

# Land use emissions in a global context and IPCC updates

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# The global carbon budget (2014-2023)



Inventories, with the IPCC "managed land proxy", apply a broader definition of anthropogenic sink than models, in terms of areas and processes considered.

# Land remains a blind spot in tracking progress under the Paris Agreement due to lack of data comparability

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#### LULUCF emissions 2030

#### KEY messages:

- LULUCF: 25% of global mitigation pledges in 2030 in conditional scenario.
- LULUCF excluded from the First Global Stocktake (2023)
- Essential that future Global Stocktakes compares models and country data

The mismatch in LULUCF numbers has attracted the attention of the media

# The Washington Post2021Countries' climate pledges<br/>built on flawed data,<br/>Post investigation finds

2024

# NewScientist

**Countries are cheating their way to net zero by overrelying on forests** 

2025



How countries cheat their carbon targets - video



## The mismatch is due to different "languages", and has relevant impacts



It is possible to "translate" the results of the models, but this has important consequences:

- It reduces the residual carbon budget originally defined by the global models.
- Reaching net zero CO<sub>2</sub> globally is not enough to stop global warming.

#### MISUNDERSTADINGS

CNN, September 30, 1999

#### Metrics mismatch causes NASA losing a \$125 million Mars orbiter

Misunderstanding occurred because one team of spacecraft engineers used English units (pound-seconds), while the other team used more conventional metric (newtonseconds)





CNN, **December 15, 2028** 

Paris Agreement at risk.

A large gap in land use CO<sub>2</sub> emissions between IPCC AR7 and National inventories causes the failure of the UNFCCC 2<sup>nd</sup> Global Stocktake

Misunderstandings occurred on the concept of "anthropogenic sink"

# IPCC Expert Meeting on land (Ispra, July 2024)

- **Global carbon modelling** supporting the IPCC assessment reports, including the Global Carbon Budget and the Integrated Assessment Models
- Earth Observation
- Country LULUCF GHG inventories

Plus: UNFCCC, FAO, WMO, GFOI, GCOS

#### Aims:

- Common understanding
- Enhanced collaboration
- Greater confidence and comparability of LULUCF estimates



111 experts.

46 countries

## Where are we?

Have global emissions from deforestation increased or decreased in the period 2000-2020? Is land use (LULUCF) globally a source or a sink of emissions?



## Where are we?



Have global emissions from deforestation increased or decreased in the period 2000-

#### Is land use (LULUCF) globally a source or a sink of emissions?

Multiple Choice Poll 🗵 74 votes 🛞 74 participants



### **Strengthening collaboration across communities**

Datasets for comparing estimates, e.g. JRC global land use carbon flux hub
<u>https://forest-observatory.ec.europa.eu/carbon</u>



EU observatory on deforestation and forest degradation





## **Conclusions of the Expert Meeting**

- A dialogue has begun among communities that had never truly interacted
- Inventories: Transparency & completeness
- Models: Translation of results and Communication of the implications
- Enhanced collaboration within IPCC → key that IPCC AR7 provides estimates and scenarios for anthropogenic emissions and removals from land consistent with the national inventory definitions.



#### Report of IPCC Expert Meeting



#### IPCC side event at COP29







# **IPCC: products of the AR7 cycle**

#### Task Force on National Greenhouse Gas Inventories:

- Methodology Report on Short-lived Climate Forcers by 2027
- Methodology Report on Carbon Dioxide Removal Technologies, Carbon Capture Utilization (CDR-CCUS)

#### The AR7 Working Group Reports

- Special Report on climate change and cities in early 2027
- WG I The physical science basis
- WG II Impacts, adaptation and vulnerability
- WG III Mitigation of climate change

+ updating the 1994 IPCC Technical Guidelines on impacts and adaptation

• AR7 Synthesis Report by late 2029

SEVENTH ASSESSMENT CYCLE