Emissions and Removals of Greenhouse Gases from Land Use, Land Use Change and Forestry (LULUCF) for England, Scotland, Wales and Northern Ireland: 1990-2010

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Executive Summary

This report presents a summary of the net emissions and removals of greenhouse gases for 1990-2010 by the Land Use, Land Use Change and Forestry sector for each of the Devolved Administrations (England, Scotland, Wales and Northern Ireland). Supporting data is available at http://naei.defra.gov.uk/report_link.php?report_id=692. A full report for the UK is available in the 1990-2010 UK Greenhouse Gas Inventory Report, available on the National Atmospheric Emissions Inventory website http://naei.defra.gov.uk/.

The LULUCF sector in England was a net source of GHG emissions in 2010 (1.642 Mt CO_2e). The size of this source has diminished since 1990.

The LULUCF sector in Scotland was a net sink of GHG emissions in 2010 (-5.459 Mt CO_2e). This sink increased steadily from 1990 to 2009 but shrank slightly in 2010.

The LULUCF sector in Wales was a small net sink of GHG emissions in 2010 (-0.042 Mt CO_2e). Net emissions/removals have fluctuated between source and sink since 1990.

The LULUCF sector in Northern Ireland was a small net source in 2010 (0.105 Mt CO_2e) but was a small sink between 1990 and 2005.

Small changes between this and the 1990-2009 inventory are due to the inclusion of new activity data and some minor revisions in methods.

Introduction

The Land Use, Land Use Change and Forestry (LULUCF) sector includes carbon stock changes, emissions of greenhouse gases (carbon dioxide (CO_2), methane (CH_4) and nitrous oxide (N_2O)) by sources and removals of CO_2 by sinks from land use, land use change and forestry activities. Removals of CO_2 are conventionally presented as negative quantities. Total greenhouse gas emissions are described as carbon dioxide equivalents (CO_2e), using Global Warming Potentials (GWP) of 21 for CH_4 and 310 for N_2O (as used in the inventories submitted to the UNFCCC).

Detailed information on the data and methods used in the LULUCF inventory is available in the 1990-2010 UK Greenhouse Gas Inventory Report, available on the National Atmospheric Emissions Inventory website http://naei.defra.gov.uk/. Chapter 7 and Annex 3.7 contain information on the LULUCF sector, and Chapter 11 contains additional information on the reporting of LULUCF activities for the Kyoto Protocol. Additional information on LULUCF and KP-LULUCF inventory reporting has been made available at http://ecosystemghg.ceh.ac.uk/.

The current LULUCF inventory methods use a combination of top-down and bottom-up approaches, based on activity data for each of the Devolved Administrations and the UK as a whole. As a result of this approach, estimates of emissions and removals from LULUCF activities are automatically produced at the DA and UK scale.

Net emissions and removals in greenhouse gases are summarised for each country and the reasons for differences from the previous inventory are provided. Summary tables for 1990, 1995, 2009 and 2010 are given in for each country in Appendix 1, and for LULUCF emissions/removals under the Kyoto Protocol in Appendix 2. A full set of GHG emissions/removals and areas of land use change for each country are published with this report at http://naei.defra.gov.uk/report_link.php?report_id=692.

The 1990-2010 LULUCF sector inventory

There was internal restructuring of the Cropland, Grassland and Settlements categories in the 1990-2010 inventory so that the IPCC-default 20 year transition period is now used for land use change (before reporting in the Land remaining Land sub-categories). Therefore the time series of emissions has changed within sub-categories (e.g. 5B.1 Land converted to Cropland and 5B.2 Cropland remaining Cropland) but overall emissions from each land category (e.g. 5B Cropland) have not changed.

There are small differences in net emissions from the 2009 inventory due to the inclusion of new activity data and other minor revisions. These are described separately for each country.

There are some discrepancies in the areas of Cropland and Grassland produced by the land use matrix method and those reported in the annual agricultural surveys. These are thought to arise because some cropland (and pasture grassland) is in multi-year rotations and these areas have therefore undergone multiple land use transitions between 1950 and the current inventory year (with the area changes being cumulatively reported under Cropland). The soil carbon fluxes from cropland-grassland and grassland-cropland transitions will balance out at the sector level. However, the restructured area data indicates that the majority of cropland in Scotland, Wales and Northern Ireland is under rotational management and therefore the accumulated area of land use change

exceeds the area of cropland reported in national statistics. Work will be undertaken before the next inventory submission to resolve this issue.

Other planned improvements are discussed in the UK greenhouse Gas Inventory Report. A new three-year inventory development programme for the LULUCF sector will commence in the summer of 2012.

LULUCF Emissions and Removals in England

England is a net source of greenhouse gases from LULUCF activities although the size of this source has diminished by 73% between 1990 and 2010 from 5.980 to 1.642 Mt CO_2e. Net emissions of CO_2 from the Cropland and Settlement categories are diminishing over time, while net removals from the Grassland category are increasing (Figure 1). Net removals from the Forest Land category increased to 2004 but are now diminishing. The Wetlands and Harvested Wood Products categories make small contributions to the total.

Net greenhouse gas emissions in the 1990-2009 inventory were 1% lower in 1990 at 5.932 Mt CO_2e and 11% higher in 2009 at 1.710 Mt CO_2e compared with the 1990-2010 inventory (Figure 2). These differences were due to improvements in activity data (Table 1).

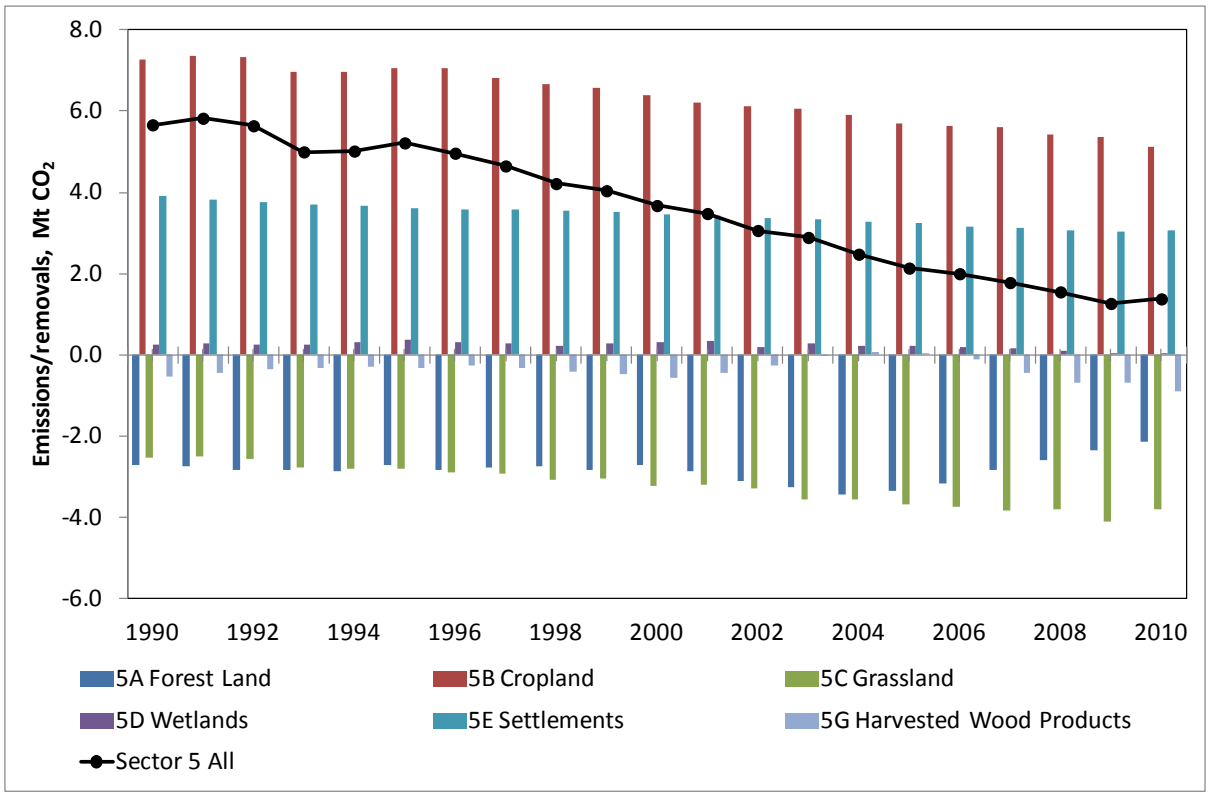

Figure 1: Net CO_2 emissions and removals by category for the LULUCF sector in England 1990-2010

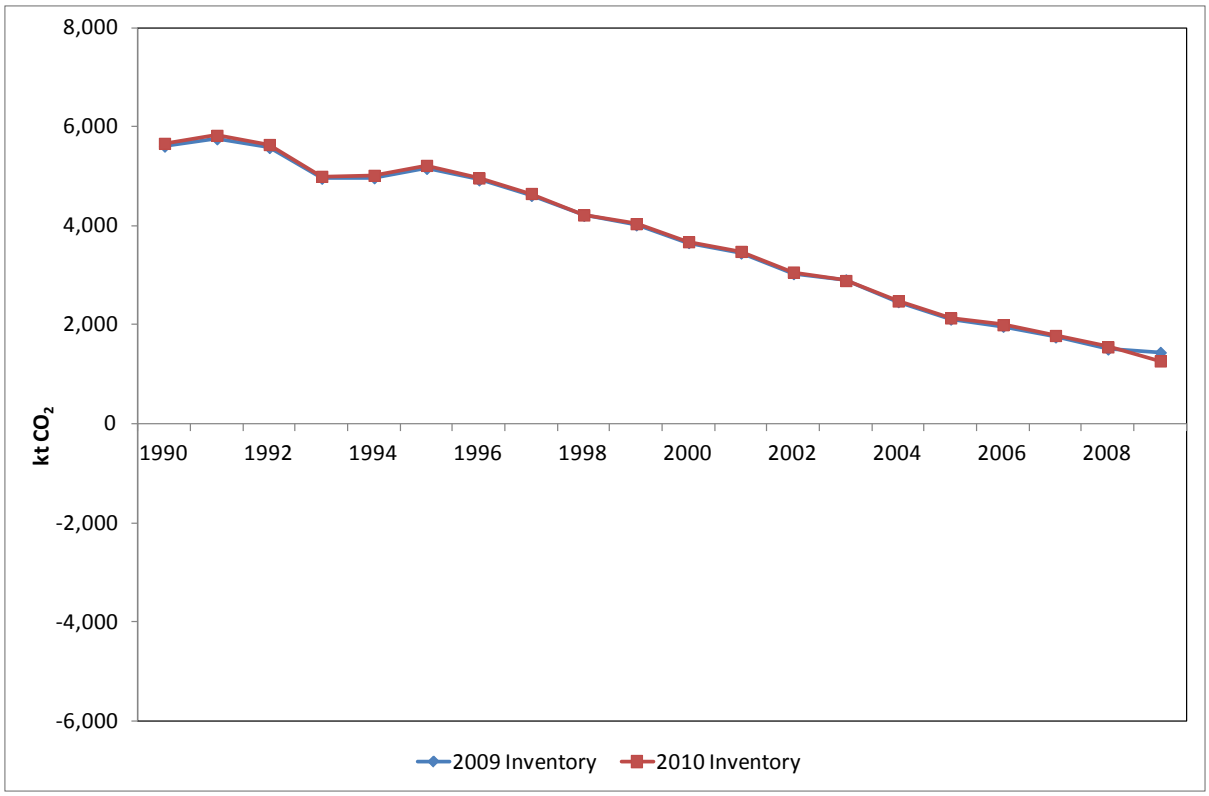

Figure 2: Changes in net CO_2 emissions/removals 1990-2009 between the 2009 and 2010 inventories for England

Table 1: Reasons for changes- England

IPCC Sector	Method and data revisions	Difference between 2010 and 2009 inventory estimates, kt CO_2e	
		1990	2009
5A Forest Land	Minor adjustments taking account of deforestation losses	0.00	0.56
5B Cropland	Adjustment of GB liming emissions due to increased precision in agricultural data and new data source for Northern Ireland. Minor adjustments for updated activity data for Forest Land converted to Cropland.	29.67	14.09
5C Grassland	Adjustment of GB liming emissions due to increased precision in agricultural data and new data source for Northern Ireland. New activity data for Forest Land converted to Grassland.	6.62	-258.91
5D Wetlands	Inclusion of additional peat extraction sites. Updated activity data for horticultural peat sales (2009).	34.42	-92.78
5E Settlements	Revised activity data for Forest Land converted to Settlements	-21.16	19.38
5G Harvested Wood Products	Revised deforestation activity data affected the pool of harvested wood products.	-1.34	135.72

LULUCF Emissions and Removals in Scotland

Scotland is a net sink of greenhouse gases from LULUCF activities and the size of this sink has increased by 161% between 1990 and 2010 from -2.092 to -5.459 Mt CO_2e. There was a slight reduction in sink size between 2009 and 2010, due to long-term forest management (the extensive conifer plantations established in the mid-20th century are now reaching felling age, with reduced removals from forest and increased carbon stocks in harvested wood products). Net emissions/removals in Scotland are dominated by the large Forest Land sink (-7.580 Mt CO_2e in 2010) and Cropland source (5.321 Mt CO_2e in 2010) (Figure 3).

The net greenhouse gas sink in the 1990-2009 inventory was 1% larger in 1990 at -2.104 Mt CO_2e and 2% larger in 2009 at -5.677 Mt CO_2e compared with the 1990-2010 inventory (Figure 3). These differences were due to improvements in activity data (Table 2).

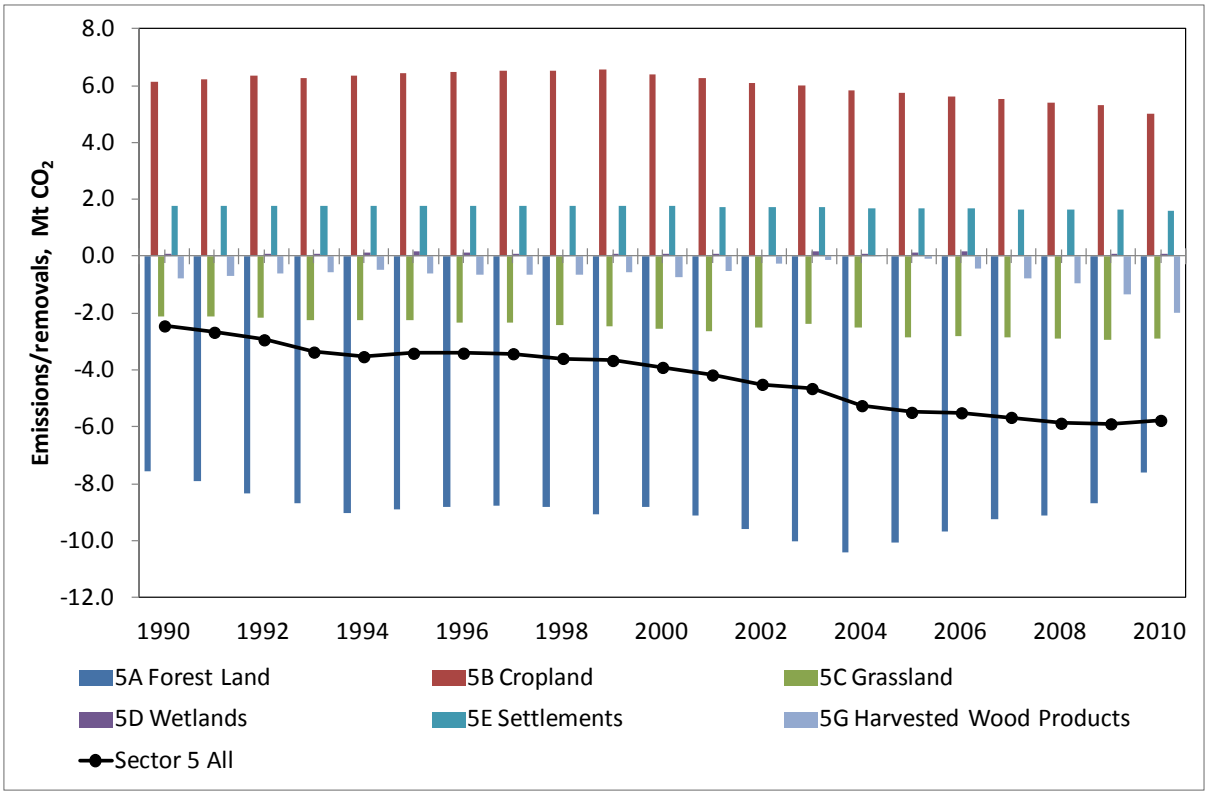

Figure 3: Net CO_2 emissions and removals by category for the LULUCF sector in Scotland 1990-2010

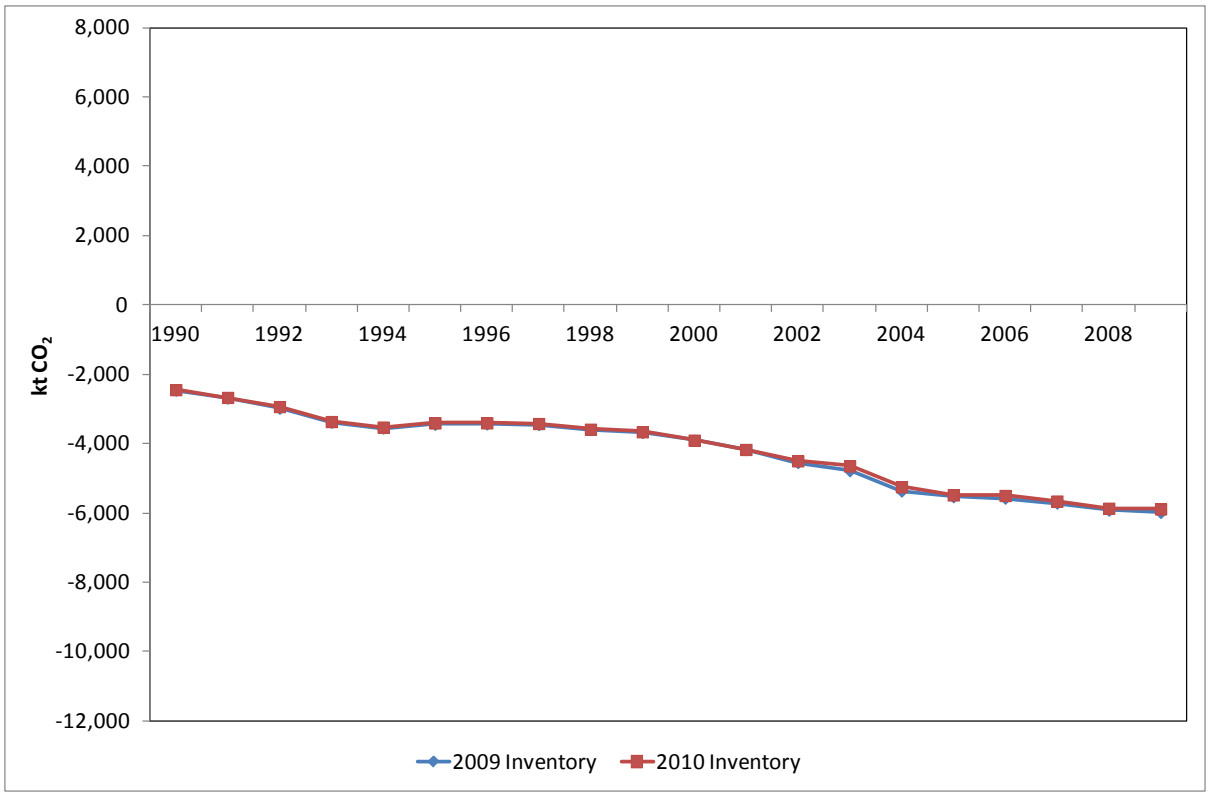

Figure 4: Changes in net CO_2 emissions/removals 1990-2009 between the 2009 and 2010 inventories in Scotland

Table 2: Reasons for changes- Scotland

IPCC Sector	Method and data revisions	Difference between 2010 and 2009 inventory estimates, kt CO_2e	
		1990	2009
5A Forest Land	Minor adjustments taking account of deforestation losses	0.00	20.94
5B Cropland	Adjustment of GB liming emissions due to increased precision in agricultural data and new data source for Northern Ireland.	8.44	9.89
5C Grassland	Adjustment of GB liming emissions due to increased precision in agricultural data and new data source for Northern Ireland. New activity data and method for Forest Land converted to Grassland.	12.18	-24.83
5D Wetlands	Inclusion of additional peat extraction sites. Updated activity data for horticultural peat sales (2009).	9.03	41.87
5E Settlements	Revised activity data and method for Forest Land converted to Settlements	-6.57	78.59
5G Harvested Wood Products	Revised deforestation activity data affected the pool of harvested wood products.	-11.01	-23.16

LULUCF Emissions and Removals in Wales

Wales is generally a small net sink of greenhouse gases from LULUCF activities (Figure 5): it was a small net source between 1996 and 2000. The size of this sink has changed little between 1990 and 2010: from -0.034 to -0.042 Mt CO_2e. The Cropland net source (1.029 Mt CO_2e in 2010) is the largest contributor to the LULUCF sector in Wales, as the size of the Forest Land sink has diminished in recent years.

The net greenhouse gas sink in the 1990-2009 inventory was 17% larger in 1990 at -0.041 Mt CO_2e and 17% larger in 2009 at -0.25 Mt CO_2e compared with the 1990-2010 inventory (Figure 6). These differences were due to improvements in deforestation activity data (Table 3).

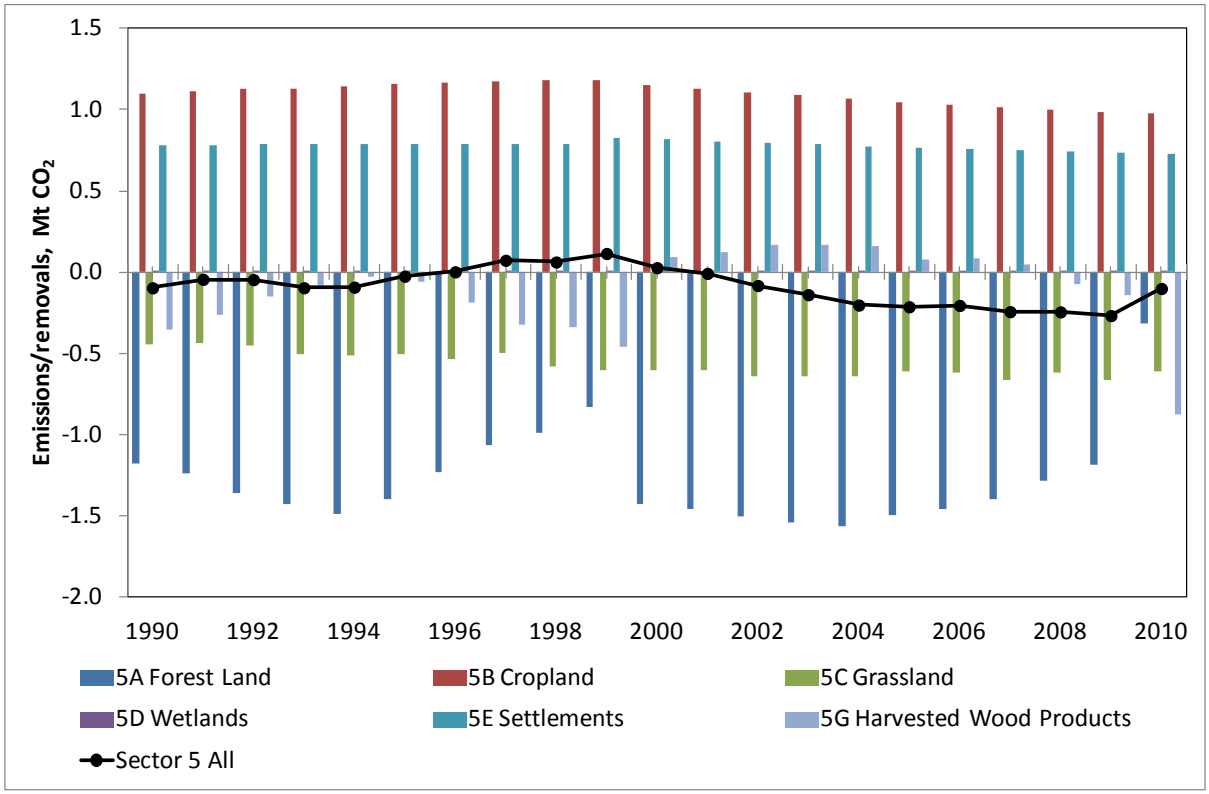

Figure 5: Net CO_2 emissions and removals by category for the LULUCF sector in Wales 1990-2010

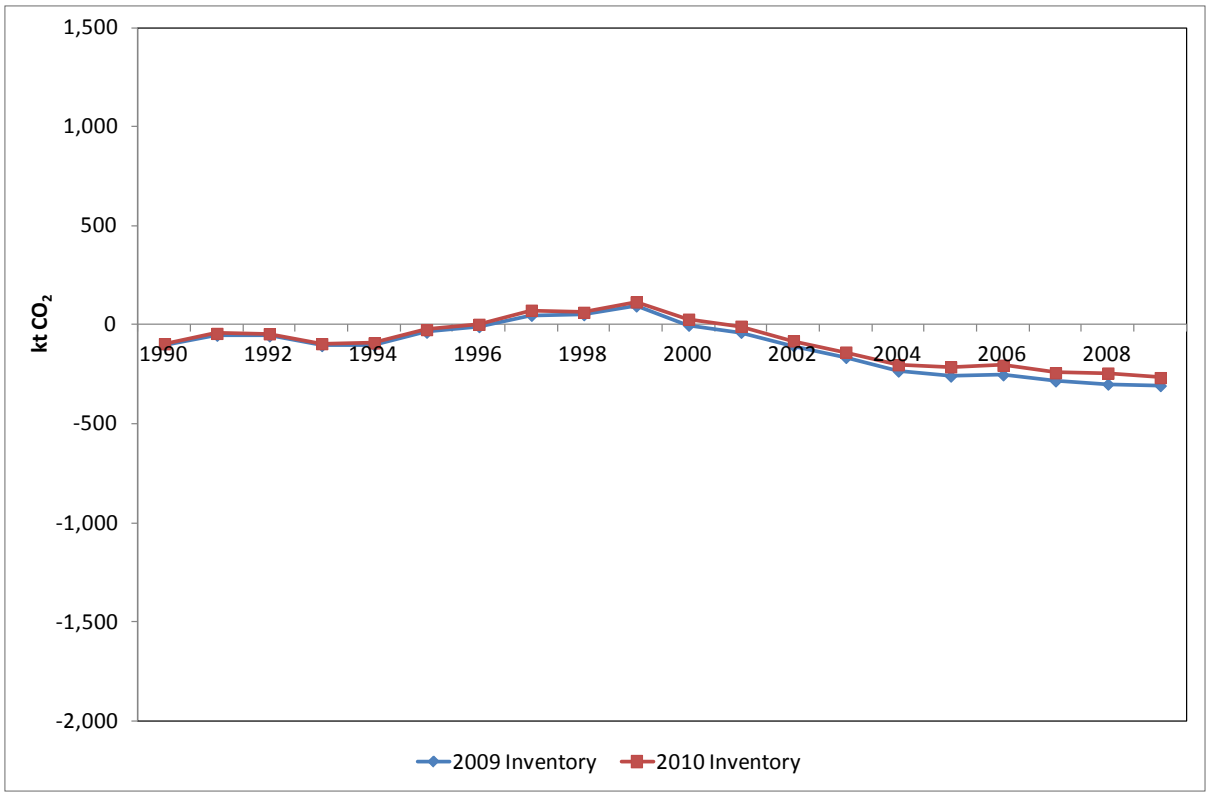

Figure 6: Changes in net CO_2 emissions/removals 1990-2009 between the 2009 and 2010 inventories in Wales

Table 3: Reasons for changes - Wales

IPCC Sector	Method and data revisions	Difference between 2010 and 2009 inventory estimates, kt CO_2e	
		1990	2009
5A Forest Land	Minor adjustments taking account of deforestation losses	0.00	7.89
5B Cropland	Adjustment of GB liming emissions due to increased precision in agricultural data and new data source for Northern Ireland.	0.69	2.13
5C Grassland	Adjustment of GB liming emissions due to increased precision in agricultural data and new data source for Northern Ireland. New activity data and method for Forest Land converted to Grassland.	10.23	-13.80
5D Wetlands	No change	0.00	0.00
5E Settlements	Revised activity data and method for Forest Land converted to Settlements	5.80	54.88
5G Harvested Wood Products	Revised deforestation activity data affected the pool of harvested wood products.	-9.83	-9.49

LULUCF Emissions and Removals in Northern Ireland

Northern Ireland was a small net source of greenhouse gases from LULUCF activities in 1990 of 0.055 Mt CO_2e, becoming a small net sink between 1992 and 2004 (reaching -0.155 Mt CO_2e in 1998), and has now returned to being a small net source (Figure 7) of 0.105 Mt CO_2e in 2010. The Cropland net source (1.013 Mt CO_2e in 2010) and the Grassland net sink (-1.216 Mt CO_2e in 2010) are the largest contributors to the LULUCF sector in Northern Ireland.

The net greenhouse gas source in the 1990-2009 inventory was 40% higher in 1990 at 0.091 Mt CO_2e and 37% lower in 2009 at 0.100 Mt CO_2e compared with the 1990-2010 inventory (Figure 8). These differences were due to improvements in activity data (Table 4).

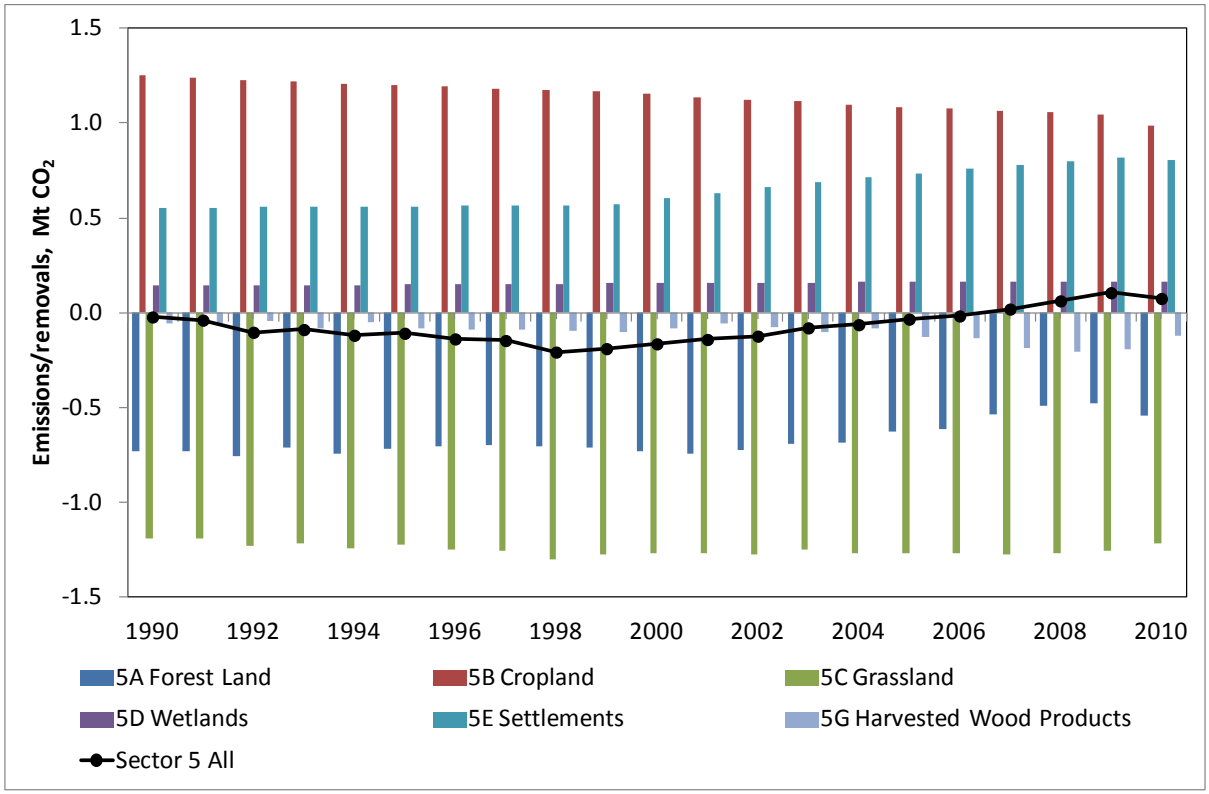

Figure 7: Net CO_2 emissions and removals by category for the LULUCF sector in Northern Ireland 1990-2010

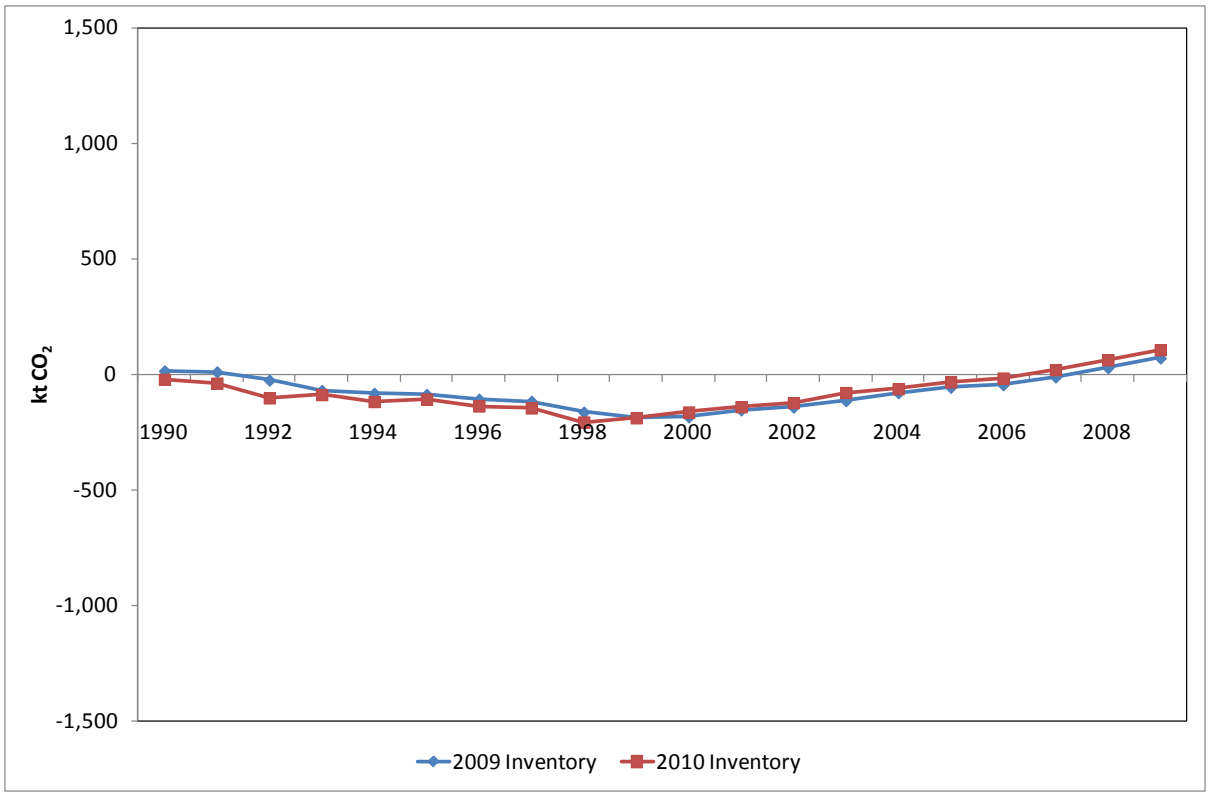

Figure 8: Changes in net CO_2 emissions/removals 1990-2009 between the 2009 and 2010 inventories in Northern Ireland

Table 4: Reasons for changes – Northern Ireland

IPCC Sector	Method and data revisions	Difference between 2010 and 2009 inventory estimates, kt CO_2e	
		1990	2009
5A Forest Land	Minor adjustments taking account of deforestation losses	0.00	4.17
5B Cropland	Adjustment of liming emissions using new data source (Northern Ireland Statistical Review 2011).	-1.51	-1.08
5C Grassland	Adjustment of liming emissions using new data source (Northern Ireland Statistical Review 2011). Emissions from Forest Land converted to Grassland reported for first time.	-28.70	6.25
5D Wetlands	Inclusion of additional peat extraction sites. Updated activity data for horticultural peat sales (2009).	16.01	31.92
5E Settlements	Emissions from Forest Land converted to Settlements reported for first time.	-13.68	12.22
5G Harvested Wood Products	Reporting of deforestation emissions for the first time affected the pool of harvested wood products.	-8.24	-16.21

Appendix 1: LULUCF Summary Tables

England 1990

Greenhouse gas source and sink categories	CO_2	CH_4	N_2O	CO_2e
	kt			
A. Forest Land	-2716.33	0.07	0.00	-2714.34
B. Cropland	7260.78	0.01	0.99	7567.16
C. Grassland	-2522.58	0.10	0.00	-2520.19
D. Wetlands	266.88			266.88
E. Settlements	3898.90	0.32	0.00	3906.30
F. Other Land				
G. Other activities (Harvested Wood Products)	-525.44			-525.44
Total	5662.22	0.50	0.99	5980.38

England 1995

Greenhouse gas source and sink categories	CO_2	CH_4	N_2O	CO_2e
	kt			
A. Forest Land	-2699.45	0.45	0.01	-2688.25
B. Cropland	7048.60	0.01	0.98	7351.72
C. Grassland	-2797.06	0.10	0.00	-2794.67
D. Wetlands	374.88			374.88
E. Settlements	3610.05	0.21	0.00	3614.93
F. Other Land				
G. Other activities (Harvested Wood Products)	-319.74			-319.74
Total	5217.29	0.78	0.98	5538.87

England 2009

Greenhouse gas source and sink categories	CO_2	CH_4	N_2O	CO_2e
	kt			
A. Forest Land	-2357.42	0.19	0.00	-2352.78
B. Cropland	5364.64	0.01	0.80	5613.66
C. Grassland	-4091.28	0.12	0.00	-4088.45
D. Wetlands	3.50			3.50
E. Settlements	3038.08	0.11	0.00	3040.69
F. Other Land				
G. Other activities (Harvested Wood Products)	-688.46			-688.46
Total	1269.05	0.43	0.81	1528.15

England 2010

Greenhouse gas source and sink categories	CO_2	CH_4	N_2O	CO_2e
	kt			
A. Forest Land	-2122.33	0.17	0.00	-2118.03
B. Cropland	5130.69	0.02	0.79	5375.97
C. Grassland	-3807.84	0.39	0.00	-3798.78
D. Wetlands	3.50			3.50
E. Settlements	3077.11	0.12	0.00	3079.78
F. Other Land				
G. Other activities (Harvested Wood Products)	-900.73			-900.73
Total	1380.40	0.70	0.80	1641.70

Scotland 1990

Greenhouse gas source and sink categories	CO_2	CH_4	N_2O	CO_2e
	kt			
A. Forest Land	-7534.86	0.05	0.02	-7528.91
B. Cropland	6121.39		1.11	6465.19
C. Grassland	-2106.27	0.06	0.00	-2104.86
D. Wetlands	72.09		0.00	72.60
E. Settlements	1777.76	0.10	0.00	1780.07
F. Other Land				
G. Other activities (Harvested Wood Products)	-775.67			-775.67
Total	-2445.56	0.22	1.13	-2091.57

Scotland 1995

Greenhouse gas source and sink categories	CO_2	CH_4	N_2O	CO_2e
	kt			
A. Forest Land	-8873.56	0.39	0.01	-8862.19
B. Cropland	6429.34		1.17	6790.51
C. Grassland	-2258.51	0.06	0.00	-2257.10
D. Wetlands	157.02		0.00	157.39
E. Settlements	1758.99	0.10	0.00	1761.30
F. Other Land				
G. Other activities (Harvested Wood Products)	-618.75			-618.75
Total	-3405.47	0.55	1.18	-3028.84

Scotland 2009

Greenhouse gas source and sink categories	CO_2	CH_4	N_2O	CO_2e
	kt			
A. Forest Land	-8665.73	0.20	0.00	-8660.51
B. Cropland	5321.27		0.97	5621.97
C. Grassland	-2925.28	0.14	0.00	-2922.11
D. Wetlands	93.37		0.00	93.57
E. Settlements	1623.08	0.16	0.00	1626.67
F. Other Land				
G. Other activities (Harvested Wood Products)	-1332.96			-1332.96
Total	-5886.25	0.49	0.98	-5573.37

Scotland 2010

Greenhouse gas source and sink categories	CO_2	CH_4	N_2O	CO_2e
	kt			
A. Forest Land	-7585.11	0.17	0.00	-7580.44
B. Cropland	5025.24		0.95	5320.56
C. Grassland	-2904.68	0.09	0.00	-2902.57
D. Wetlands	93.35		0.00	93.54
E. Settlements	1610.00	0.16	0.00	1613.59
F. Other Land				
G. Other activities (Harvested Wood Products)	-2003.91			-2003.91
Total	-5765.11	0.42	0.96	-5459.23

Wales 1990

Greenhouse gas source and sink categories	CO_2	CH_4	N_2O	CO_2e
	kt			
A. Forest Land	-1174.21	0.02	0.00	-1173.75
B. Cropland	1097.69		0.20	1158.35
C. Grassland	-445.09	0.02	0.00	-444.67
D. Wetlands	0.35			0.35
E. Settlements	781.56	0.04	0.00	782.40
F. Other Land				
G. Other activities (Harvested Wood Products)	-356.33			-356.33
Total	-96.02	0.07	0.20	-33.64

Wales 1995

Greenhouse gas source and sink categories	CO_2	CH_4	N_2O	CO_2e
	kt			
A. Forest Land	-1398.22	0.11	0.00	-1395.58
B. Cropland	1153.87		0.21	1217.71
C. Grassland	-508.05	0.02	0.00	-507.63
D. Wetlands	0.35			0.35
E. Settlements	787.08	0.04	0.00	787.92
F. Other Land				
G. Other activities (Harvested Wood Products)	-59.71			-59.71
Total	-24.68	0.17	0.21	43.08

Wales 2009

Greenhouse gas source and sink categories	CO_2	CH_4	N_2O	CO_2e
	kt			
A. Forest Land	-1186.54	0.05	0.00	-1185.26
B. Cropland	984.52		0.18	1039.75
C. Grassland	-660.92	0.00	0.00	-660.85
D. Wetlands	0.35			0.35
E. Settlements	734.55	0.09	0.00	736.68
F. Other Land				
G. Other activities (Harvested Wood Products)	-139.04			-139.04
Total	-267.07	0.15	0.18	-208.37

Wales 2010

Greenhouse gas source and sink categories	CO_2	CH_4	N_2O	CO_2e
	kt			
A. Forest Land	-316.60	0.05	0.00	-315.50
B. Cropland	974.91		0.18	1029.33
C. Grassland	-611.60	0.04	0.00	-610.56
D. Wetlands	0.35			0.35
E. Settlements	724.65	0.09	0.00	726.77
F. Other Land				
G. Other activities (Harvested Wood Products)	-871.93			-871.93
Total	-100.23	0.18	0.18	-41.54

Northern Ireland 1990

Greenhouse gas source and sink categories	CO_2	CH_4	N_2O	CO_2e
	kt			
A. Forest Land	-729.68	0.06	0.00	-728.21
B. Cropland	1252.19		0.23	1323.04
C. Grassland	-1187.17	0.00	0.00	-1187.10
D. Wetlands	142.39		0.01	145.87
E. Settlements	553.64	0.02	0.00	554.07
F. Other Land				
G. Other activities (Harvested Wood Products)	-53.11			-53.11
Total	-21.74	0.08	0.24	54.56

Northern Ireland 1995

Greenhouse gas source and sink categories	CO_2	CH_4	N_2O	CO_2e
	kt			
A. Forest Land	-718.34	0.01	0.00	-718.09
B. Cropland	1202.48		0.18	1258.29
C. Grassland	-1222.27	0.00	0.00	-1222.20
D. Wetlands	148.84		0.01	151.53
E. Settlements	561.01	0.02	0.00	561.44
F. Other Land				
G. Other activities (Harvested Wood Products)	-79.23			-79.23
Total	-107.51	0.03	0.19	-48.28

Northern Ireland 2009

Greenhouse gas source and sink categories	CO_2	CH_4	N_2O	CO_2e
	kt			
A. Forest Land	-479.56	0.01	0.00	-479.25
B. Cropland	1046.34		0.09	1075.48
C. Grassland	-1255.01	0.03	0.00	-1254.28
D. Wetlands	165.82		0.00	166.12
E. Settlements	820.99	0.03	0.00	821.76
F. Other Land				
G. Other activities (Harvested Wood Products)	-192.43			-192.43
Total	106.15	0.08	0.10	137.40

Northern Ireland 2010

Greenhouse gas source and sink categories	CO_2	CH_4	N_2O	CO_2e
	kt			
A. Forest Land	-544.76		0.00	-544.74
B. Cropland	984.88		0.09	1012.74
C. Grassland	-1216.88	0.03	0.00	-1216.16
D. Wetlands	165.82		0.00	166.12
E. Settlements	804.46	0.03	0.00	805.23
F. Other Land				
G. Other activities (Harvested Wood Products)	-117.80			-117.80
Total	75.72	0.06	0.09	105.39

United Kingdom 1990

Greenhouse gas source and sink categories	CO_2	CH_4	N_2O	CO_2e
	kt			
A. Forest Land	-12155.07	0.20	0.02	-12145.20
B. Cropland	15732.05	0.01	2.52	16513.70
C. Grassland	-6261.11	0.19	0.00	-6256.81
D. Wetlands	481.73		0.01	485.71
E. Settlements	7011.87	0.47	0.00	7022.84
F. Other Land				
G. Other activities (Harvested Wood Products)	-1710.56			-1710.56
Total	3098.91	0.87	2.56	3909.72

United Kingdom 1995

Greenhouse gas source and sink categories	CO_2	CH_4	N_2O	CO_2e
	kt			
A. Forest Land	-13689.57	0.96	0.02	-13664.10
B. Cropland	15834.29	0.01	2.52	16618.20
C. Grassland	-6785.89	0.19	0.00	-6781.59
D. Wetlands	681.10		0.01	684.15
E. Settlements	6717.13	0.37	0.00	6725.59
F. Other Land				
G. Other activities (Harvested Wood Products)	-1077.43			-1077.43
Total	1679.62	1.52	2.56	2504.83

United Kingdom 2009

Greenhouse gas source and sink categories	CO_2	CH_4	N_2O	CO_2e
	kt			
A. Forest Land	-12689.26	0.45	0.01	-12677.80
B. Cropland	12716.77	0.01	2.05	13350.90
C. Grassland	-8932.48	0.29	0.00	-8925.68
D. Wetlands	263.04		0.00	263.54
E. Settlements	6216.70	0.39	0.00	6225.79
F. Other Land				
G. Other activities (Harvested Wood Products)	-2352.89			-2352.89
Total	-4778.12	1.14	2.06	-4116.18

United Kingdom 2010

Greenhouse gas source and sink categories	CO_2	CH_4	N_2O	CO_2e
	kt			
A. Forest Land	-10568.81	0.39	0.01	-10558.70
B. Cropland	12115.71	0.02	2.01	12738.60
C. Grassland	-8541.00	0.56	0.00	-8528.07
D. Wetlands	263.02		0.00	263.52
E. Settlements	6216.22	0.40	0.00	6225.36
F. Other Land				
G. Other activities (Harvested Wood Products)	-3894.37			-3894.37
Total	-4409.22	1.36	2.02	-3753.69

Appendix 2: Kyoto Protocol LULUCF Summary Tables

England

Activity		2008	2009	2010
3.3 Afforestation & Reforestation	Area, kha	82.83	84.85	87.25
	Net CO_2 emissions/removals, kt CO_2	-868.7	-898.4	-923.4
	GHG emissions from biomass burning, kt CO_2e.	19.19	12.67	12.14
	N_2O emissions from N fertilization, kt CO_2e	0.42	0.32	0.28
3.3 Deforestation	Area, kha	14.47	14.82	15.58
	Net CO_2 emissions/removals, kt CO_2	347.91	179.96	284.49
	GHG emissions from biomass burning, kt CO_2e	176.01	60.88	132.55
	N_2O emissions from LUC to cropland, kt CO_2e	0.97	1.05	1.00
	CO_2 emissions from lime application, kt CO_2	0.03	0.04	0.04
3.4 Forest Management	Area, kha	316.47	315.46	315.11
	Net CO_2 emissions/removals, kt CO_2	-1781.18	-1484.52	-1216.12
	GHG emissions from biomass burning, kt CO_2e	54.12	34.44	31.70

Scotland

Activity		2008	2009	2010
3.3 Afforestation & Reforestation	Area, kha	177.25	180.15	184.66
	Net CO_2 emissions/removals, kt CO_2	-1594.48	-1676.94	-1785.73
	GHG emissions from biomass burning, kt CO_2e.	16.29	10.80	9.42
	N_2O emissions from N fertilization, kt CO_2e	0.81	0.61	0.75
3.3 Deforestation	Area, kha	7.03	7.45	7.81
	Net CO_2 emissions/removals, kt CO_2	121.58	131.03	112.62
	GHG emissions from biomass burning, kt CO_2e	68.02	73.73	62.19
	N_2O emissions from LUC to cropland, kt CO_2e	NO	NO	NO
	CO_2 emissions from lime application, kt CO_2	NO	NO	NO
3.4 Forest Management	Area, kha	839.13	838.74	838.31
	Net CO_2 emissions/removals, kt CO_2	-7509.68	-6966.81	-5757.07
	GHG emissions from biomass burning, kt CO_2e	60.83	39.48	33.35

Wales

Activity		2008	2009	2010
3.3 Afforestation & Reforestation	Area, kha	9.20	9.41	9.68
	Net CO_2 emissions/removals, kt CO_2	-93.64	-99.59	-105.16
	GHG emissions from biomass burning, kt CO_2e.	1.28	0.85	0.75
	N_2O emissions from N fertilization, kt CO_2e	0.040	0.04	0.04
3.3 Deforestation	Area, kha	2.62	2.75	2.95
	Net CO_2 emissions/removals, kt CO_2	77.54	48.39	63.87
	GHG emissions from biomass burning, kt CO_2e	43.73	23.91	34.51
	N_2O emissions from LUC to cropland, kt CO_2e	NO	NO	NO
	CO_2 emissions from lime application, kt CO_2	NO	NO	NO
3.4 Forest Management	Area, kha	150.83	150.58	150.44
	Net CO_2 emissions/removals, kt CO_2	-1211.72	-1098.80	-220.11
	GHG emissions from biomass burning, kt CO_2e	19.70	12.74	10.85

Northern Ireland

Activity		2008	2009	2010
3.3 Afforestation & Reforestation	Area, kha	14.58	14.81	15.05
	Net CO_2 emissions/removals, kt CO_2	-142.98	-153.83	-165.19
	GHG emissions from biomass burning, kt CO_2e.	1.35	0.71	NO
	N_2O emissions from N fertilization, kt CO_2e	0.03	0.02	0.02
3.3 Deforestation	Area, kha	1.21	1.31	1.40
	Net CO_2 emissions/removals, kt CO_2	26.42	26.57	26.47
	GHG emissions from biomass burning, kt CO_2e	16.23	16.23	16.23
	N_2O emissions from LUC to cropland, kt CO_2e	NO	NO	NO
	CO_2 emissions from lime application, kt CO_2	NO	NO	NO
3.4 Forest Management	Area, kha	65.18	65.09	65.00
	Net CO_2 emissions/removals, kt CO_2	-345.69	-321.52	-373.20
	GHG emissions from biomass burning, kt CO_2e	4.70	2.42	NO

United Kingdom

Activity		2008	2009	2010
3.3 Afforestation & Reforestation	Area, kha	283.86	289.22	296.64
	Net CO_2 emissions/removals, kt CO_2	-2699.84	-2828.80	-2979.50
	GHG emissions from biomass burning, kt CO_2e.	38.11	25.03	22.30
	N_2O emissions from N fertilization, kt CO_2e	1.29	0.99	1.09
3.3 Deforestation	Area, kha	25.33	26.33	27.74
	Net CO_2 emissions/removals, kt CO_2	573.44	385.95	487.45
	GHG emissions from biomass burning, kt CO_2e	303.99	174.75	245.48
	N_2O emissions from LUC to cropland, kt CO_2e	0.97	1.05	1.00
	CO_2 emissions from lime application, kt CO_2	0.03	0.04	0.04
3.4 Forest Management	Area, kha	1371.60	1369.86	1368.86
	Net CO_2 emissions/removals, kt CO_2	-10848.27	-9871.65	-7566.50
	GHG emissions from biomass burning, kt CO_2e	139.35	89.08	75.90