JRC/EEA LULUCF workshop 2025

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JRC/EEA LULUCF Workshop/ Presentation date: 6 May 2025

European Environment Agency

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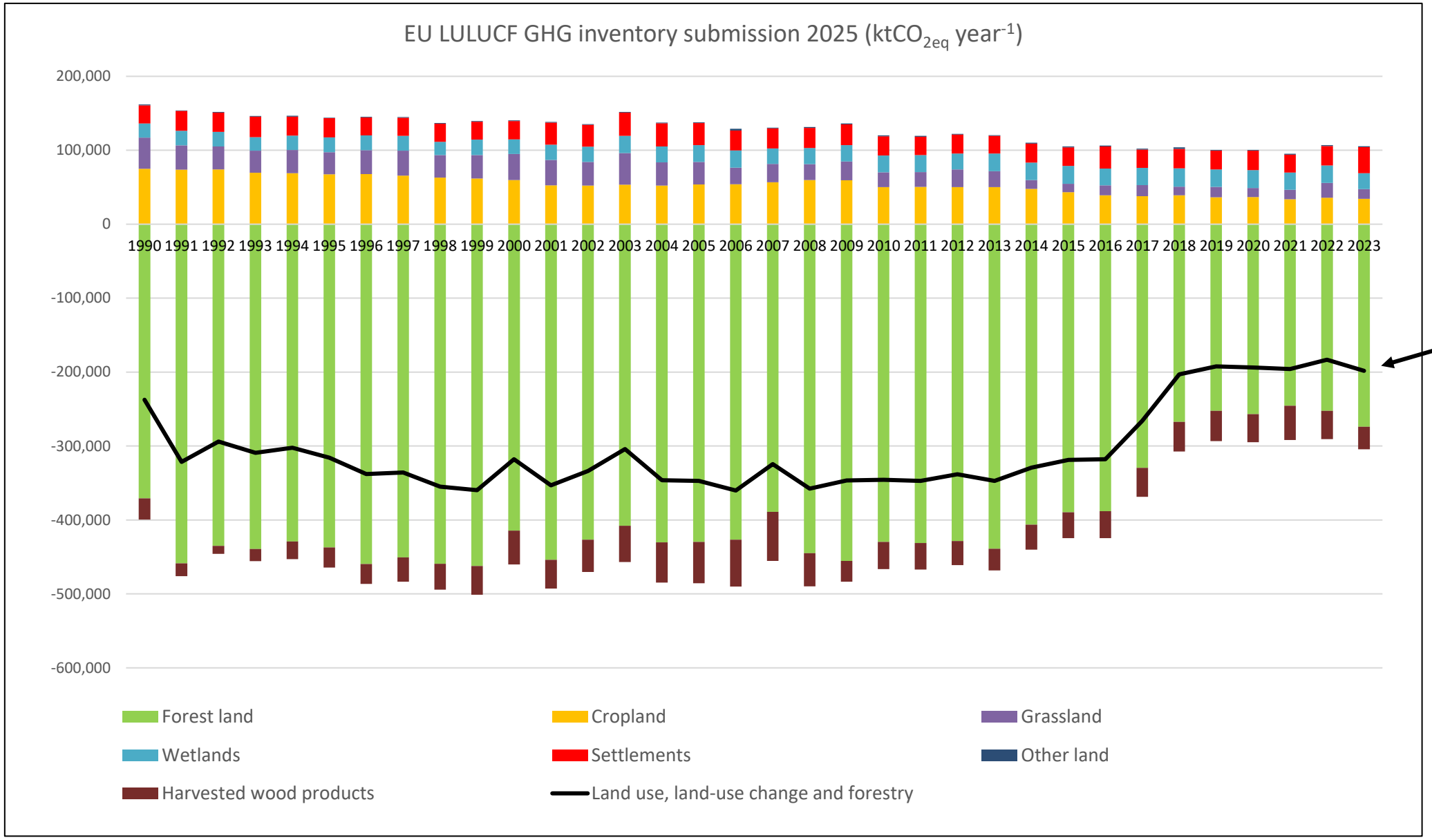
Content

- LULUCF 2025 status
- Initial checks
- LULUCF accounting 2021-2025
- Comprehensive review and capacity building
- Supporting activities at EEA



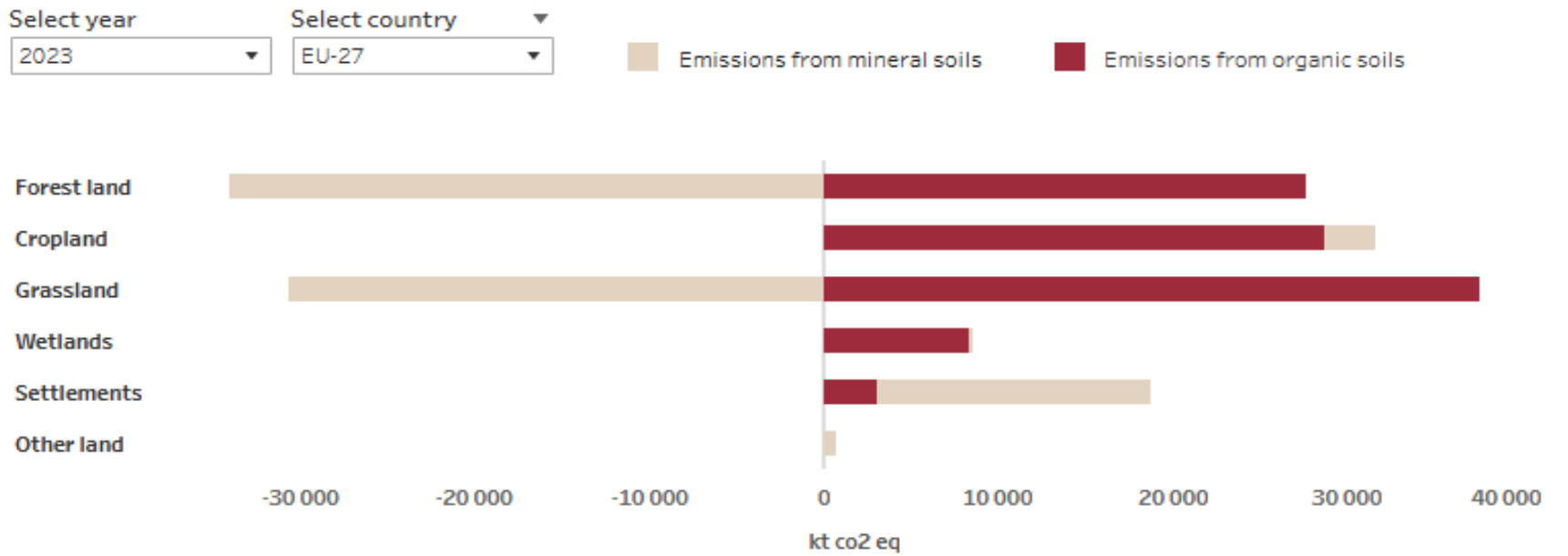
-198 MtCO2e

European Environment Agency

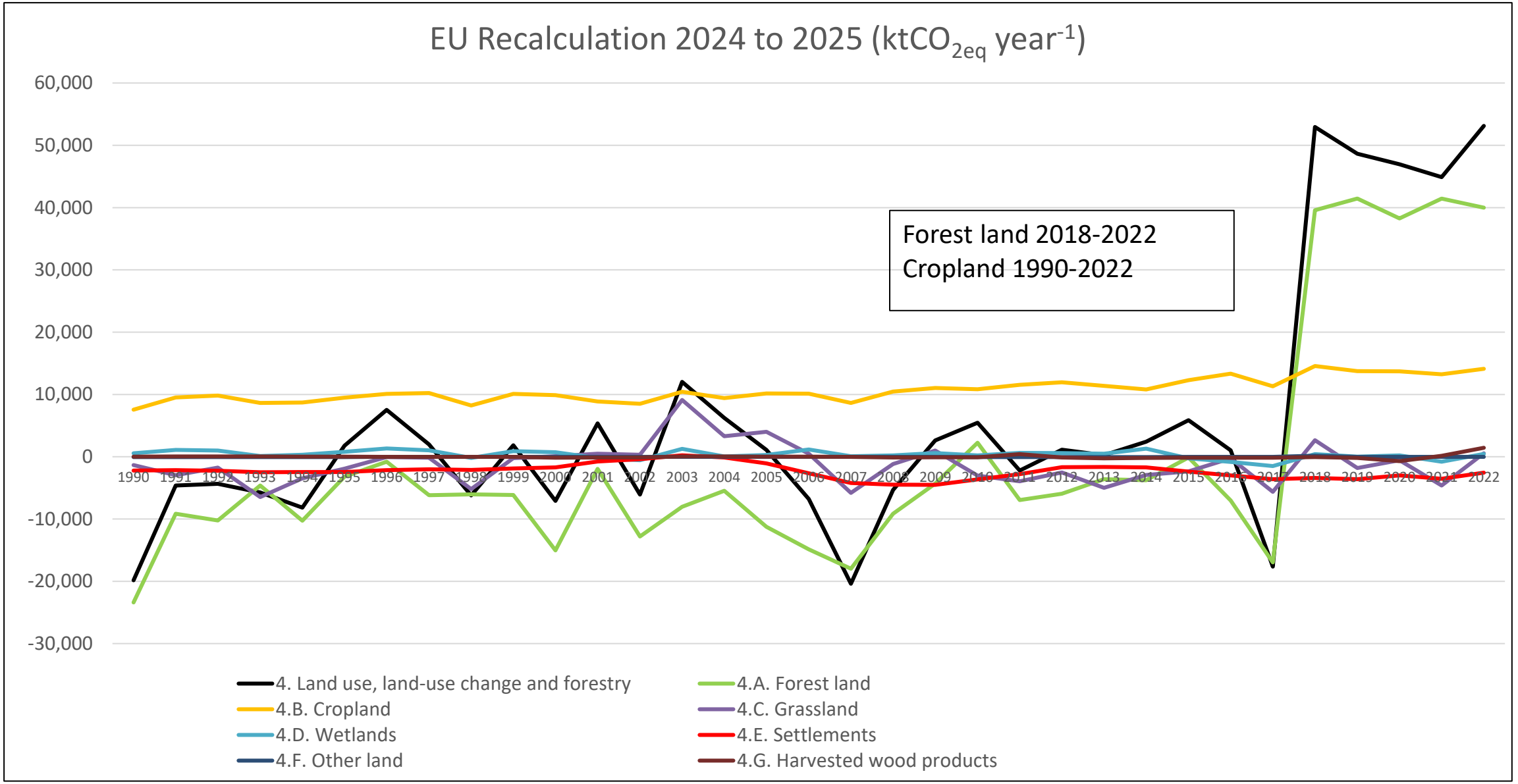
Net emissions/removals by soil type

Emissions and removals of greenhouse gases are affected by land use. Soil carbon can increase due to growth of plants and be lost due to disturbance of the soils including drainage. Note: Emissions is a positive number and removals is a negative number. Only land use categories and soil types for which countries report emissions or removals from soils are shown in the overview.

Net emissions/removals in 2023 in EU-27 by land use category and soil type



Data source: European Environment Agency



European Environment Agency

Initial check, LULUCF observations

227 Observations uploaded into the EMRT

- Blank cells (29);
- Reporting zero (6);
- Identical values (8);
- Area inconsistencies (28);
- EF outliers (33);
- N_2O emissions reporting (12)
- Spikes in time series (43);
- Recalculations (15) and
- Potential compliance issue with Regulation (EU) 2018/841 (15)
- Others, (38)

Accounting 2021-2025

European Environment Agency

Last year's efforts – looking at 2021-2022 only

	2005	2006	2007	2008	2009	Average 2005-2009	2021	2022	2023	2024	2025	Sum 2021-2022
Forest Management (inc. HWP)	-30 183,1	-31 227,3	-30 827,4	-30 548,0	-28 861,1	-30 329,4	-34 454,5	-34 890,2				-69 344,6
DeforestedLand	2 314,4	2 346,8	2 072,9	2 090,1	2 103,2	2 185,5	1 355,3	1 349,2				2 704,6
Afforested	-16 874,5	-17 006,8	-17 198,0	-17 175,4	-16 959,1	-17 042,7	-9 951,5	-9 497,3				-19 448,8
Cropland Management	- 553,6	-1 614,6	1 281,9	1 138,4	1 358,4	322,1	-3 498,3	-3 396,1				-6 894,5
Grassland Management	-1 326,8	-1 429,7	-1 461,2	-1 504,6	-1 406,0	-1 425,7	-1 319,6	-1 352,9				-2 672,5
Wetlands	-	-	-	-	-	-	-	-				-
Harvested Wood Products	-3 307,9	-3 874,3	-2 796,2	-2 244,9	- 394,5	-2 523,5	-2 488,4	-2 725,0				-5 213,3
Paper	- 164,1	- 635,2	11,4	- 328,5	291,4	- 165,0	- 42,7	- 413,7				- 456,5

	Accounted values for ES in the period 2021-2022
Forest Management	-3 678,6
Deforested Land	2 704,6
Afforested	-19 448,8
Cropland Management	-7 538,7
Grassland Management	178,9
Wetlands	
Total accounting value	-27782,7

REMARKS:

1. The total final accounting value for ES in the period 2021-2022 is: -27782.7. This is -13891.3 per year.

2. The FRL value used ES is: -32833.0

3. ES DOES NOT account wetlands. There is no wetland value included in the calculation.

3. ES cap value is -20110.006 which is 3.5% of base year emission value (287285.795). In this case there are 2 year(s) considered in the calculation. The formula used is: (BaseYear*0.035*(-1))*NumberOfYears). According to the LULUCF regulation.

4. Applies cap to ES? NO

5. Accounting categories include also emissions reported in table 4(I),4(III) and 4(V). It was not possible to include indirect N2O emissions from table 4(II) consistently therefore are not included and need to be calculated manually.

6. Annual reported data is displayed for information.

Only partly useful because

a) no information on TC of FRL

b) no information on natural disturbance

c) CRT tables do not provide the necessary information

Accounting information in Annex IV in the updated implementing regulation (former Annex XX)

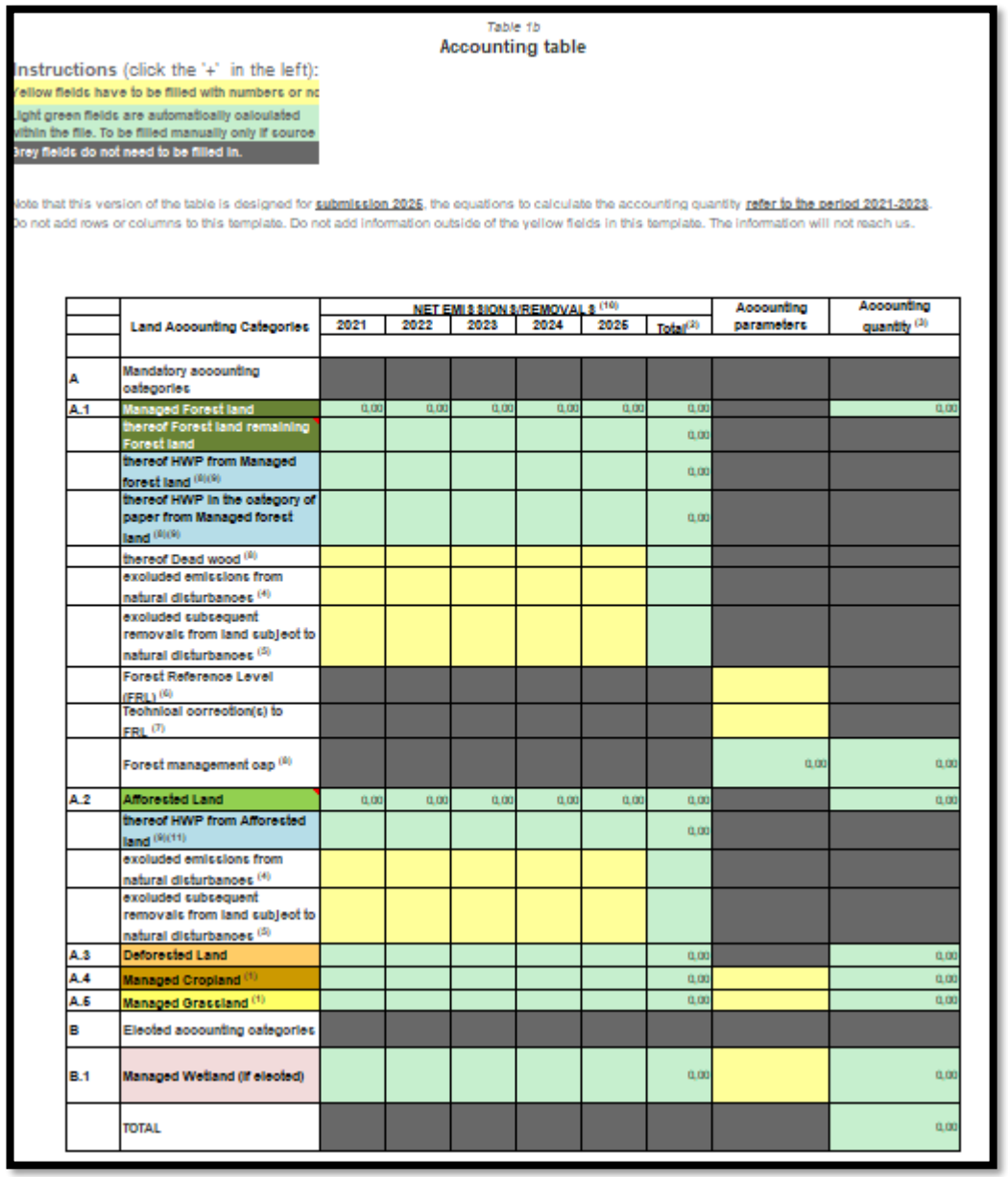


Table 1b
Accounting table

Instructions (click the '+' in the left):
Yellow fields have to be filled with numbers or no
Light green fields are automatically calculated within the file. To be filled manually only if source
Grey fields do not need to be filled in.

Note that this version of the table is designed for submission 2025, the equations to calculate the accounting quantity refer to the period 2021-2023.
Do not add rows or columns to this template. Do not add information outside of the yellow fields in this template. The information will not reach us.

	Land Accounting Categories	NET EMISSION S/REMOVALS (10) 2021	2022	2023	2024	2025	Total (2)	Accounting parameters	Accounting quantity (3)
A	Mandatory accounting categories								
A.1	Managed Forest land	0,00	0,00	0,00	0,00	0,00	0,00		0,00
	thereof Forest land remaining Forest land						0,00		
	thereof HWP from Managed forest land (8)(9)						0,00		
	thereof HWP in the category of paper from Managed forest land (8)(9)						0,00		
	thereof Dead wood (8)								
	exoluded emissions from natural disturbances (4)								
	exoluded subsequent removals from land subject to natural disturbances (5)								
	Forest Reference Level (FRL) (6)								
	Technical correction(s) to FRL (7)								
	Forest management cap (8)							0,00	0,00
A.2	Afforested Land	0,00	0,00	0,00	0,00	0,00	0,00		0,00
	thereof HWP from Afforested land (8)(11)						0,00		
	exoluded emissions from natural disturbances (4)								
	exoluded subsequent removals from land subject to natural disturbances (5)								
A.3	Deforested Land						0,00		0,00
A.4	Managed Cropland (1)						0,00		0,00
A.5	Managed Grassland (1)						0,00		0,00
B	Elected accounting categories								
B.1	Managed Wetland (if elected)						0,00		0,00
	TOTAL								0,00

All MS are encouraged to provide this information **annually**.

A reporting template for the first three years was shared via WG1.

Important to be able to **anticipate the outcome in 2027** including for the **ESR** but also for the **potential use of managed forest land flexibility** (art. 13).

18 countries provided this information:

- Only three included information on the TC of the FRL.
- No information on emissions from ND.
- Some did not include the correct FRL as provided in annex IV to regulation 2018/841.
- Some MS included information on managed wetland even when this activity is not elected.
- One MS included information on all 5 years.

We will share a new template covering four years later this year.

European Environment Agency

Annex IV, table 2 on emissions from natural disturbances

Table 2

Information on emissions and removals from natural disturbances[1]

Identification code of geographic location[2]	IDENTIFICATION OF NATURAL DISTURBANCES EVENT		AREA SUBJECT TO NATURAL DISTURBANCES IN THE YEAR WHEN IT WAS FIRST REPORTED		EMISSIONS FROM AREAS SUBJECT TO NATURAL DISTURBANCES					Background level [7]	Margin [7]	Trigger test [8]	ACCOUNTING QUANTITIES	
			Area subject to natural disturbances in the year when it was first reported	Area subject to natural disturbances in the inventory year	Total emissions [4]			Salvage Logging [5]	Emissions from natural disturbances [6]				Emissions in inventory year that can be exluded in the inventory year [9]	Subsequent removals in inventory year [10]
	Year of natural disturbances[3]	Disturbance type			CO_2	CH_4	N_2O						Emissions	Removals
			(kha)		(kt CO_2 eq)			(kt CO_2 eq)		(kt CO_2 eq)		(Yes/No)	(kt CO_2 eq)	
Total for 2021 natural disturbances [11], [12]	Year: 2021	Total for 2021 natural disturbances [11], [12]												
Total for 2022 natural disturbances [11], [12]	Year: 2022	Total for 2022 natural disturbances [11], [12]												
Total for 2023 natural disturbances [11], [12]	Year: 2023	Total for 2023 natural disturbances [11], [12]												
Total for 2024 natural disturbances [11], [12]	Year: 2024	Total for 2024 natural disturbances [11], [12]												
Total for 2025 natural disturbances [11], [12]	Year: 2025	Total for 2025 natural disturbances [11], [12]												

Have any MS tried using this table?

It would be very useful to have some testing before March 2027.

Do we need an additional table to calculate the background level?

Reporting template and format for the submission of information?

European Environment Agency

Comprehensive review 2025

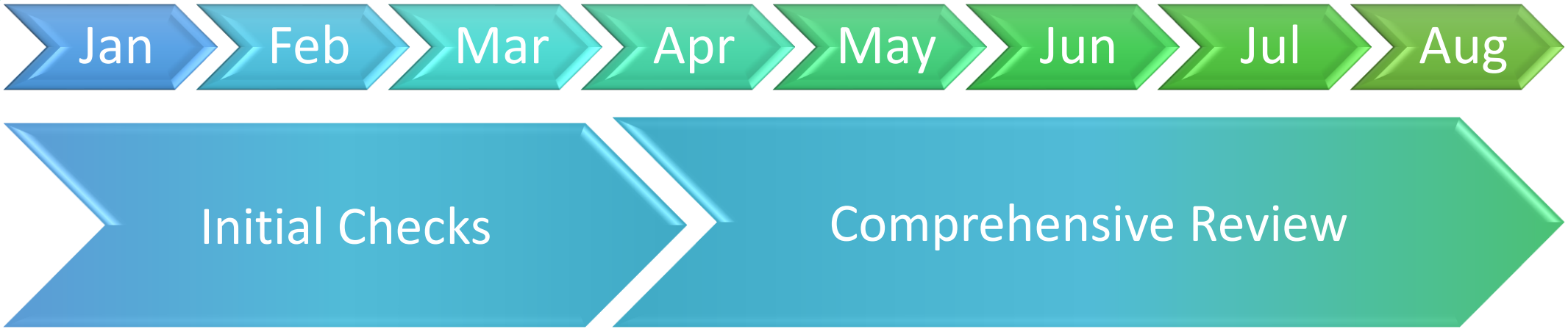
Governance regulation article 38

To establish the 2026-2029 budget – will focus on 2016-2018 and 2021-2023 - *not compliance*

European Environment Agency

Initial checks and Comprehensive Review

Timeline



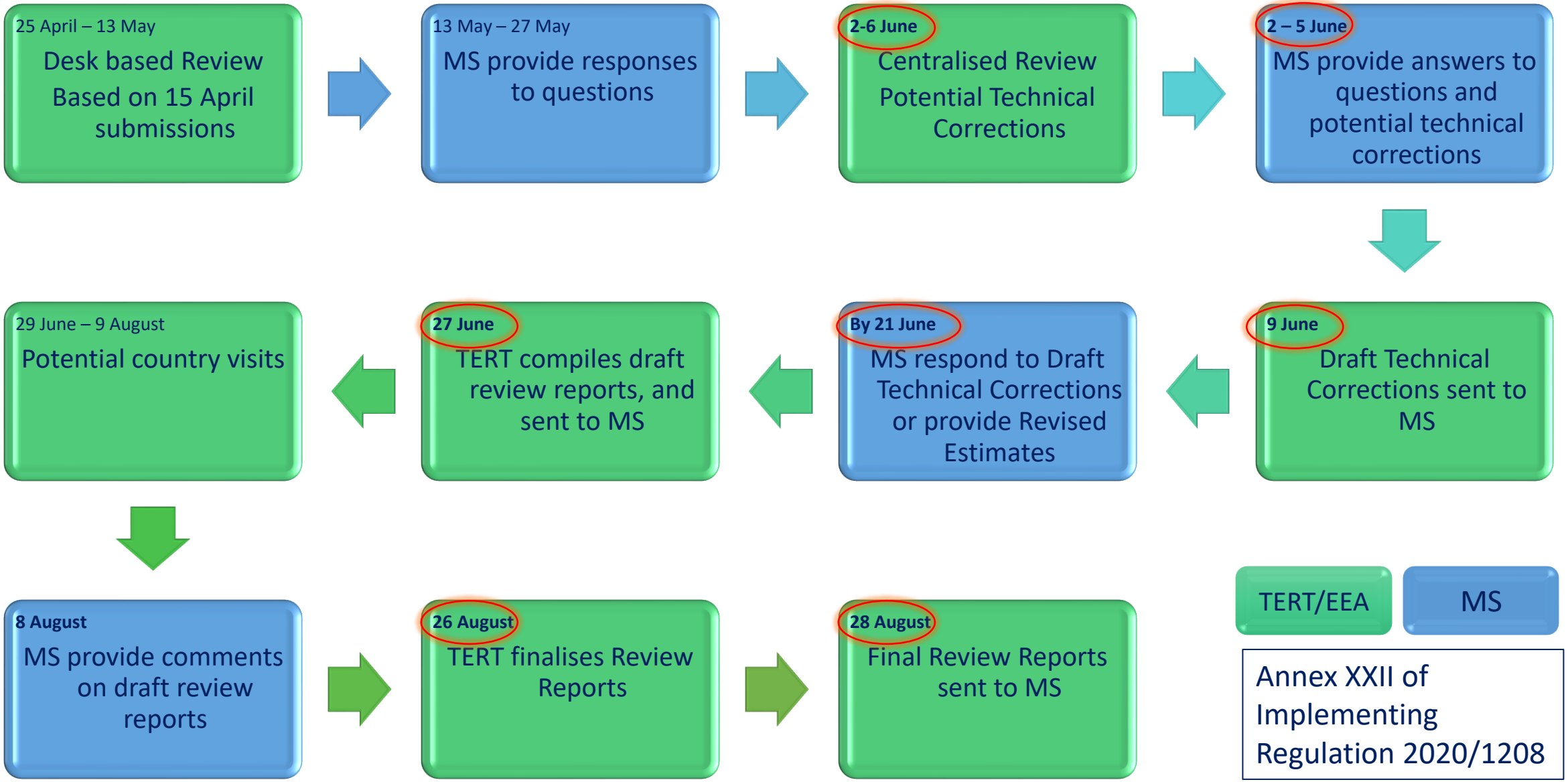
‘Step 1’

‘Step 2’

15 Jan
MS GHGI (x-2)
Gov Reg Art. 26(3)

15 Mar
MS Final GHGI (x-2)
Gov Reg Art. 26(3)

15 Apr
MS & EU Final GHGI data (x-2)
Gov Reg Art. 26(4)



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Capacity building as part of comprehensive review

Following the review, there will be offered capacity building meetings with Member States' LULUCF experts taking into considerations the results of the comprehensive review

When: October 2025

Topics: to be identified during the comprehensive review

Format: online

GHGI improvements support

European Environment Agency

LULUCF INVENTORY IMPROVEMENTS ACTIVITIES 2025 @EEA

SOIL CARBON

OPTIONS FOR LAND USE TRACKING

SETTLEMENT

FIRE EMISSIONS

Activities:

- Analysis of the NID
- Extraction of Methods and EF
- Gap identification
- Identification of datasets
- Guidance for improvement
- Webinars

SOIL CARBON and FIRE EMISSIONS

SOIL CARBON

- Non-CO2 emissions from managed soils (EF, methods)
- Organic soils (EF, maps identification)
- Mineral soil models (Model Library)→ Relevance for CRCF
- Analysis of the applicability of the tier 2 Steady State Method IPCC2019 (Explore new method→ Workshop in October)

Activities

- Analysis of the NID
- Extraction of Methods and EF
- Gap identification
- Guidance for improvement
- Webinars

FIRE

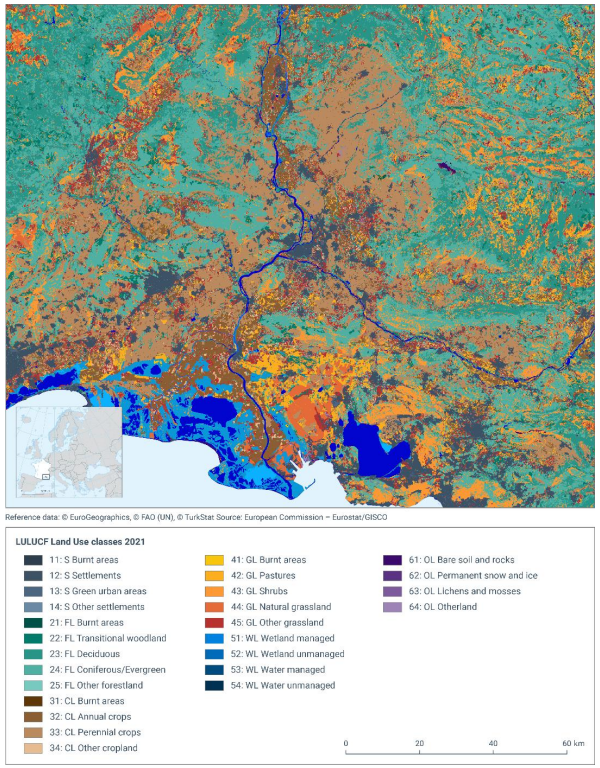
- Methods, status and options for inventory improvements

SETTLEMENTS

- **Urban green mapping and classification (new datasets)**
  - **Explore spatial datasets**
  - **Develop and describe methodologies to map and quantify (total and relative areas) of** the land surface that is covered by **urban vegetation within settlements** (aligned with **Tier 2a Crown cover area method**) and the areas covered by these components within the various settlement systems (aligned **with Tier 3 methodology**).
- **Identification of emission factors for trees outside forests (EF, stocks)**
  - **Identify datasets to associate stocks of carbon** for the different settlement types for the refinement of the estimation of land converted to settlement

OPTIONS FOR LAND USE TRACKING

- **Use of LPIS/IACS data (review methods+ guidance) → *Rafal Zielinski pres. (PM)***
- **LULUCF INSTANCE (CLMS)**



LULUCF instance – what and when?

- Operational product, combining ca. 15 existing pan-European datasets (mainly CLMS)
- Production annual and funded by CLMS
- Initial versions available every January for inventory year +2 in sync with country reporting

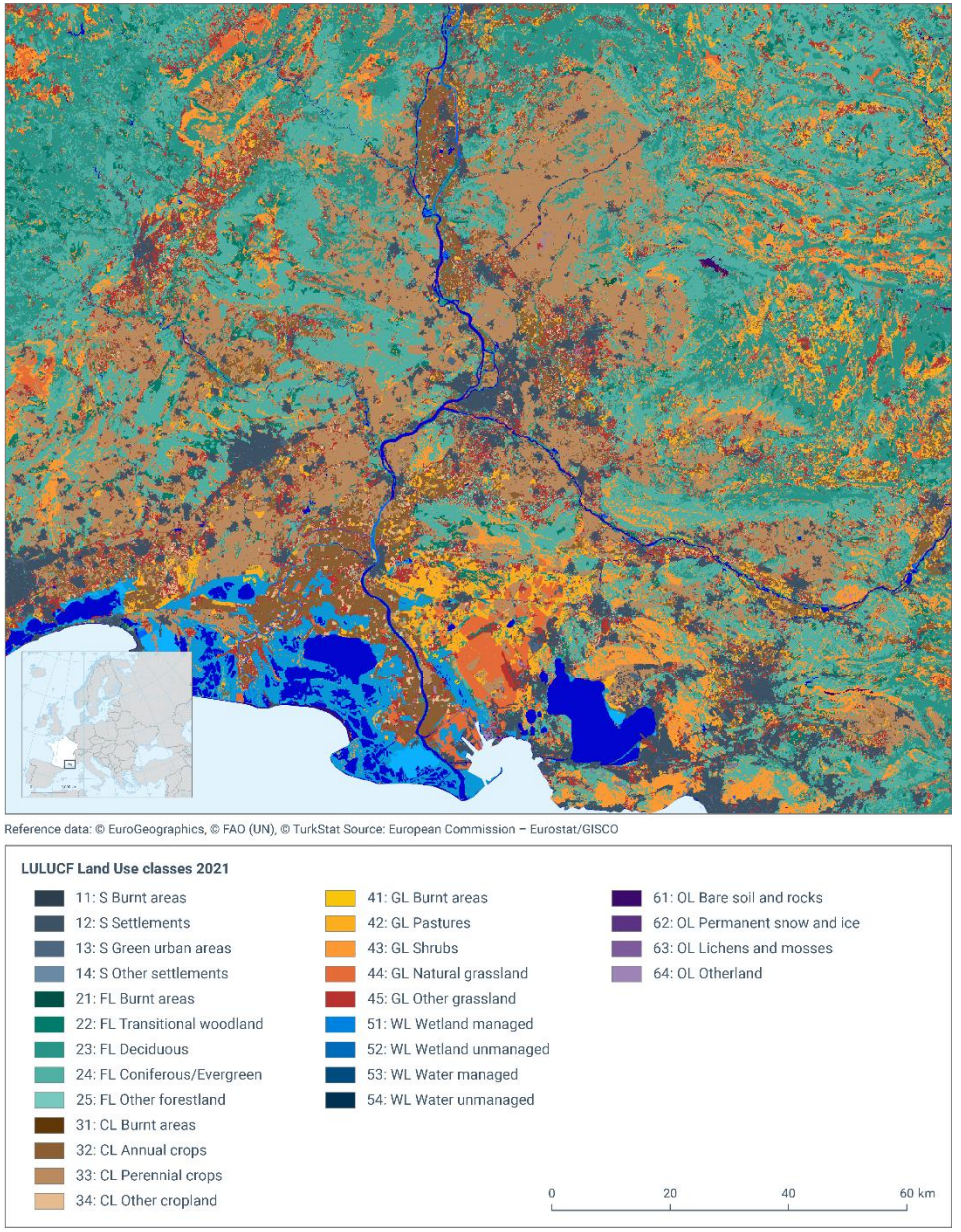
European Environment Agency

LULUCF instance as operational EO based activity data proxy

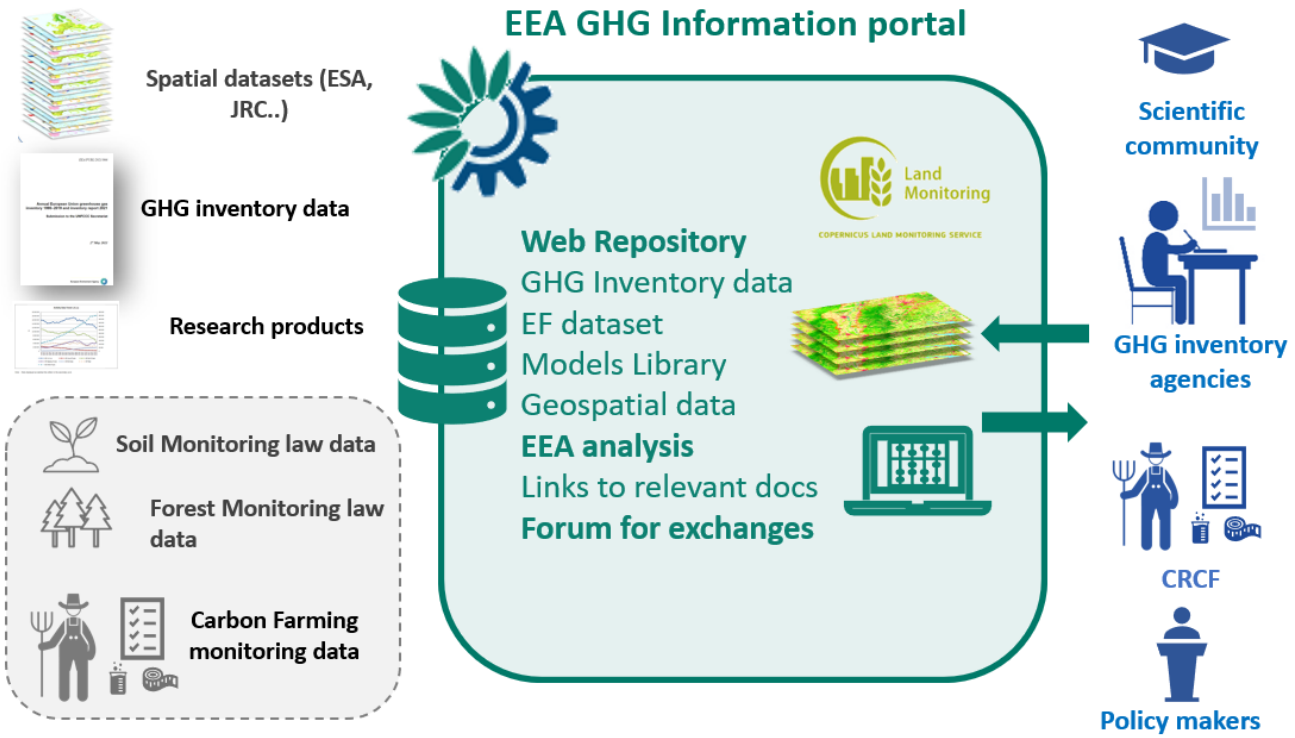
Status and next steps

- Data available on request today (**2021 & 2023**), publication on CLMS portal planned for Q3/2025, then every year in Q1
- Detailed **Product User Manual** in preparation
- Testing of **EEA workflow to use the data** ongoing in 2025
- **Reminder**: workflow will not replace or interfere with existing initial checks, but will add bilateral discussions on content of activity data reporting
- LULUCF instance-based checks will build on detailed "Country Fact Sheets" collecting relevant information for each country
- **Additional training/outreach activity in Q3&Q4 2025 planned**

Reminder: countries can also use the ***CLCplus Core*** *Database* & web-interface to create their own geospatial LULUCF datasets!



On line GHG knowledge hub

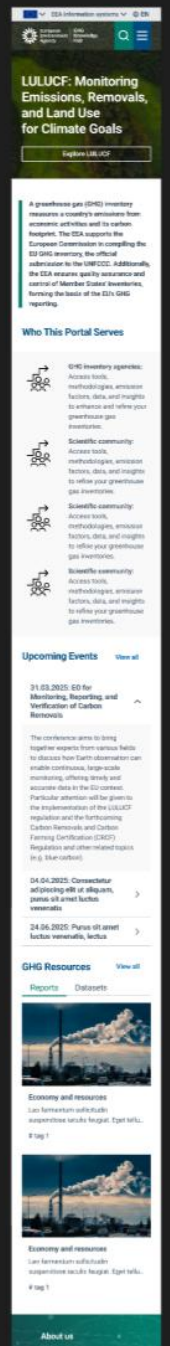


The **EEA GHG knowledge hub aimed** to facilitate the access of relevant data to **improve the MS GHG inventories**

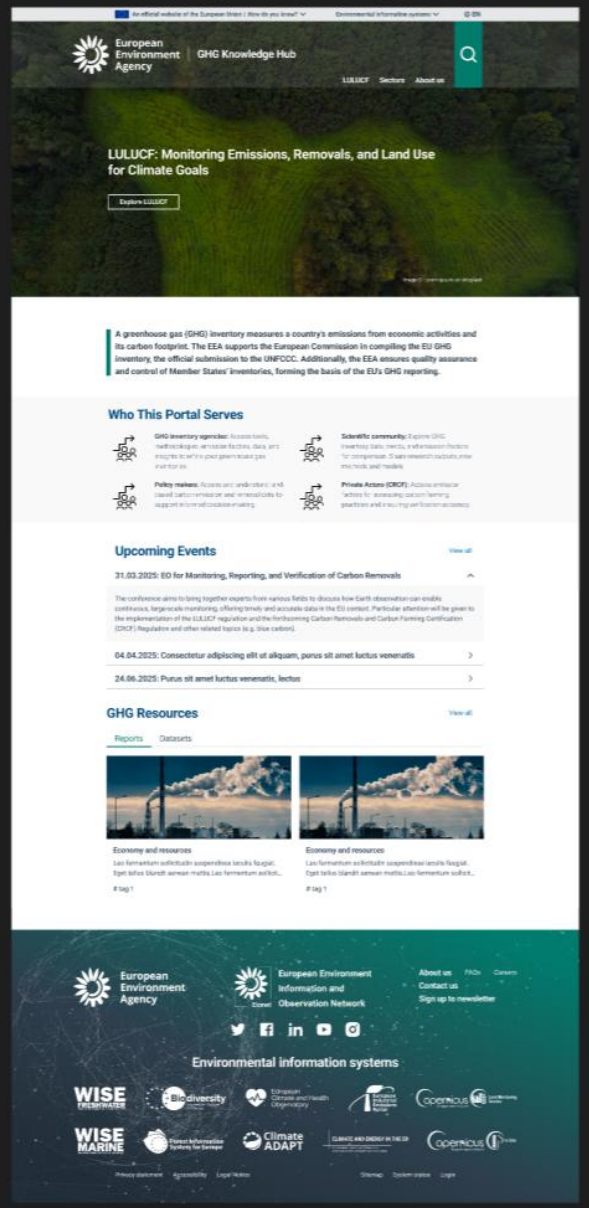
Data types

- **General information on LULUCF/Inventory requirements and methods produced by CLIMA3 Unit**
- **Inventory related data** such as estimation methodologies and emission factors
- **Geospatial data coming from different sources (links and metadata info): e.g. Copernicus; ESA CCI biomass data**
- **Links to relevant scientific project/reports**

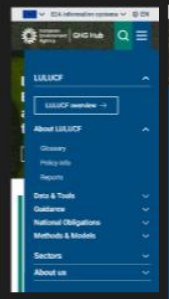
EEA/ Climate ...



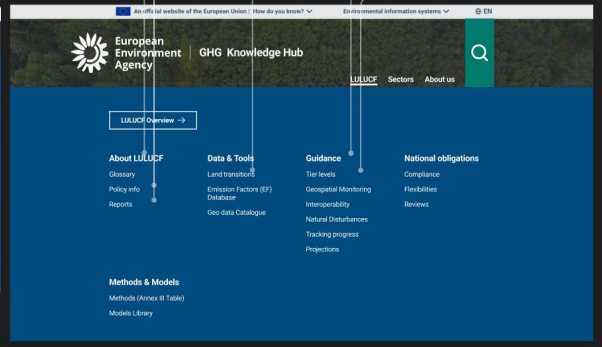
EEA/ Climate and Energy / Desktop / Homepage



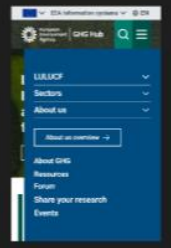
EEA/ Climate ...



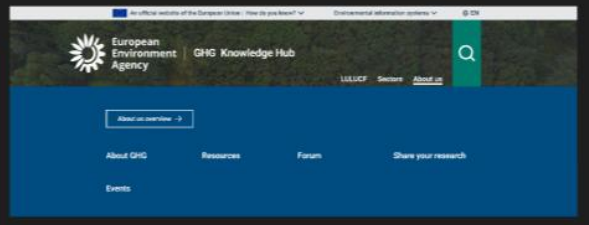
EEA/ Climate and Energy / Desktop/ LULUCF MEGA MENU



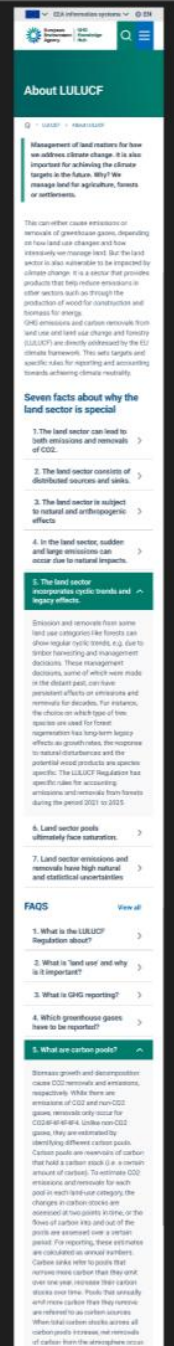
EEA/ Climate ...



EEA/ Climate and Energy / Desktop / About us



About LULUC...



About LULUCF Version A

European Environment Agency

Handbook on the updated LULUCF Regulation EU 2018/841

Guidance and orientation for the implementation of the updated Regulation

Version: 2

Date: 13.05.2024

EEA activity: FRAMEWORK SERVICE CONTRACT EEA/CET/22/001

An official website of the European Union | How do you know? Environmental information systems EN

European Environment Agency | GHG Knowledge Hub

LULUCF Sectors About us

LULUCF Overview →

About LULUCF

Glossary

Policy info

Reports

Data & Tools

Land transitions

Emission Factors (EF) Database

Geo data Catalogue

Guidance

Tier levels

Geospatial Monitoring

Interoperability

Natural Disturbances

Tracking progress

Projections

National obligations

Compliance

Flexibilities

Reviews

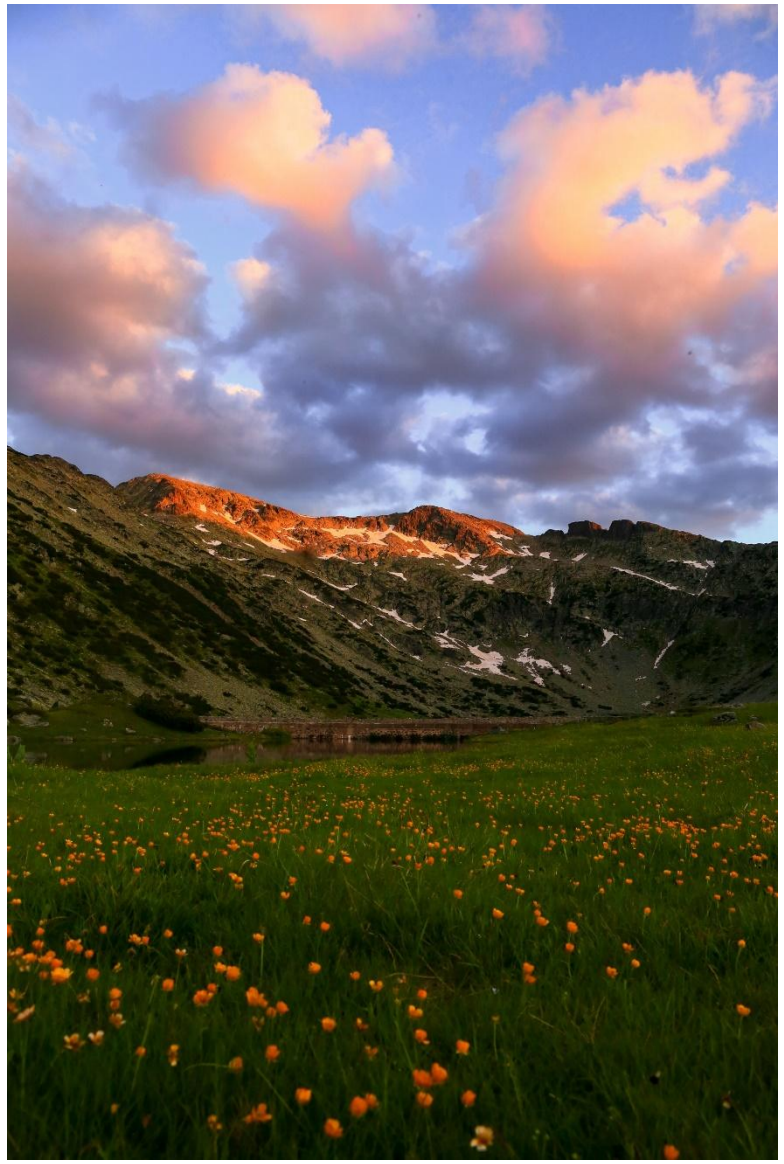
Methods & Models

Methods (Annex III Table)

Models Library

EF/Parameter Visualization tool

EEA Report – Enhancing Europe's land sink: status and prospects



Report has been developed in collaboration with several ETCs and with the valuable comments from the Commission and Eionet.

Scope of the report:

- General description
- **Status of the sector in terms of reported GHG emissions/removal**, and reflections on current reporting practices and areas for improvement.
- **Assessment of options to reduce emissions** or increase removals in LULUCF, in terms of mitigation potential, co-benefits/trade-offs and enabling conditions.
- **Description of the policy framework** at EU level and resulting data needs and use cases.
- Overview and **high-level description of relevant pan-European geospatial data-sets**.

> **Report foreseen to be published end of May / early June 2025**

Second Conference on EO for monitoring, reporting and verification of carbon removals

7-10 October 2025
Copenhagen

- **LULUCF INVENTORY FOCUS**: 7/10 PM – 9/10 PM
- **3RD CARBON MARKET FORUM**: 9/10 AM-10/10 PM

esa

European Environment Agency

Thank you

Contact us!

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Use of LULUCF instance as independent data for EEA (in development)

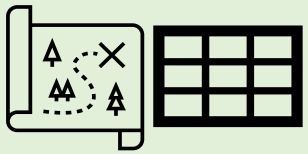
New LULUCF instance based additional checks (under development)

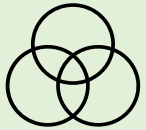
EEA and MS to **Explore differences** together and identify possible issues on either side

Member States

CLMS

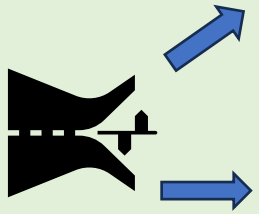
Delivery LULUCF instance maps and tables Q1 inventory year +2





Compare instances derived and country reported figures

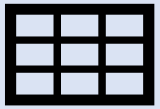
GHG Reporting and Verification unit



Significant differences that are not explainable with the inventory report

Reasonable match instance and country reporting

Member States



Delivery LULUCF CRT/NID
15st January inventory year +2

EEA

Initial checks @ EEA (mid January to mid April). Complex checking, approval and publication process

Initial checks (unchanged)

European Environment Agency

LULUCF instance and CLCplus Core: where to find out more?

LULUCF instance access to the data:

- **2021** and **2023** on request (email to tobias.langanke@eea.Europa.eu)
- **2022** and **improved version for 2023** from October 2025
- From January 2026 annual updates in synch with reporting (inventory year +2)
- All data published on CLMS portal from Q3/2025, including Product User Manual

CLCplus Core database and web-interface:

- https://clcplus-core.land.copernicus.eu/
- Access with EIONET password (contact tobias.langanke@eea.Europa for more info)

Overview CLMS portfolio and EO derived products

- CLMS portfolio — Copernicus Land Monitoring Service