	±5%	0	85%	-992	4 837	939
Luxembourg										
Malta										
Netherlands	-1 758	Production App.	0	0	±5%	-88	85%	-264	968	186
Poland	-36 162	Production App.	0	0	±5%	0	85%	-5 424	279	1 437
Portugal	-99	Production App.	0	0	±5%	0	85%	-15	-1 972	791
Romania	-30 596	Production App.	0	0	±5%	0	85%	-4 589	3 151	3 298
Slovakia	-3 134	Production App.	0	0	±5%	0	85%	-470	1 320	176
Slovenia										
Spain	-24 101	Production App.	0	0	±5%	0	85%	-3 615	-1 050	-667
Sweden	-23 663	Production App.	0	0	±18%	0	85%	-3 549	14 526	-490
UK	-7 201	Production App.	0	0	±5%	0	85%	-1 080	6 433	3 988
EU-27	-312 224		0	0		-88		-46 834	122 056	55 021

(3) Proposed reference levels include harvested wood products

Assessment of accounting options for the period 2013 -2020 (1 000 tCO2eq)										
	Proposed Reference Level (3)		using the proposed Reference Level				Gross-Net w/ D. Factor		Reference level based on	
	value (1 000 tCO2eq)	HWP	RL no interval	RL + assymetrical interv.	RL + symetrical interv.		proposed discount factor	value	1990	average 2008-2012
					proposed interval	value				
Austria	-1 734	SCAD App.	0	0	±5%	0	85%	-260	10 215	2 438
Belgium										
Bulgaria	-6 095	SCAD App.	0	0	±5%	0	85%	-914	-370	250
Cyprus	-171	SCAD App.	0	0	±5%	0	85%	-26	-61	-15
Czech Republic	-4 344	SCAD App.	0	0	±5%	0	85%	-652	1 554	116
Denmark	578	SCAD App.	0	0	±5%	0	85%	87	1 542	-160
Estonia	-901	SCAD App.	0	0	±5%	0	85%	-135	7 134	2 528
Finland	-14 178	SCAD App.	0	0	±30%	0	85%	-2 127	10 366	11 059
France	-51 006	SCAD App.	0	0	0%	0	85%	-7 651	-4 811	12 087
Germany	-2 807	SCAD App.	0	0	±5%	0	85%	-421	83 320	3 019
Greece	-3 101	SCAD App.	0	0	±5%	0	85%	-465	-918	541
Hungary	-985	SCAD App.	0	0	±5%	0	85%	-148	2 786	1 000
Ireland	-235	SCAD App.	0	0	±5%	0	85%	-35	1 297	568
Italy	-53 729	SCAD App.	0	0	±5%	0	85%	-8 059	-6 008	7 629
Latvia	-26 299	SCAD App.	0	0	±5%	0	85%	-3 945	-4 652	1 929
Lithuania	-6 561	SCAD App.	0	0	±5%	0	85%	-984	4 877	940
Luxembourg										
Malta										
Netherlands	-1 792	SCAD App.	0	0	±5%	0	85%	-269	725	291
Poland	-35 313	SCAD App.	0	0	±5%	0	85%	-5 297	1 064	2 692
Portugal	140	SCAD App.	0	0	±5%	0	85%	21	-2 954	894
Romania	-29 782	SCAD App.	0	0	±5%	0	85%	-4 467	5 341	3 138
Slovakia	-2 920	SCAD App.	0	0	±5%	0	85%	-438	1 523	492
Slovenia										
Spain	-22 203	SCAD App.	0	0	±5%	0	85%	-3 330	234	-224
Sweden	-22 170	SCAD App.	0	0	±18%	0	85%	-3 326	15 069	-644
UK	-6 448	SCAD App.	0	0	±5%	0	85%	-967	6 895	4 168
EU-27	The EU totals are not presented, since it would require additional calculations									

(3) Proposed reference levels include harvested wood products