



An update on the Land-Use Sector GHG Tool

A tool for analysing data on AFOLU emissions

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Outline

1. The “Land Use Sector GHG Tool”
2. Structure of the tool
3. Live demonstration
4. Some exercise /practical examples
5. Distribution to MS
6. Issues

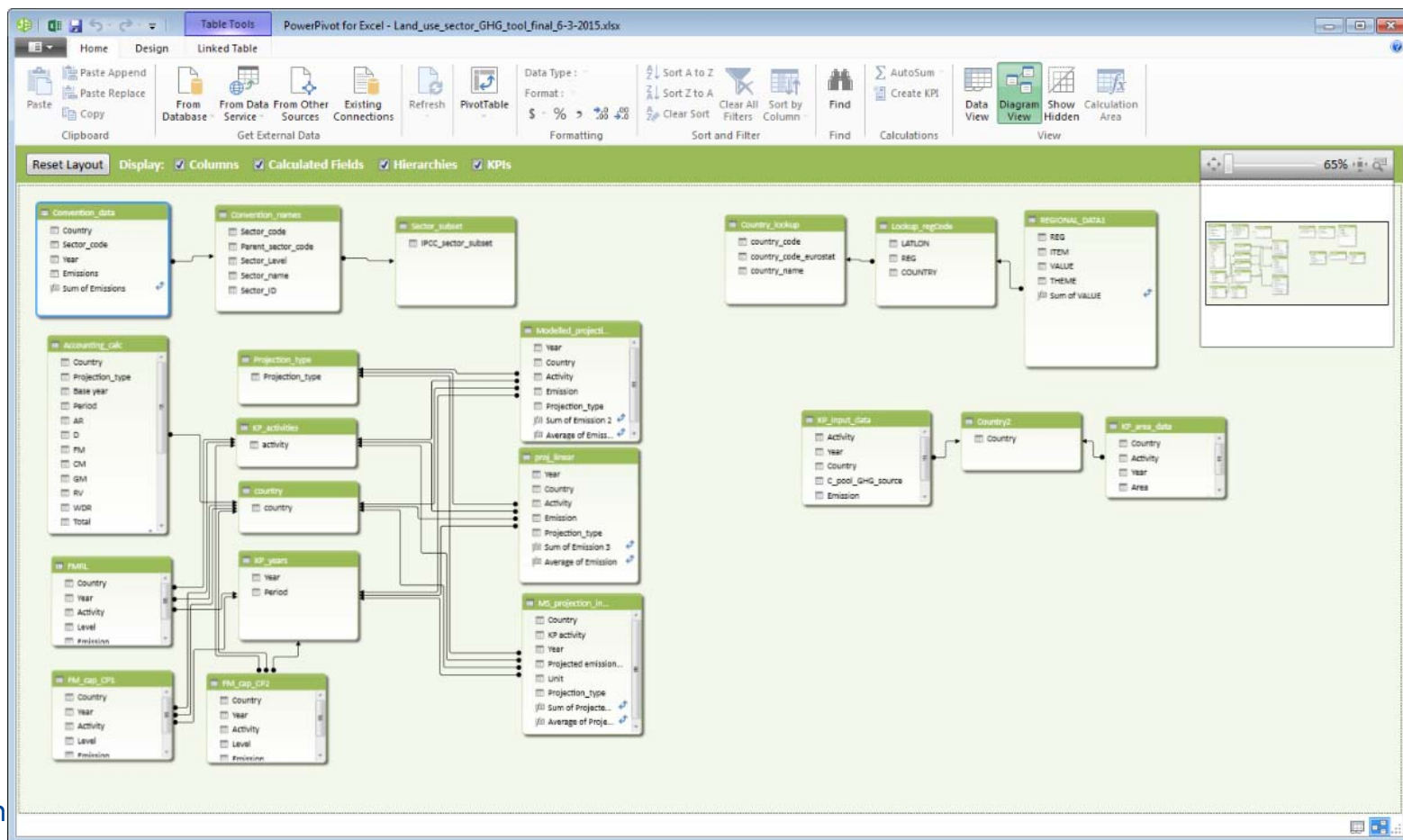


The Land Use Sector GHG Tool

- ✓ Developed for the presentation and analysis of already existing reported data on GHG emissions and removals under UNFCCC and KP.
- ✓ Contains a selection of data for the LULUCF and Agriculture sectors from the GHG Inventories and allows the insertion of MS projection data.
- ✓ Possible uses include:
 - ✓ Comparison of Convention or KP GHG emissions/removals among Member States.
 - ✓ Easy selection and presentation of GHG data for use in reports, websites, etc.
 - ✓ Analysis of MS projections for KP activities and its consequences for accounting.
 - ✓ Check on reported inventory data with graphical check of errors.
- ✓ Focus on user-friendliness.
- ✓ First prototype developed in 2014 by a consortium led by ICF on request of DG CLIMA.
- ✓ Following versions developed by the JRC.

The Data Model

- ✓ The tool is developed using the Power Pivot Excel add-in, which implements functionalities typical of databases within Excel.





System requirements

Full functionalities available with

- ✓ Excel 2013 or later version installed
- ✓ Access to a [SharePoint 2013 server](#)
- ✓ Access to a [Office 365 server](#) (the cloud)

The tool can be accessed with earlier versions of Excel but some functionalities will not be working properly.

Feeding the tool: importing submission data e.g. from the country Dec.529 submission...

TABLE 4(KP-I)B.2. SUPPLEMENTARY BACKGROUND DATA ON CARBON STOCK CHANGES AND NET CO₂ EMISSIONS AND REMOVALS FOR LAND USE, LAND-USE CHANGE AND FORESTRY ACTIVITIES UNDER THE KYOTO PROTOCOL

Elected Article 3.4 activities: Cropland management^{(1),(2)}

																							AT					
																							2013					
																							2015					
GEOGRAPHIC LOCATION ⁽³⁾	ACTIVITY DATA				IMPLIED CARBON STOCK CHANGE FACTORS								CHANGE IN CARBON STOCK										Net CO ₂ emissions/removals ⁽⁹⁾					
	Identification code	Subdivision ⁽⁴⁾	Area subject to the activity	Area of mineral soils	Area of organic soils	Carbon stock change in above-ground biomass per area ^{(5),(6)}			Carbon stock change in below-ground biomass per area ^{(5),(6)}			Net carbon stock change in litter per area ⁽⁵⁾	Net carbon stock change in dead wood per area ⁽⁵⁾	Net carbon stock change in soils per area ⁽⁵⁾		Carbon stock change in above-ground biomass ^{(5),(6)}			Carbon stock change in below-ground biomass ^{(5),(6)}			Net carbon stock change in litter ⁽⁵⁾		Net carbon stock change in dead wood ⁽⁵⁾	Net carbon stock change in soils ⁽⁵⁾			
Gains						Losses	Net change	Gains	Losses	Net change	Mineral soils			Organic soils ⁽⁷⁾	Gains	Losses	Net change	Gains	Losses	Net change	Mineral soils		Organic soils ⁽⁸⁾					
		(kha)			(t C/ha)								(kt C)										(kt CO ₂)					
Total for activity B.2		1,427.15	1,427.15	0.00	0.12	-0.15	-0.03	0.01	-0.01	0.00	0.00	0.00	0.01	#DIV/0!	176.72	-213.61	-36.89	13.95	-14.58	-0.63	0.00	0.00	11.82	0.00	94.24			
Cropland remaining Cropland																												
	Perennial/Annual Cropland r		1,349.29	NO														118.56	-165.20	-46.64	7.98	-5.98	2.00	NO	NO	59.46	NO	-54.32
	Perennial Cropland converted		12.72	NO														2.64	-32.09	-29.45	0.75	0.00	0.75	NO	NO	-4.45	NO	121.54
	Annual Cropland converted		15.74	NO														33.05	-3.13	29.92	0.00	-0.89	-0.89	NO	NO	5.51	NO	-126.63
Grassland converted to Cropland																												
	Grassland converted to Perennial		2.00	NO														4.20	-0.53	3.67	0.00	-0.31	-0.31	NO	NO	-1.30	NO	-7.54
	Grassland converted to Annual		47.39	NO														18.27	-12.65	5.61	5.21	-7.39	-2.18	NO	NO	-47.39	NO	161.18



Importing submission data

... to the DB structure used by the tool.

Activity	Year	Country	C_pool_GHG_source	Emission	GHG	Table
CM	1990	Austria	Above-ground biomass	11.4946306	C	4(KP-I)B.2
CM	1990	Austria	Below-ground biomass	1.1034964	C	4(KP-I)B.2
CM	1990	Austria	Litter	0	C	4(KP-I)B.2
CM	1990	Austria	Dead wood	0	C	4(KP-I)B.2
CM	1990	Austria	Mineral soil	29.9212379	C	4(KP-I)B.2
CM	1990	Austria	Organic soil	0	C	4(KP-I)B.2
CM	1990	Austria	Drained, rewetted and c		CH4	4(KP-II)2
CM	1990	Austria	Nitrogen mineralization	0.04494161	N2O	4(KP-II)3
CM	1990	Austria	Biomass burning	0	CO2	4(KP-II)4
CM	1990	Austria	Biomass burning	0	CH4	4(KP-II)4
CM	1990	Austria	Biomass burning	0	N2O	4(KP-II)4
CM	1990	Austria	Total	-155.90434	CO2	4(KP)
CM	1990	Austria	Total	#VALUE!	CH4	4(KP)
CM	1990	Austria	Total	0.04494161	N2O	4(KP)
CM	2013	Austria	Above-ground biomass	-36.8886	C	4(KP-I)B.2
CM	2013	Austria	Below-ground biomass	-0.6336814	C	4(KP-I)B.2
CM	2013	Austria	Litter	0	C	4(KP-I)B.2
CM	2013	Austria	Dead wood	0	C	4(KP-I)B.2
CM	2013	Austria	Mineral soil	11.8208189	C	4(KP-I)B.2
CM	2013	Austria	Organic soil	0	C	4(KP-I)B.2
CM	2013	Austria	Drained, rewetted and c		CH4	4(KP-II)2
CM	2013	Austria	Nitrogen mineralization	0.06376393	N2O	4(KP-II)3
CM	2013	Austria	Biomass burning	0	CO2	4(KP-II)4
CM	2013	Austria	Biomass burning	0	CH4	4(KP-II)4
CM	2013	Austria	Biomass burning	0	N2O	4(KP-II)4
CM	2013	Austria	Total	94.2386961	CO2	4(KP)
CM	2013	Austria	Total	0	CH4	4(KP)
CM	2013	Austria	Total	0.06376393	N2O	4(KP)
CM	1990	Belgium	Above-ground biomass	NO	C	4(KP-I)B.2
CM	1990	Belgium	Below-ground biomass	NO	C	4(KP-I)B.2
CM	1990	Belgium	Litter	NO	C	4(KP-I)B.2
CM	1990	Belgium	Dead wood	NO	C	4(KP-I)B.2



The Land Use Sector GHG Tool: current structure

1. Overview
2. Convention data
3. KP data CP1
4. KP Data CP2
5. KP and Projections
6. Accounting
7. Multiple Year Comparison
8. KP MS projections input
9. Spatial NUTS2 data

Demonstration

Overview sheet



Land Use Sector GHG Tool

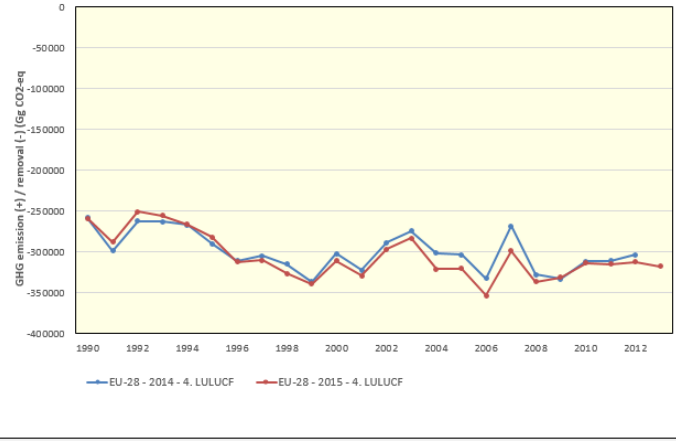
Version: prototype 2.3

Sheet name	Content description	Directly go to the sheet (click on the link)
How to use	This tool provides easy access to reported EU GHG inventory data from the UNFCCC (Convention) and Kyoto Protocol (KP) reporting, for the agriculture and LULUCF sectors (AFOLU). The tool also provides the possibility to include projections up to 2030 and analyse accounting options for KP activities. In addition, the tool allows for comparisons of GHG emissions between different Member States (MS). Sheets where a MS should input its own data is "KP MS projections input". The other sheets contain different databases. Below is the overview of the different sheets in the tool, to which you can navigate directly by clicking on the relevant arrow.	
Overview	Overview of the available sheets in the tool	current sheet
Convention data	Summary of GHG emissions and removals from the Agriculture and LULUCF sector for 28 Member States of the EU and Iceland. The graph presents the historical GHG emissions and removals as reported to the UNFCCC (currently derived from database of the EEA GHG viewer). The user can display data by selecting: EU member state and one or more emission source / IPCC (sub)sectors. Activity data (areas under different land uses) is also displayed along with pie charts referring to the shares of emissions and land areas under the different categories.	Convention data
KP data CP1	Summary of GHG emissions and removals from LULUCF activities for 28 Member States of the EU and Iceland, submitted by the Member States under the Kyoto Protocol, currently only data for the 1st Commitment Period (2008-2012) is included. In addition in the lower graph the annual afforestation and reforestation (AR) and deforestation (D) areas are	KP data CP1
KP data CP2	Summary of GHG emissions and removals from LULUCF activities for 28 Member States of the EU and Iceland referring to the 2nd Commitment Period (2013-2020). The sheet gathers data submitted by the Member States under the Kyoto Protocol to the UNFCCC or to the EU under the Decision 529.	KP data CP2
KP and Projections	Summary of all data from KP submissions, Decision 529, Art. 10 reports, and different other sources.	KP and projections
Accounting	Summary of KP data, and projected emissions and removals, up to 2030. Three types of projected data are currently available: 1. based on linear extrapolation from CP1 (2008-2012); 2. Projections provided by Member States ("KP MS projections input" sheet); 3. Modelled projections (currently only for FM from JRC LULUCF tool). Furthermore this sheet shows the GHG accounting for the KP activities for the different accounting periods.	Accounting
Multiple year comparison	This sheet provides a graph to compare two (or more) years for the reported convention data. Here the data are presented as stacked histograms for the main IPCC source categories, for easy comparison between years.	Multiple year comparison
KP MS projections input	Projected GHG emissions / removals input by Member States, following KP. This sheet is meant for Member States to provide their own projected GHG emission / removal data for the KP activities (AR, D, FM, CM, GM, RV and WDR).	KP MS projections input
NUTS2 spatial data	This sheet provides a map representing different spatial data sources at NUTS2 level. The data are displayed as pie charts in Bing maps. Currently land cover (CORINE 2006), tillage, soil cover (SAPM survey 2010) and soil organic carbon content (LUCAS 2009) data are included.	NUTS2 spatial data
Disclaimer:	<p>Quote this file as: <i>Land Use Sector GHG tool</i></p> <p>Original version delivered in April 2015 by: <i>Altera, Wageningen UR and ICF International for DG CLIMA (under Framework Service Contract No. CLIMA.A.3/FRA/2011/0027)</i></p> <p>Further additions and development by: <i>European Commission Joint Research Centre</i></p> <p>Contact: <i>Simon Kay (DG CLIMA) simon.kay@ec.europa.eu</i> <i>Giacomo Grassi (DG JRC) giacomo.grassi@jrc.ec.europa.eu</i> <i>Simone Rossi (DG JRC) simone.rossi@jrc.ec.europa.eu</i></p>	

Convention Data - 1

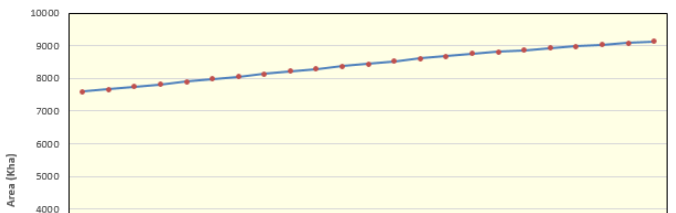
Summary of reported UNFCCC (Convention) GHG data [-Return to overview](#)

Emissions



Note: All data are expressed in CO₂-eq, although data from LULUCF (Forest Land, Cropland, Grassland, Wetlands, Settlements, and Other Land, and their conversions) are actually reported as CO₂ emissions

Activity Data (Areas)



How to use this sheet:
This sheet shows the GHG emissions and removals as reported under the UNFCCC convention. Here you can choose from three tables below: Country, IPCC sector level and IPCC source sector. To choose more than one country and/or sector use: Ctrl + click.

Country

Austria	Belgium	Bulgaria	Croatia
Cyprus	Czech Repu...	Denmark	Estonia
EU-15	EU-28	Finland	France
Germany	Greece	Hungary	Iceland
Ireland	Italy	Latvia	Lithuania
Luxembourg	Malta	Netherlands	Poland
Portugal	Romania	Slovakia	Slovenia
Spain	Sweden	United King...	

IPCC sector level

Main sector | Sub-sector

IPCC source sector

3.B. Manure Management	3.C. Rice Cultivation
3.D. Agricultural Soils	3.F. Field Burning of Agr. Res...
4. LULUCF	4.A. Forest Land
4.B. Cropland	4.C. Grassland
4.D. Wetlands	4.E. Settlements
4.F. Other Land	4.H. Other
Total all sectors (excl. LULUCF)	Total all sectors (incl. LULUCF)
3.D.1. Direct Soil Emissions	3.D.2. Pasture, Range and P...
3.D.3. Indirect Emissions	3.D.4. Other

Note: GHG data from the CPF tables 4(i) - 4(v) are included under the respective land use categories

Submission Year

2014 | 2015

Sum of Emissions

Country	Submission	Sector_name	Year	1990	1991	1992	1993	1994	1995	1996	1997
EU-28	2014	4. LULUCF		-258319.7032	-239221.6671	-262633.4983	-263309.2575	-267591.3571	-290585.3057	-3115...	
EU-28	2015	4. LULUCF		-259499.0048	-288564.8186	-251063.9008	-255373.2667	-268682.907	-282035.2745	-3124...	

Areas

Row Labels

Country	1990	1991	1992	1993	1994	1995	1996	1997
Italy	7589.803479	7667.763281	7745.723083	7823.682885	7901.642687	7979.602489	8057.562291	8135.522093
4.A. Forest Land	7589.803479	7667.763281	7745.723083	7823.682885	7901.642687	7979.602489	8057.562291	8135.522093

Navigation: Overview | **Convention data** | KP data CP1 | KP Data CP2 | KP and projections | Accounting | Multiple year comparison | KP MS projections input | NUTS2 spatial data



European Commission

Convention Data - 2

Italy - 4.A. Forest Land

Third tab shows the Area for the different land use categories as reported under the UNFCCC convention. Here you can choose from three tables below: Country, IPCC sector level and IPCC source sector. To choose more than one country and/or sector use Ctrl+click.

Country

Austria	Belgium	Bulgaria	Croatia
Cyprus	Czech Rep...	Denmark	Estonia
EU-28	Finland	France	Germany
Greece	Hungary	Iceland	Ireland
Italy	Latvia	Lithuania	Luxembourg
Malta	Netherlands	Poland	Portugal
Romania	Slovakia	Slovenia	Spain
Sweden	United Kingdom		

IPCC Sector Level

Main sector:

Sub-sector:

(blank)

IPCC Source Sector

4.LULUCF	4.A. Forest Land	4.B. Cropland
4.C. Grazland	4.D. Wetlands	4.E. Settlements
4.F. Other Land	4.A.1. Forest Land...	4.A.2. Land conv...
4.B.1. Cropland...	4.B.2. Land conv...	4.C.1. Grazland...
4.C.2. Land conv...	4.D.1. Wetlands...	4.D.2. Land conv...
4.E.1. Settlements...	4.E.2. Land conv...	4.F.1. Other Land...
4.F.2. Land conv...		

Reset Slicers

Area	1990	1991	1992	1993	1994	1995
Italy	7589.803479	7667.763281	7745.723083	7823.682885	7901.642687	7979.602489
4.A. Forest Land	7589.803479	7667.763281	7745.723083	7823.682885	7901.642687	7979.602489

Emissions by category

Country

Austria	Belgium	Bulgaria	Croatia	Cyprus
Czech R...	Denmark	Germany	EU-15	EU-28
Finland	France	Germany	Greece	Hungary
Iceland	Ireland	Italy	Latvia	Lithuania
Luxemb...	Malta	Netherla...	Poland	Portugal
Romania	Slovakia	Slovenia	Spain	Sweden
United Kingdom				

Year

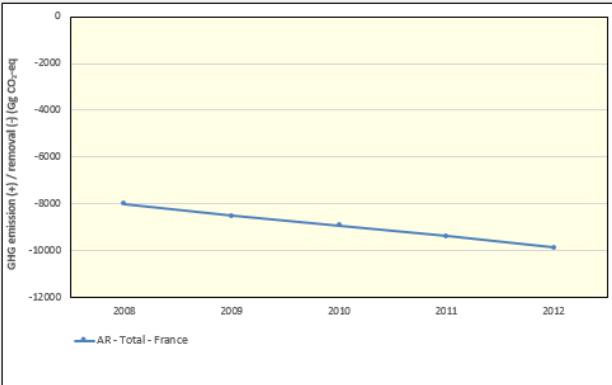
1990	1991	1992	1993
1994	1995	1996	1997
1998	1999	2000	2001
2002	2003	2004	2005
2006	2007	2008	2009
2010	2011	2012	2013
1935	1935-37	1936	1937

Area shares by category

Overview
Convention data
KP data CP1
KP Data CP2
KP and projections
Accounting
Multiple year comparison
KP MS projections input
NUTS2 spatial data

KP Data CP1

Summary of reported Kyoto Protocol data - First Commitment Period [Return to overview](#)



Note: All data are expressed in CO₂-eq, although data from LULUCF (Forest Land, Cropland, Grassland, Wetlands, Settlements, and Other and their conversions) are actually reported as CO₂ emissions

This sheet shows the GHG emissions and removals as reported under the Kyoto Protocol. Here you can choose from three tables below: Country*, KP activity and Carbon pool / GHG source. To choose more than one country, KP activity and/or GHG source use:

Country

(blank)	Austria	Belgium	Bulgaria
Croatia	Cyprus	Czech Repu...	Denmark
Estonia	EU-28	Finland	France
Germany	Greece	Hungary	Iceland
Ireland	Italy	Latvia	Lithuania
Luxembourg	Malta	Netherlands	Poland
Portugal	Romania	Slovakia	Slovenia
Spain	Sweden	United Kingd...	

Activity

AR D FM CM GM RV

Carbon pool / GHG source

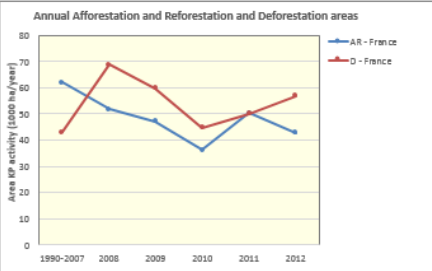
Above-ground bi...	Below-ground bio...	Biomass burning
Dead wood	Litter	Mineral soil
Total	Organic soil	Other emissions

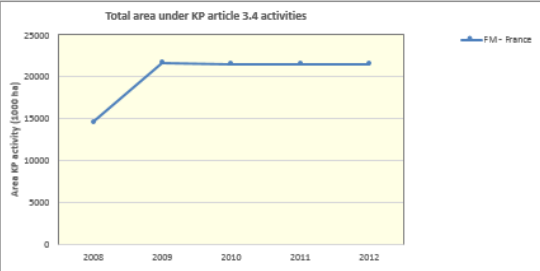
Note: The category 'Other emissions' comprises the emissions from direct and indirect N₂O emissions from fertilisation (4(KP-1)1), drained rewetted and other soils (4(KP-1)2) and nitrogen mineralization in mineral soils (4(KP-1)3).

* Cyprus and Malta did not submit data for CP1

Sum of Emission Column Label:	2008	2009	2010	2011	2012	Grand Total
France	-8000.435123	-8516.157013	-8920.9129	-9371.555083	-9860.0371	-44669.09722
AR	-8000.435123	-8516.157013	-8920.9129	-9371.555083	-9860.0371	-44669.09722
Total	-8000.435123	-8516.157013	-8920.9129	-9371.555083	-9860.0371	-44669.09722

Area data for KP activities





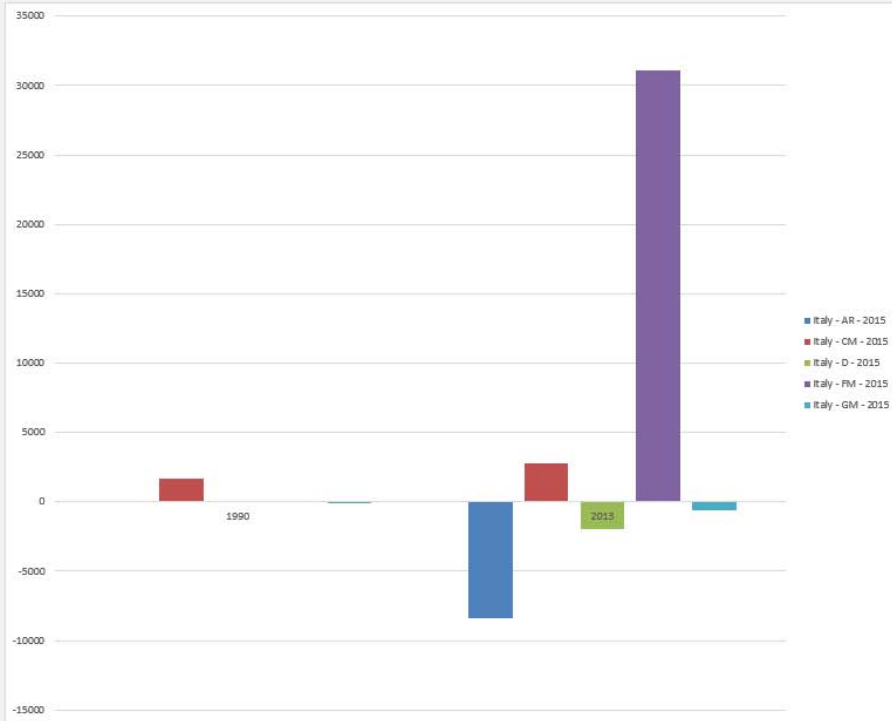
Overview | Convention data | **KP data CP1** | KP Data CP2 | KP and projections | Accounting | Multiple year comparison | KP MS projections input | NUTS2 spatial data

KP Data CP2

Summary of reported Kyoto Protocol data - Second Commitment Period (CO2eq)

[<-Return to overview](#)

Reset Slicers



*NB: not all MS have submitted their estimates

This sheet shows the GHG emissions and removals as reported under the Kyoto Protocol. Here you can choose from three tables below: Country, KP activity and Carbon pool / GHG source. To choose more than one country, KP activity and/or GHG source use: Ctrl + click.

Country			
Austria	Belgium	Bulgaria	Croatia
Denmark	Finland	France	Germany
Hungary	Ireland	Italy	Lithuania
Portugal	Romania	Slovakia	Spain
Sweden	United Kingdom	(blank)	Cyprus
Czech Republic	Estonia	EU-28	Greece
Iceland	Latvia	Luxembourg	Malta
Netherlands	Poland	Slovenia	

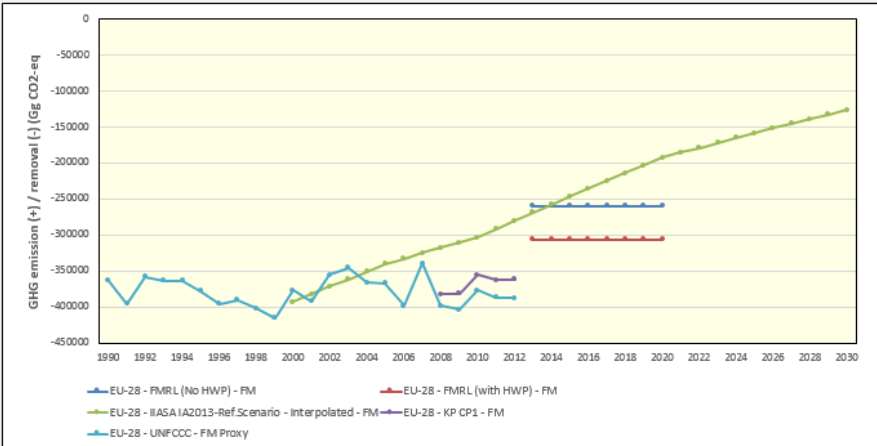
Source	Submission	Activity
Decision 529	2015	AR
		CM
		D
		FM
		GM
		RV
		WDR

C_pool_GHG_source	
Total	Above-ground biomass
Below-ground biomass	Biomass burning
Dead wood	Drained, rewetted and other soils
Fertilization	HWP
Litter	Mineral soil
Nitrogen mineralization in mineral s...	Organic soil

GHG	CO2eq	1990	2013
Sum of Value			
Column Labels			
Row Labels			
Italy			
AR			
Total			-8379.959853
CM			
Total	1645.698924		2813.419351
D			
Total			-1942.456797
FM			
Total			31057.81565
GM			
Total			-4.774575391 -604.8188701

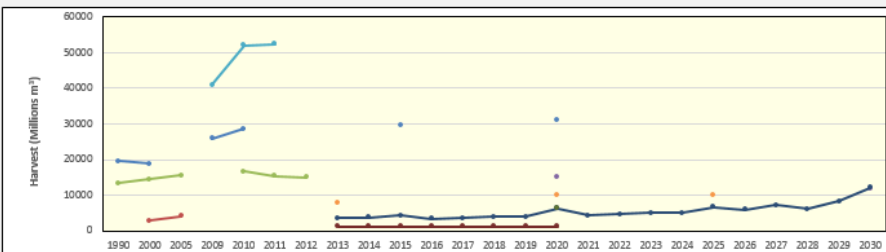
KP and Projections

Summary of KP data and Projections from different sources



Dataset	Activity	Flow	Year	Notes
FMRL Subm. 2011	FM		1990-2020	data from FMRL submission (2011)
HWP (FMRL Subm.)	FM		1990-2020	data from FMRL submission (2011)
FMRL (no HWP)	FM		2013-2020	FMRL value from FMRL submission (2011)
FMRL (with HWP)	FM		2013-2020	FMRL value from FMRL submission (2011)
UNFCCC	Proxies for FM, AR, D, CM		1990-2012	UNFCCC data (GHG inventory 2014) approximately corresponding to the zero-to-KP activity
KP CP1	FM, AR, D, CM, GM		2009-2012	if available, from KP GHG inventory 2014
KP CP2	FM, AR, D, CM, GM		2013-2020	if available, from KP GHG inventory 2015
Dec 529	FM, AR, D, CM, GM		(1990) and 2013	Submitted in 2015
Art 10 rep.	KP activities OR UNFCCC		(1990-2030)	Submitted in 2015
NC / BR WEM	KP activities OR UNFCCC		2020 and 2030	Submitted in 2014. WEM: with existing measurement
MHR - WEM	FL, CL, GL, WL, SL, HWP, L		(2012-2030)	Submitted in 2015. WEM: with existing measurement
MHR - WAM	FL, CL, GL, WL, SL, HWP, L		(2012-2030)	Submitted in 2015. WAM: with additional measurement
IIASA IA2013 - Reference	FM, AR, D, CM, GM		2000-2030	FM value calibrated with GHGI 2012 for the period 2000-2010, AR and D not calibrated. Data from http://ec.europa.eu/eurostat/medias/publications/doc/trends-to-2050-up-date-2013.pdf

Harvesting data from Art.10 Reports



This sheet shows the GHG emissions and removals as reported under the Kyoto Protocol. Here you can choose from three tables below: Country, KP activity and Carbon pool / GHG source. To choose more than one country, KP activity and/or GHG source use: Ctrl + click.

Country

Austria	Belgium	Bulgaria	Croatia
Cyprus	Czech Re...	Denmark	Estonia
EU-28	Finland	France	Germany
Greece	Hungary	Iceland	Ireland
Italy	Latvia	Lithuania	Luxembo...
Malta	Netherlan...	Poland	Portugal
Romania	Slovakia	Slovenia	Spain
Sweden	United Ki...	(blank)	

Dataset

- FMRL Subm. 2011
- IIASA IA2013-Ref.Scenario
- IIASA IA2013-Ref.Scenario - Interpolated
- KP CP1
- UNFCCC

Activity

- AR (or proxy)
- CM (or proxy)
- D (or proxy)
- FM (or proxy)
- GM (or proxy)
- RV (or proxy)
- 4.A. Forest la...
- 4.B. Cropland
- 4.C. Grassland
- 4.D. Wetlands
- 4.E. Settleme...
- 4.F. Other Land
- 4.G. HWP
- Harvest
- HWP (FM)

Sum of Value

Column Labels: 1990, 1991, 1992, 1993, 1994, 1995

Row Labels: EU-28, FMRL (No HWP) FM (or proxy), FMRL (with HWP) FM (or proxy), IIASA IA2013-Ref.Scenario - Interpolated FM (or proxy), KP CP1 FM (or proxy), UNFCCC FM (or proxy)

	1990	1991	1992	1993	1994	1995
EU-28						
FMRL (No HWP) FM (or proxy)						
FMRL (with HWP) FM (or proxy)						
IIASA IA2013-Ref.Scenario - Interpolated FM (or proxy)						
KP CP1 FM (or proxy)						
UNFCCC FM (or proxy)						
FM (or proxy)	-363294.8065	-395950.7571	-358455.0474	-363967.1961	-363434.8879	-377550.3562

Country

Austria	Belgium	Czech Re...	Estonia
Finland	Hungary	Ireland	Malta
Spain	Bulgaria	Croatia	Cyprus
Denmark	France	Germany	Greece
Italy	Latvia	Lithuania	Luxembo...
Netherlan...	Poland	Portugal	Romania
Slovakia	Slovenia	Sweden	United Ki...

Activity

- FM

Column Labels: 1990, 2000, 2005, 2008, 2009, 2010

Row Labels: Austria FM, Belgium FM, Czech Republic FM, Estonia FM, Finland FM, Hungary FM, Ireland FM

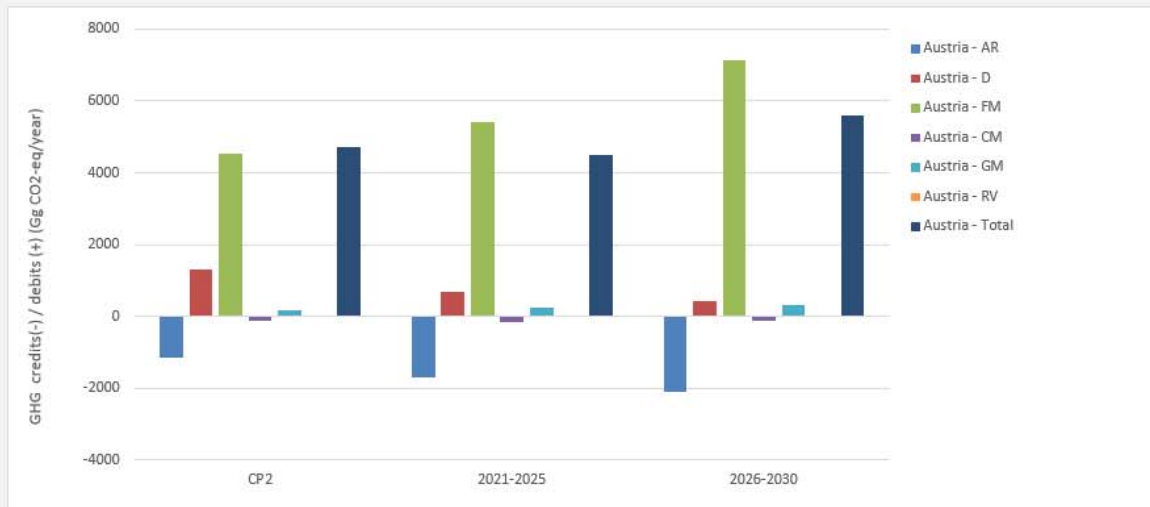
	1990	2000	2005	2008	2009	2010
Austria FM						
Belgium FM						
Czech Republic FM						
Estonia FM						
Finland FM						
Hungary FM						
Ireland FM						

Accounting

GHG accounting of KP activities for different accounting periods

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The graph shows the accounting effects for the different accounting periods, based on the below mentioned accounting rules, and the selected projection. The user can select different types of projections: 1) based on linear interpolation of the 2008-2012 reported data, 2) modelled projections (currently only FM projections from the JRC LULUCF tool), or 3) projections provided by the MS (see sheet 'KP MS projections input'). In addition the Forest Management Reference Level (FMRL) can be shown for FM.



Projection type (select only one projection type!)

IIASA IA 2013 | 529 Decision

Linear | Modelled

MS input

Base year (for CM, GM and RV) (select only one base year!)

2000 | 2005 | 1990

Country

Austria	Belgium	Bulgaria	Croatia
Cyprus	Czech Repu...	Denmark	Estonia
EU-28	Finland	France	Germany
Greece	Hungary	Iceland	Ireland
Italy	Latvia	Lithuania	Luxembourg
Malta	Netherlands	Poland	Portugal
Romania	Slovakia	Slovenia	Spain
Sweden	United King...	(blank)	

Data are annual averages for the different accounting periods. Data as reported by the MS are derived from the JRC KP background file and JRC LULUCF tool

Accounting rules used:

AR - Afforestation and reforestation: Net emissions/removals as reported under AR (corrections for natural disturbances are not included)

D - Deforestation: Net emissions/removals as reported under D

FM - Forest management: For CP1 the reported accounted values (based on gross-net accounting with country specific cap (derived from JRC LULUCF tool))

For CP2 and after 2020 difference between net emissions/removals and FMRL (as stated in Decision 2/CMP.7) and taking account of the country specific cap (3.5% of total emissions excl. LULUCF in the base year)

CM - Cropland Management: Net-net accounting based on base year

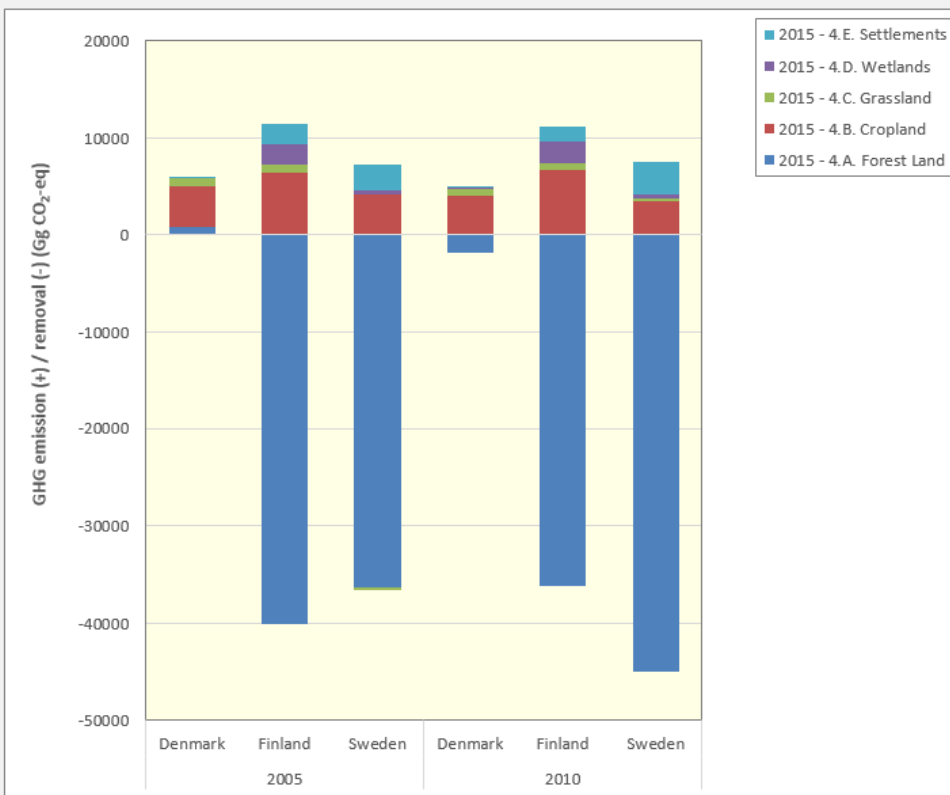
Multiple Year Comparison

Multiple-year comparison (Convention data)

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How to use this sheet:

In this graph you can compare MS's GHG emissions (+) / removals (-) as reported under the UNFCCC convention for the agriculture and LULUCF sector for two or more years: first select a country of interest and then years (more years you can select by holding Ctrl key) and GHG source sectors.



Note: All data are expressed in CO₂-eq, although data from LULUCF (Forest Land, Cropland, Grassland, Wetlands, Settlements, and Other Land, and their conversions) are actually reported as CO₂ emissions

Country

Austria	Belgium	Bulgaria	Croatia
Cyprus	Czech Republic	Denmark	Estonia
EU-28	Finland	France	Germany
Greece	Hungary	Ireland	Italy
Latvia	Lithuania	Luxembourg	Malta
Netherlands	Poland	Portugal	Romania
Slovakia	Slovenia	Spain	Sweden
United Kingdom			

Year

1990	1991	1992	1993	1994	1995	1996
1997	1998	1999	2000	2001	2002	2003
2004	2005	2006	2007	2008	2009	2010
2011	2012	2013				

IPCC GHG source sector

3. Agriculture	3.A. Enteric Fermentation
3.B. Manure Management	3.D. Agricultural Soils
3.F. Field Burning of Agr. Residues	4. LULUCF
4.A. Forest Land	4.B. Cropland
4.C. Grassland	4.D. Wetlands
4.E. Settlements	(blank)
3.C. Rice Cultivation	3.G. Other
4.F. Other Land	4.H. Other
Total all sectors (excl. LULUCF)	Total all sectors (incl. LULUCF)

Submission

2014
2015

Note: The '(blank)' button includes all emissions from the sub-sectors (see Summary convention data worksheet) and should not be selected

KP MS Input

Input form for GHG emission /removal projections for KP activities by Member States

How to use this sheet: This sheet should be used by member states to enter their own projected GHG emissions (+) / removals (-) in Gg CO₂ eq. From the two tables below, you can choose your country and KP activity and insert the data in the table below, i.e. fill in the white cells. **Currently only fake data for some countries is entered.**

Country	KP activity	Year	GHG emissions/removals	Unit
Hungary	FM	2013		Gg CO ₂ eq
Hungary	FM	2014		Gg CO ₂ eq
Hungary	FM	2015		Gg CO ₂ eq
Hungary	FM	2016		Gg CO ₂ eq
Hungary	FM	2017		Gg CO ₂ eq
Hungary	FM	2018		Gg CO ₂ eq
Hungary	FM	2019		Gg CO ₂ eq
Hungary	FM	2020		Gg CO ₂ eq
Hungary	FM	2021		Gg CO ₂ eq
Hungary	FM	2022		Gg CO ₂ eq
Hungary	FM	2023		Gg CO ₂ eq
Hungary	FM	2024		Gg CO ₂ eq
Hungary	FM	2025		Gg CO ₂ eq
Hungary	FM	2026		Gg CO ₂ eq
Hungary	FM	2027		Gg CO ₂ eq
Hungary	FM	2028		Gg CO ₂ eq
Hungary	FM	2029		Gg CO ₂ eq
Hungary	FM	2030		Gg CO ₂ eq

In these white cells, please input your country's GHG emissions/removals projections. Emissions should be always positive numbers, while removals negative. All the input should be in Gg CO₂ eq.

Country

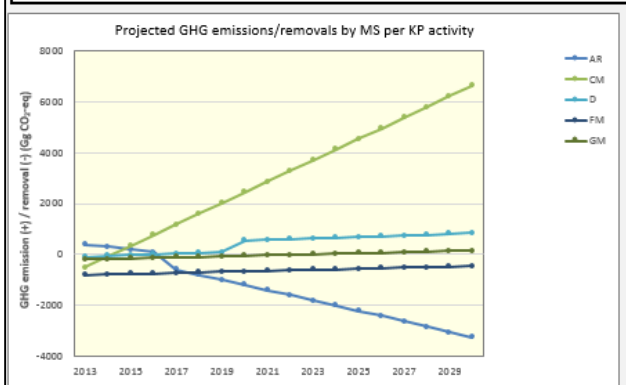
Austria	Belgium	Bulgaria	Croatia
Cyprus	Czech Republic	Denmark	Estonia
France	Germany	Greece	
Iceland	Ireland	Italy	
Lithuania	Luxembourg	Malta	
Poland	Portugal	Romania	
Slovenia	Spain	Sweden	

KP activity

AR CM D **FM** GM RV WDR

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After adding the projected GHG emissions/removals in the table above, one has to refresh the data to see them in the graph: select with right mouse button in the graph: **Refresh Data**

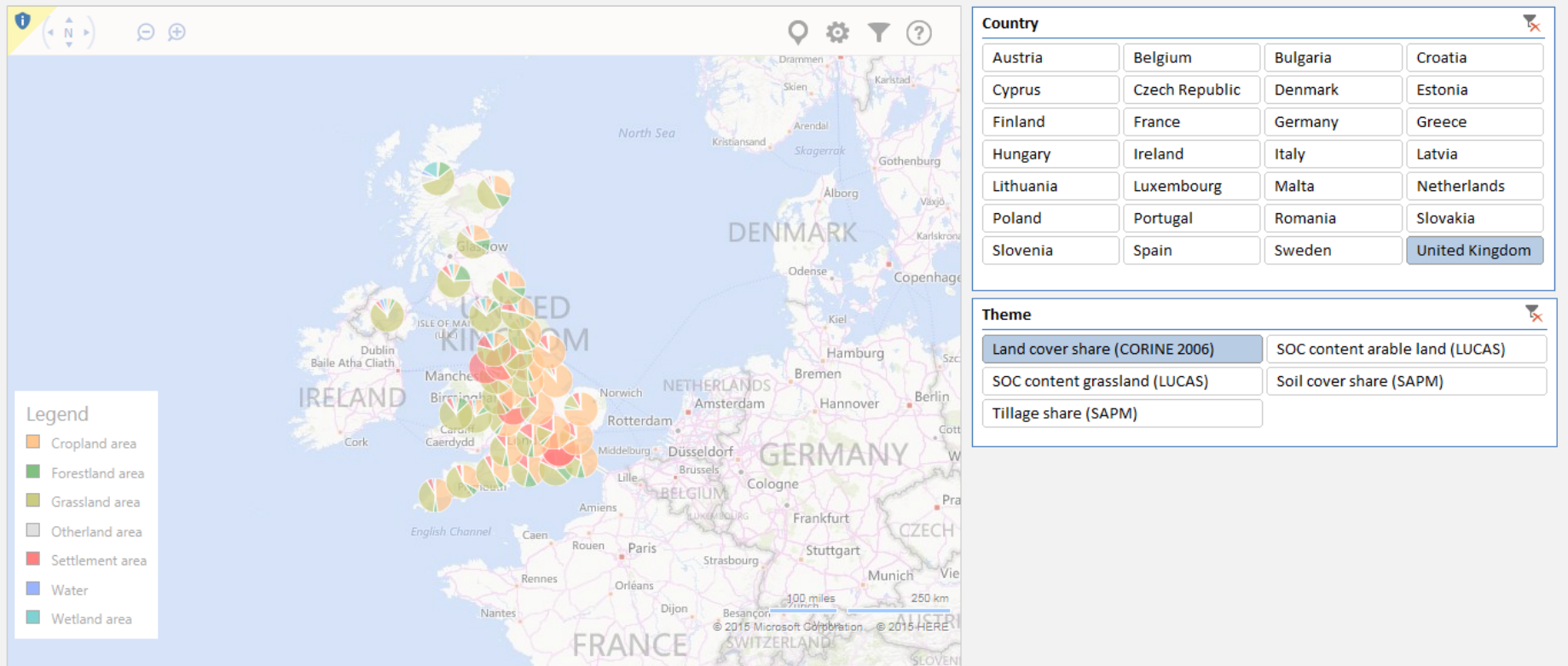


NUTS 2 Spatial Data

NUTS2 spatial data presentation

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In this sheet spatial data relevant to the LULUCF sector are shown at NUTS2 level. Currently the tool comprises land cover data from the CORINE 2006 land cover map, soil organic carbon content data from the LUCAS 2009 soil survey for arable land and grassland, share of soil tillage practices and share of soil cover, both derived from the 2010 SAPM survey. The values, e.g. total areas of land use per NUTS2 region, are given in the table below the graph. Countries can be selected in the selection box. A maximum of 100 NUTS2 regions can be shown. **To view this map one has to be connected to the internet.**



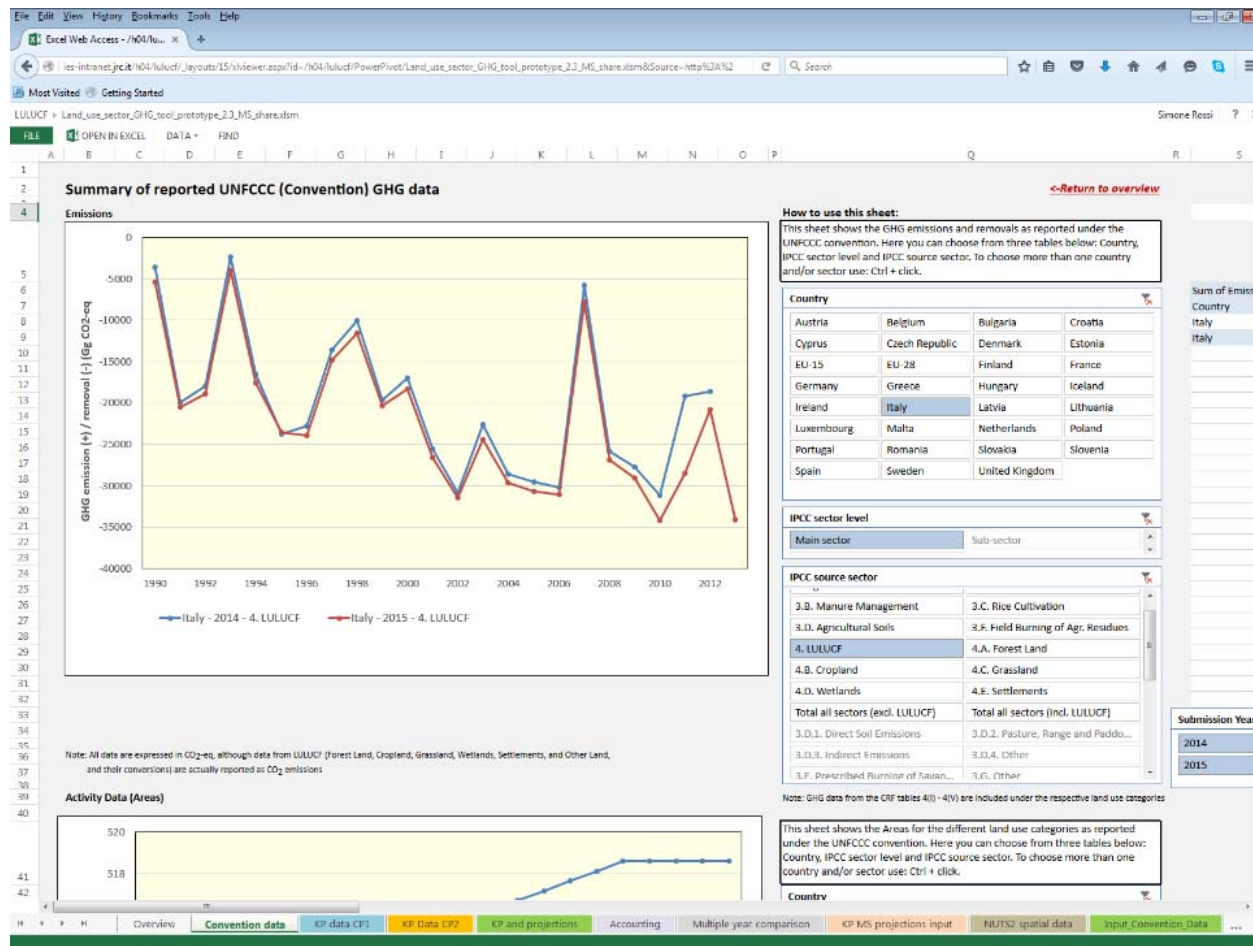
The table below presents the absolute values of the selected theme. For land cover, tillage and soil cover this is expressed as area in ha.



Exercises / Examples

1. Which MS expects FM to become a source by 2020?
2. Which MS expects an increase in removals from FM?
3. Which MS has a positive (i.e. a source) Forest Management Reference Level (FMRL)?
4. Which is the effect of switching the base year from 2000 to 2005 in the accounting of Slovenia?
5. How much has the total E/R from LULUCF changed from 2014 to 2015 submissions as a result of recalculations within the different MS inventories?
6. How has the forest area in France changed between the latest submissions?
7. How can we obtain a chart with the breakdown of total emissions among the different land uses for the latest available submission?

Distribution to MS through the University of Wageningen Sharepoint Server





Thank you for your attention