

## SUBMISSION BY FRANCE ON BEHALF OF THE EUROPEAN COMMUNITY AND ITS MEMBER STATES

**This submission is supported by Croatia, Turkey, Albania, Bosnia and Herzegovina, the Former Yugoslav Republic of Macedonia, Montenegro and Serbia**

Paris, 30 July 2008

**1st part of the 6th session of the Ad Hoc Working Group on Further Commitments for Annex I Parties under the Kyoto Protocol (AWG-KP 6)  
Accra, 21-27 August 2008**

**Subject: Voluntary EU submission on the assessment and implications of future rules for the LULUCF Annex I**

As a response to the paragraph 4 of the conclusion of the AWG-KP 5<sup>th</sup> session on LULUCF, which encourages Parties to share information to allow better assessment of the implications of the options and issues identified in the annex to the conclusion, including implication for accounting, the EU submits the following analysis. This analysis builds on data submitted to UNFCCC. The data do not allow assessment of all the options being discussed by Parties.

### **1 - Data used in this analysis**

All the data used in this assessment analysis derive from the latest available submissions from Parties to UNFCCC<sup>1</sup>, containing only historical information (from 1990 to 2006). These submissions are still to be reviewed and data may be subject to updates by Parties. Below are summarized some of the characteristics of these submissions.

#### *- Completeness of reporting*

**Table 1.** Coverage of emissions (E) and removals (R) for all subcategories in the latest reported year.

Number of Parties	Reporting category											
	Forest land		Cropland		Grassland		Wetland		Settlements		Other land	
	5.A.1 F-F	5.A.2 L-F	5.B.1 C-C	5.B.2 L-C	5.C.1 G-G	5.C.2 L-G	5.D.1 W-W	5.D.2 L-W	5.E.1 S-S	5.E.2 L-S	5.F.1 O-O	5.F.2 L-O
Reporting Parties	36	27	10	2	4	13	1	1	6	4	0	1
Net removals	1	1	19	16	19	7	10	14	3	11	0	11
Net emissions	37	28	29	18	23	20	11	15	9	15	0	12
Total reported												

F-F indicate "forest remaining forest", L-F "land converted to forest", and so on for the other categories.

<sup>1</sup> Last check 1 July 2008. For all countries, data from 2008 submissions were included, except Turkey (2007 submission) and Sweden (data of the 2007 submission were used because data of the 2008 submission are under revision).

Among the 40 AI Parties (+ European Community), nearly all report for the subcategory 5A1 and most of them for the subcategories 5A2 and 5B1 (Table 1). By contrast, the other land use categories are reported less frequently. Only nine Parties report on all the six land use categories. However, as compared to few years ago, the completeness of reporting significantly improved. Furthermore, given that the first reporting under a post-2012 system will start with data collected for 2013, it is possible that for that time most Parties will be able to report in a more complete way than now. See Table 7 for completeness of reporting by C pools.

- Recalculations

The LULUCF sector is more subject to recalculations than the other sectors (Table 2), with several parties showing recalculations higher than 100% for specific years. The magnitude of these recalculations, if on the one hand is a consequences of the difficulty of estimating emissions and removals from the LULUCF sector, on the other hand witnesses the continue efforts and methodological improvements (e.g., revision of activity data, use of new or improved factors) carried out by Parties, also in the light of the incoming reporting under the KP.

**Table 2.** Recalculations for the LULUCF sector and for the total GHG emissions excluding LULUCF, calculated in % as follow: [(data from 2008 submission - data from 2007 submission) / data from 2007 submission] x 100.

		1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
<b>LULUCF sector</b>	EU	0.7	0.7	-0.9	-3.6	-2.1	-1.3	-2.8	0.3	0.6	-0.4	-0.5	0.7	2.6	5.7	7.1	0.3
	other AI	2.9	-2.5	-3.5	-3.6	-3.9	-6.1	-6.3	-6.9	-8.8	-7.2	-15.7	-6.4	-0.9	3.0	5.4	1.6
	<b>Total AI</b>	<b>2.2</b>	<b>-1.6</b>	<b>-2.8</b>	<b>-3.6</b>	<b>-3.5</b>	<b>-4.7</b>	<b>-5.4</b>	<b>-5.1</b>	<b>-5.8</b>	<b>-5.5</b>	<b>-10.4</b>	<b>-4.0</b>	<b>0.0</b>	<b>3.6</b>	<b>5.8</b>	<b>1.2</b>
<b>Total GHG excluding LULUCF</b>	EU	-0.9	-0.7	-0.8	-0.4	-0.7	-0.7	-1.0	-0.9	-0.9	-0.8	-0.7	-0.7	-0.6	-0.7	-0.5	-0.4
	other AI	-0.7	-0.7	-0.8	-0.9	-0.8	-0.7	-0.9	-0.8	-1.0	-0.9	-1.0	-1.0	-0.8	-0.9	-1.0	-1.1
	<b>Total AI</b>	<b>-0.8</b>	<b>-0.7</b>	<b>-0.8</b>	<b>-0.8</b>	<b>-0.8</b>	<b>-0.7</b>	<b>-0.9</b>	<b>-0.9</b>	<b>-1.0</b>	<b>-0.8</b>	<b>-0.9</b>	<b>-0.9</b>	<b>-0.7</b>	<b>-0.9</b>	<b>-0.9</b>	<b>-0.9</b>

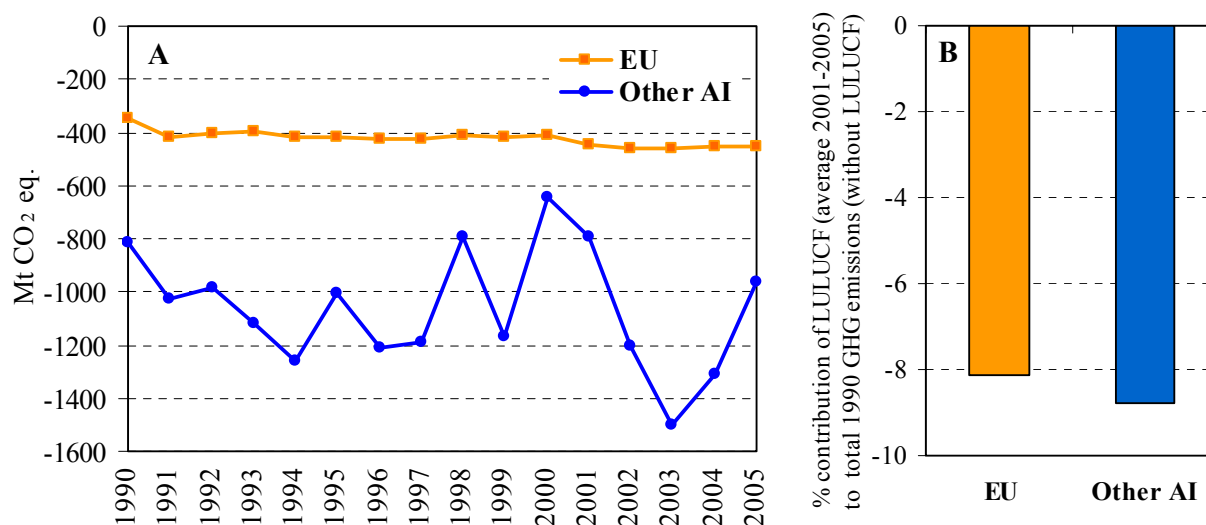
- Uncertainties

The majority of Parties performed some uncertainty assessment for the LULUCF sector, but in most cases not covering the whole sector and often largely based on expert judgments (which are rather uncertain themselves). Estimated uncertainties are generally higher for emission factors than for activity data, e.g. for “forest remaining forest” most uncertainties for the sink in the living biomass are between 30% and 60%, while for the forest area are generally lower than 30%. When estimated, uncertainties associated to land use changes and to emissions from the soil pool are typically higher.

**2 - National circumstances in relation to the LULUCF sector**

Scale of contribution: the contribution of LULUCF sector in EU is lower than in “Other AI Parties” in absolute terms (Fig. 1-A), but it is similar in relative terms (Fig. 1-B).

- *Variability*: Other AI Parties show a higher variability than EU, both in absolute terms (Fig. 1-A) and in relative terms (Table 3). Please note the variability showed in table 3 could be linked to natural variability, methodology used and/or the share of LULUCF to total GHG emissions.



**Fig. 1.** A): time series of net emissions (+) and removals (-) from whole LULUCF sector.  
 B): % contribution of LULUCF (average 2001-2005) to total 1990 GHG emissions (without LULUCF).

**Table 3.** LULUCF variability as a % of national GHG emissions in 1990.

Party	Variability averaged over	
	5 years	10 years
Austria	2.57	1.82
Belgium	0.21	0.15
Bulgaria	2.03	1.44
Czech Rep.	0.48	0.34
Denmark	1.25	0.89
Estonia	2.41	1.70
Finland	3.87	2.73
France	0.40	0.29
Germany	0.01	0.01
Greece	0.46	0.33
Hungary	1.87	1.32
Ireland	0.24	0.17
Italy	1.18	0.83
Lithuania	2.32	1.64
Latvia	0.81	0.57
Luxembourg	0.00	0.00
Netherlands	0.02	0.01
Poland	0.34	0.24
Portugal	4.39	3.10
Romania	0.32	0.22
Slovenia	0.88	0.62
Slovakia	0.93	0.66
Spain	0.07	0.05
Sweden	6.69	4.73
UK	0.03	0.02
<b>Total EU</b>	<b>0.16</b>	<b>0.11</b>

Party	Variability averaged over	
	5 years	10 years
Australia	1.25	0.88
Belarus	0.55	0.39
Canada	14.14	10.00
Croatia	3.06	2.16
Iceland	0.08	0.06
Japan	0.16	0.11
New Zealand	0.29	0.20
Liechtenstein	0.00	0.00
Monaco	0.89	0.63
Norway	2.51	1.77
Russia	5.17	3.66
Switzerland	3.00	2.12
Turkey	0.57	0.40
Ukraine	0.53	0.38
USA	0.49	0.34
<b>Total other AI Parties</b>	<b>1.39</b>	<b>0.98</b>

Methodology: year to year differences were assessed relative to 5 year running mean of LULUCF emissions. Annual emissions assumed to be within +/-2 standard deviations of the year to year differences with 95% confidence; corresponding 5 year and 10 year values (shown) were obtained by dividing by the square root of 5 and 10 respectively.

### 3 - Options assessed

**Table 4.** Accounting options.

Option	Art. 3.3	Art. 3.4
0 (KP rules)	Mandatory, gross-net <sup>2</sup>	Voluntary <sup>3</sup> . FM gross-net with fixed CAP. Other 3.4: net-net
1	Mandatory, gross-net	Voluntary. FM gross-net with discount factor <sup>4</sup> . Other 3.4: net-net
2	Mandatory, gross-net	Mandatory. FM gross-net with discount factor <sup>4</sup> . Other 3.4: net-net
3	Convention reporting (FL, CL, GL, WL, S, OL), net-net	
<b>KP activities:</b> Art 3.3: afforestation/reforestation (AR) and deforestation (D). Art. 3.4: forest management (FM), cropland management (CM), grassland management (GM), revegetation (RV). <b>UNFCCC land use categories:</b> Forest land (FL), cropland (CL), grassland (GL), wetlands (WL), settlements (S), other lands (OL)		

The discount factor in the gross-net accounting of FM was used in options 1 and 2 because it may represent a possible pragmatic way to address several concerns expressed by Parties.

As LULUCF categories under UNFCCC are different from LULUCF activities under the KP, in the absence of additional country-specific information we made some simplifications and assumptions to estimate data for options 0, 1 and 2 from UNFCCC reporting (see Table 8 in the Annex for additional methodological information). Thus, estimates for these options should be considered with caution.

**Table 5.** Main results for the options assessed, using the accounting period 2001-2005 and two different reference periods for net-net accounting when relevant. See Table 8 for the methods used.

Net LULUCF emissions and removals (accounting period 2001-2005) for different OPTIONS: % as compared to 1990 GHG without LULUCF <sup>5</sup>									
Reference period for net-net accounting:	1990					1990-1999			
Options:	0 <sup>2,3</sup>	1 and 2 <sup>4</sup>			3	1 and 2 <sup>4</sup>			3
Discount factor		100%	85%	0%		100%	85%	0%	
EU	-1.2	-0.6	-1.8	-8.7	-1.9	-0.7	-1.9	-8.8	-0.8
Other AI Parties	-1.0	0.6	-0.9	-9.4	-2.6	1.3	-0.2	-8.7	-0.7
<b>TOTAL AI</b>	<b>-1.1</b>	<b>0.2</b>	<b>-1.2</b>	<b>-9.2</b>	<b>-2.4</b>	<b>0.7</b>	<b>-0.7</b>	<b>-8.7</b>	<b>-0.8</b>
Standard deviation (all AI)	3.1	3.1	4.0	15.3	9.5	2.8	3.8	15.3	6.9

In the table above it is assumed that for option 1 all activities were selected, not to prejudice which activities Parties will elect. For this reason, results for option 1 equal those for option 2.

### 4 – Conclusions

Although different options produce significant differences for individual Parties, the overall contribution of LULUCF to 1990 GHG emissions without LULUCF appears rather limited for option 0 and 3 (Tab. 5) and strongly depends on the discount factor used for FM in options 1 and 2. The EU is interested in further assessing which option performs better regarding criteria such as the promotion of environmental integrity, the stimulation of additional action, the ability to deal with extreme natural disturbances and practical implementation.

<sup>2</sup> Possible net emissions from 3.3 were compensated by net removals from FM beyond the level of the cap and up to 9 Mt C/yr for option 0, but not for the other options.

<sup>3</sup> Only the 3.4 activities already selected by Parties for the 1st commitment period were included in option 0.

<sup>4</sup> For illustrative purposes, the full range (0-100%) of discount factors is shown in Table 5 for option 1 and 2. The eventual use of a discount factor will be subject to negotiations.

<sup>5</sup> For options 0, 1 and 2, total net emissions are compared to emissions reported for the KP base yr (including provisions of Article 3.7 when relevant). For option 3, total net emissions are compared to the latest reported 1990 emissions under the Convention.

## ANNEX – ADDITIONAL INFOMATION

Table 6. Net Emissions (+) and Removals (-) from LULUCF (Mt CO<sub>2</sub> eq.) from latest available submissions to UNFCCC (last check 1 July 2008)

Total GHG 1990 without LULUCF		1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Austria	79.2	-14.3	-20.3	-15.2	-19.1	-17.7	-17.1	-12.1	-20.9	-19.1	-23.4	-18.0	-20.7	-17.0	-18.3	-18.5	-18.1	-18.2
Belgium	144.5	-1.4	-1.2	-1.6	-1.5	-1.6	-1.4	-1.3	-1.4	-1.3	-1.2	-1.6	-2.8	-2.3	-1.7	-1.2	-0.4	-1.1
Bulgaria	116.7	-26.3	-29.1	-22.2	-19.3	-19.7	-20.5	-13.6	-18.7	-17.5	-19.0	-19.2	-23.9	-21.7	-15.1	-22.3	-18.4	-18.2
Czech Rep.	194.2	-3.9	-9.3	-11.2	-9.9	-7.6	-7.6	-8.0	-7.0	-7.0	-7.0	-7.4	-7.6	-7.5	-5.8	-6.0	-6.4	-3.4
Denmark	70.3	0.6	-1.7	-1.5	-1.2	-1.6	-1.7	-1.2	-1.2	-2.0	-1.2	1.6	-0.8	-2.0	-2.3	-0.8	-0.6	-1.8
Estonia	41.6	-5.4	-5.1	-6.9	-6.5	-4.3	-4.2	-4.3	-2.4	-2.1	1.9	2.1	0.1	0.5	-1.7	-4.3	-4.4	-3.5
Finland	70.9	-18.4	-32.2	-27.0	-25.1	-18.2	-17.5	-26.8	-20.9	-18.0	-20.1	-20.5	-24.0	-25.4	-25.8	-27.0	-31.5	-33.4
France	566.4	-40.2	-34.5	-39.6	-48.2	-47.8	-47.1	-52.0	-53.7	-54.4	-56.1	-51.4	-56.5	-61.7	-65.0	-65.9	-65.4	-69.9
Germany	1227.7	-28.2	-29.1	-29.8	-30.3	-30.9	-31.2	-31.6	-32.0	-32.3	-32.7	-33.9	-34.7	-34.9	-35.4	-35.8	-36.1	-36.4
Greece	104.6	-3.2	-3.6	-3.0	-3.8	-3.5	-4.4	-4.0	-3.9	-3.5	-4.4	-3.0	-5.3	-5.5	-5.5	-5.4	-5.2	-5.2
Hungary	98.2	-5.9	-6.0	-7.4	-8.1	-9.8	-10.1	-5.9	-5.7	-7.1	-3.2	1.8	-2.3	-4.5	-6.2	-5.3	-7.3	-5.9
Ireland	55.5	0.2	0.4	0.4	0.2	0.1	0.3	0.4	0.3	-0.1	-0.1	0.2	0.0	-0.1	-0.3	-0.2	-0.4	-0.5
Italy	516.9	-79.1	-101.5	-97.6	-82.6	-98.3	-103.5	-106.4	-99.1	-95.8	-103.3	-97.0	-108.7	-113.0	-126.3	-112.6	-113.5	-112.2
Latvia	26.5	-20.7	-21.3	-21.6	-20.8	-19.9	-17.7	-18.9	-16.6	-15.5	-14.6	-14.1	-14.9	-14.1	-13.7	-14.7	-14.5	-17.8
Lithuania	49.4	-11.1	-10.8	-10.8	-9.6	-10.0	-8.2	-8.7	-9.2	-9.6	-9.6	-9.0	-8.8	-8.2	-8.6	-8.9	-9.4	-8.0
Luxemb.	13.2	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3
Netherlands	211.7	2.7	2.6	2.5	2.4	2.4	2.5	2.5	2.7	2.6	2.6	2.7	2.6	2.6	2.6	2.6	2.6	2.6
Poland	453.6	-23.0	-29.3	-28.2	-21.7	-21.5	-20.7	-22.1	-23.7	-23.6	-24.4	-24.2	-23.9	-29.8	-30.8	-34.1	-35.4	-40.5
Portugal	59.1	1.5	0.5	-1.8	-2.3	-3.5	-3.8	-5.3	-5.5	-6.1	-5.6	-6.0	-5.7	-6.1	6.4	-3.8	-3.0	-4.2
Romania	247.7	-35.8	-37.3	-38.1	-39.4	-40.0	-39.3	-38.3	-38.7	-40.8	-39.5	-38.3	-39.3	-36.8	-36.5	-35.8	-37.5	-37.5
Slovakia	73.7	-2.4	-3.5	-4.1	-4.3	-3.3	-2.7	-2.4	-1.4	-1.9	-1.6	-2.4	-5.2	-5.2	-4.8	-4.2	-0.8	-3.0
Slovenia	18.6	-3.2	-3.9	-3.9	-4.4	-4.4	-4.9	-4.8	-4.3	-4.7	-5.1	-5.2	-5.3	-5.5	-5.3	-5.6	-5.4	-4.7
Spain	287.7	-26.9	-26.9	-27.0	-27.0	-27.0	-28.1	-29.1	-29.8	-30.7	-31.3	-31.9	-32.5	-32.6	-32.8	-33.0	-33.1	-33.0
Sweden <sup>6</sup>	72.0	-3.5	-16.3	-8.4	-14.7	-27.0	-28.2	-32.9	-31.3	-22.9	-17.2	-32.7	-26.7	-26.8	-22.3	-5.4	-3.9	-3.9
UK	772.0	2.9	2.8	2.2	1.1	0.9	1.2	0.9	0.6	0.0	-0.3	-0.4	-0.5	-1.1	-1.1	-1.9	-2.0	-2.0
<b>EU</b>	<b>5571.9</b>	<b>-345.6</b>	<b>-416.8</b>	<b>-402.1</b>	<b>-396.3</b>	<b>-415.5</b>	<b>-416.2</b>	<b>-426.1</b>	<b>-424.1</b>	<b>-413.5</b>	<b>-416.8</b>	<b>-408.2</b>	<b>-447.7</b>	<b>-458.9</b>	<b>-456.9</b>	<b>-450.4</b>	<b>-450.4</b>	
Australia	416.2	99.7	76.0	55.6	41.0	40.7	29.7	25.5	22.5	30.2	24.3	29.7	27.0	33.1	10.8	16.0	25.3	13.8
Belarus	127.4	-22.0	-24.1	-23.2	-24.6	-26.3	-26.7	-26.5	-25.0	-25.7	-26.9	-27.2	-27.2	-25.8	-24.1	-23.7	-24.9	-26.0
Canada	592.3	-106.5	-82.9	-131.4	-49.9	-64.8	163.5	-62.2	-105.2	109.8	-14.3	-97.7	-88.2	50.7	11.5	41.2	-8.4	31.3
Croatia	32.5	-4.2	-8.7	-9.3	-8.0	-8.7	-9.2	-9.5	-8.2	-6.8	-8.2	-5.3	-8.2	-8.2	-6.3	-7.9	-7.7	-7.5
Iceland	3.4	1.5	1.5	1.5	1.4	1.4	1.4	1.4	1.4	1.3	1.3	1.3	1.3	1.2	1.2	1.2	1.2	1.1
Japan	1272.1	-91.8	-90.7	-89.8	-90.1	-89.9	-93.3	-93.2	-93.1	-92.6	-92.5	-92.6	-92.4	-102.5	-102.5	-102.2	-95.9	-91.5
Liechtenst.	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Monaco	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
New Zeal.	61.9	-20.5	-18.6	-16.6	-17.0	-16.5	-15.9	-16.6	-17.7	-19.7	-19.6	-20.0	-20.1	-20.7	-20.6	-24.2	-23.7	-22.7
Norway	49.7	-13.7	-12.9	-12.5	-12.8	-12.2	-13.1	-12.4	-12.8	-12.7	-16.3	-23.4	-26.0	-30.9	-31.7	-31.1	-34.5	-27.8
Russ. Fed.	3326.4	180.0	20.7	125.7	-110.7	-178.5	-156.0	-144.6	-49.3	91.1	-186.5	347.7	279.4	-192.7	-379.6	-217.8	159.2	287.8
Switzerland	52.8	-2.6	0.4	-0.2	-4.3	-4.4	-3.8	-2.9	-3.2	-1.6	-5.7	0.8	-1.2	-1.2	1.5	-1.4	-0.9	-2.2
Turkey	170.1	-44.1	-58.1	-59.4	-59.0	-60.0	-60.7	-61.0	-63.0	-64.1	-65.1	-65.3	-67.2	-66.2	-67.6	-68.5	-68.2	
Ukraine	922.0	-66.9	-73.1	-70.2	-62.1	-69.6	-60.3	-60.9	-48.6	-52.4	-59.1	-50.9	-42.5	-40.1	-49.0	-35.8	-29.5	-32.6
US	6135.2	-724.6	-755.5	-753.9	-722.1	-774.1	-761.7	-745.9	-785.4	-751.5	-702.0	-643.6	-730.2	-798.4	-841.2	-856.6	-855.4	-846.8
<b>Other AI</b>	<b>13162.3</b>	<b>-815.7</b>	<b>-1026.2</b>	<b>-983.9</b>	<b>-1118.2</b>	<b>-1262.9</b>	<b>-1006.0</b>	<b>-1208.8</b>	<b>-1187.7</b>	<b>-794.9</b>	<b>-1170.4</b>	<b>-646.4</b>	<b>-795.5</b>	<b>-1201.6</b>	<b>-1497.6</b>	<b>-1310.8</b>	<b>-963.3</b>	
<b>Total AI</b>	<b>18734.2</b>	<b>-1161.3</b>	<b>-1443.1</b>	<b>-1386.0</b>	<b>-1514.5</b>	<b>-1678.4</b>	<b>-1422.2</b>	<b>-1634.9</b>	<b>-1611.7</b>	<b>-1208.4</b>	<b>-1587.3</b>	<b>-1054.7</b>	<b>-1243.1</b>	<b>-1660.5</b>	<b>-1954.4</b>	<b>-1761.2</b>	<b>-1413.7</b>	

<sup>6</sup> numbers of the 2007 submission are shown (numbers of the latest submission are under revision)

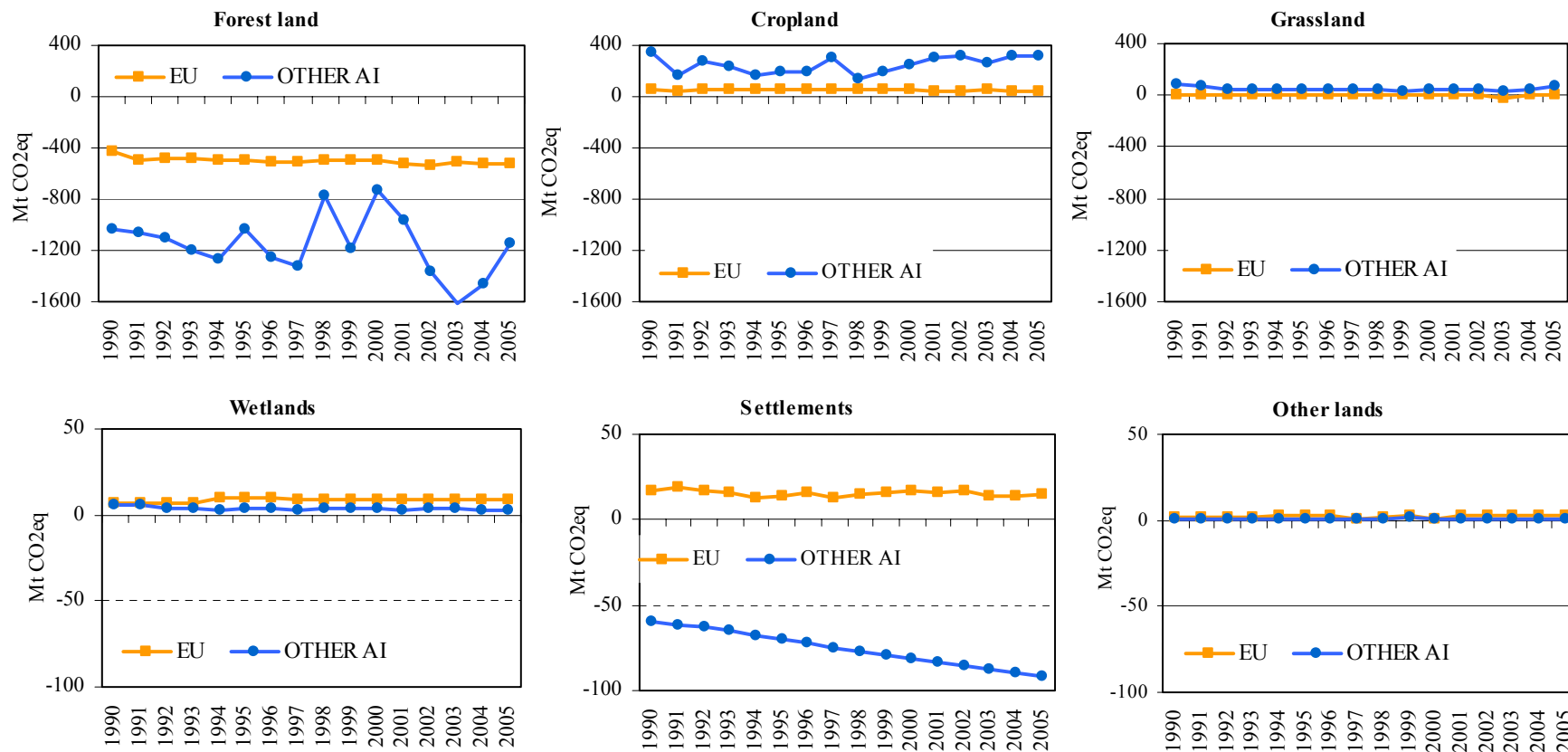


Figure 2. Net emissions (+) and removals (-) from the LULUCF sector: time series by land use category.

Table 7. Coverage of emissions (E) and removals (R) for the various carbon pools in the latest reported year for the most important categories.

Number of Destines	Reporting category																							
	Forest land								Cropland								Grassland							
	5.A.1. F-F				5.A.2. L-L				5.B.1. C-C				5.B.2. L-C				5.C.1. G-G				5.C.2. L-G			
B	Dom	Soil min	Soil org	B	Dom	Soil min	Soil org	B	Dom	Soil min	Soil org	B	Dom	Soil min	Soil org	B	Dom	Soil min	Soil org	B	Dom	Soil min	Soil org	
Removals	35	12	10	1	25	7	11	1	15	0	9	0	4	0	2	0	4	0	3	0	5	2	13	0
Emissions	1	5	0	6	1	3	2	2	4	3	8	13	9	6	13	2	0	1	7	10	10	5	1	4
Total reported	36	17	10	7	26	10	13	3	19	3	17	13	13	6	15	2	4	1	10	10	15	7	14	4

**Table 8.** Methods and assumptions used for estimating net emissions under the different options.

ACTIVITY	OPTION	our estimate comes from:
3.3 D (deforestation)	0, 1, 2	I) the value reported in CRF table 5, <i>or</i> II) the sum of emissions reported under the subcategories "Forest converted to..." + emissions from UNFCCC reporting tables 5(i)-5(v) when relevant. It is assumed that all emissions reported under I) or II) arise from deforestation events occurred after 1990.
3.3 AR (afforestation/ reforestation)	0, 1, 2	The value reported in CRF table 5A2 (L c FL), assuming that all the reported forest expansion may be considered as "human induced". We took into account the time series used by the Parties because, when the time series of AR started before 1990, the removals in the accounting period (e.g. 2001-2005) are affected also by plantations made before 1990. Although it is impossible to disentangle the effect of these plantations in the absence of additional country-specific data, we made the following correction to obtain an approximate estimate "since 1990" when the time series started before 1990: (value of removals in accounting period) / (length of transition period, typically 20 yrs) x (numbers of years between 1990 and the selected accounting period, e.g. (average 2001-2005) - 1989 = 14).
3.4 FM (forest management)	0	CURRENT RULES: if FM was elected, we considered the value of the CAP under the KP, assuming that all Parties will reach this CAP (very likely in most cases). If a Party has net removals from FM beyond the level of the cap, it was allowed to offset eventual net emissions under Art 3.3 up to 9 Mt C/yr.
We assumed that "managed forest" (UNFCCC) = "forest"	1, 2	DISCOUNT: [emissions/removals from FL-FL] x [discount factor of 85%].
3.4 CM (cropland management)	0, 1, 2	NET-NET: [net emissions of "CL" in accounting period] - [net emissions from "FL c CL" since 1990, including emissions from 5(i)-5(v) when relevant] - [net emissions of "CL" in reference period]
3.4 GM (grassland management)	0, 1, 2	NET-NET: [net emissions of "GL" in accounting period]- [net emissions from "FL c GL" since 1990 including emissions from 5(i)-5(v) when relevant] - [net emissions of "GL" in reference period]
3.4 RV (revegetation)		NO estimate is provided: we considered not possible derive RV from UNFCCC reporting
UNFCCC land use categories	3	NET-NET: [net emissions of all land use categories in accounting period]- [net emissions of all land use categories in reference period]

Unless specified in the Table above, we could not take into account most of the specific rules for KP reporting and accounting (Decision 16/CMP.1)<sup>7</sup>.

The results illustrated in Table 5 use the 2001-2005 period as "*accounting period*" and the year 1990 *or* the 1990-1999 period "*reference period*", and were calculated as follow:

- For options 0, 1 and 2: [net emissions in KP activities (estimated and accounted as described in Table 8)] / [emissions reported for the KP base yr, including provisions of Article 3.7 when relevant] x 100
- For option 3: [whole LULUCF net emissions reported in the latest available submission under the Convention (accounted as net-net as described in Table 8)] / [1990 emissions reported under the Convention, excluding LULUCF] x 100

Given the assumptions and the methodological limits of this analysis - i.e. only historical data were used, the high yr-to-yr variability of the LULUCF sector, the incompleteness of reporting from several Parties, the continuous recalculations made by Parties, the uncertainties of the estimates, the likely improvements that will occur in coming years in the view of KP reporting, the difficulty to derive KP activities from UNFCCC land use categories in the absence of additional country-specific information -, estimates for options 0, 1 and 2 presented in Table 5 should be considered with caution.

<sup>7</sup> For example, in the absence of the appropriate information, we could not consider the effect of priorities in land classification (e.g., land under art. 3.3 has precedence over art 3.4, D has precedence over AR), nor the fact that 'debits resulting from harvesting in the first CP following AR since 1990 shall not be greater than credits accounted for on that unit of land'.