

Gaps and needs towards spatially-explicit estimations of forest-related GHG emissions and carbon removals

- Evolving set of spatially-explicit dataset and estimates, i.e. as part of VERIFY WP3 (land change, biomass, various models)
- Increasing requirements and interests by countries
- Survey: developed by WP1 and WP3 for better understanding of status and needs for spatially-explicit estimating and reporting for national GHG inventories
- Focus on LULUCF sector with a focus on forest-related categories (ref. Regulation (EU) 2018/841)
- Seven replies from national agencies in VERIFY (Ireland, Norway, Austria Netherlands, Germany, Italy & France)
- Survey open: <https://forms.gle/rrSH5cUTEEk3LEzA6>

Status and plans for spatially-explicit data

Q.2.2 To what extent is spatially-explicit data currently being used within the preparation of the GHG inventory of your country (N=7)

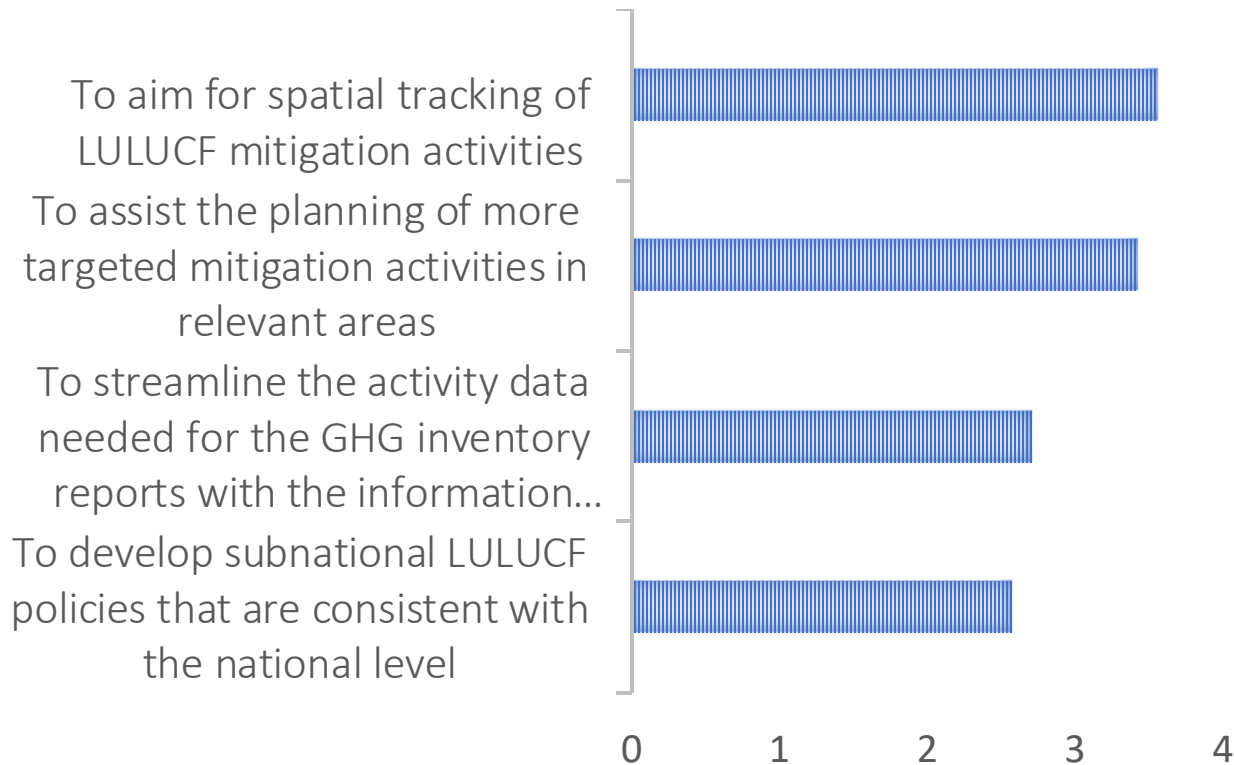
They are used for activity data (land-use, land use change and burned areas)	5
They are used for biomass/carbon stocks and change	4
They are used for land management information	3
They are not used	2

Q.2.3 Do you plan to increase the use of spatially-explicit data within your GHG inventory in the next few years?

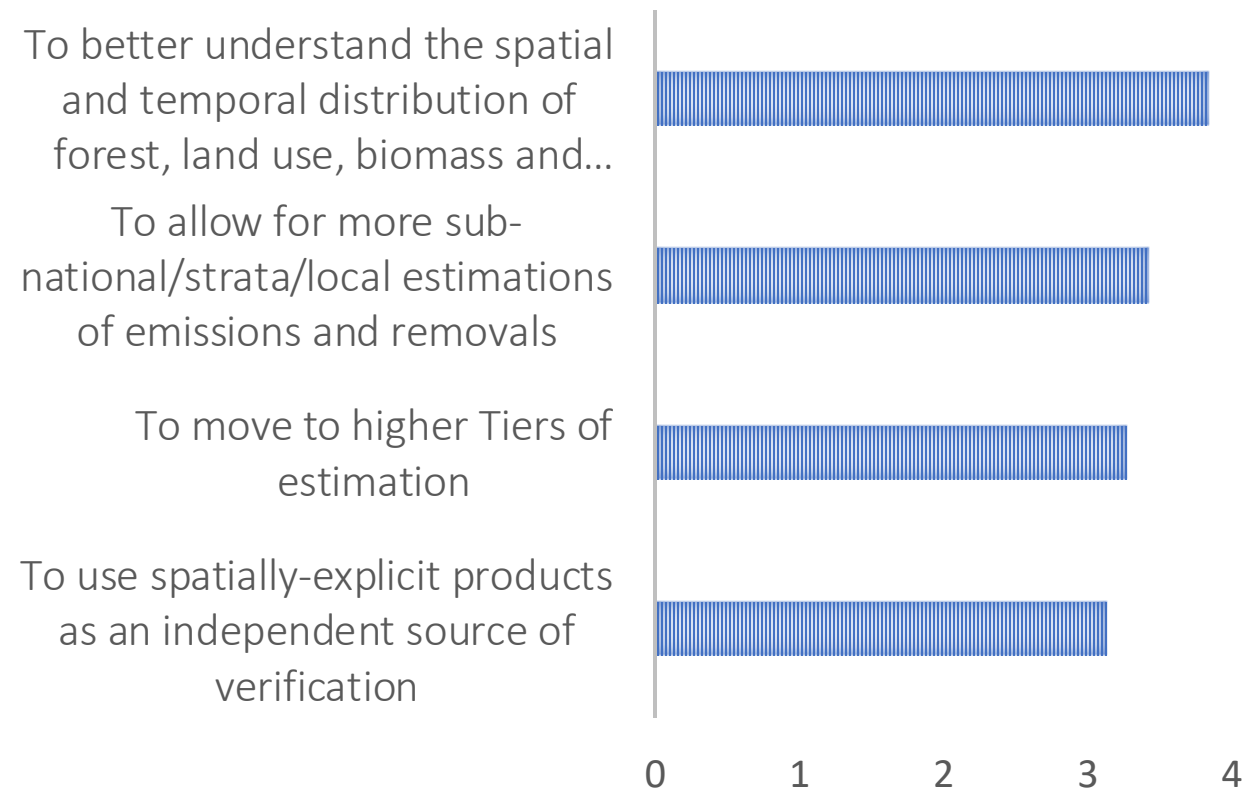
Yes, we plan to increase the use with regards to biomass/carbon stocks and change	5
Yes, we plan to increase the use with regards to activity data (land-use, land use change and burned areas)	4
Yes, we plan to increase the use with regards to land management information	3

Main motivations to further develop spatially-explicit estimations

“Political” motivations



“Technical” motivations



Awareness of evolving data sources and approaches

Q 3.1 Identify in the list below, what are the data sources and approaches you are fully familiar with

Available land cover/land use datasets for area change estimation	7
Remote sensing time series approaches for tracking forest dynamics and disturbances (e.g., forest change, fire and burned area data sets)	4
Forest and forestry information models	4
Process-based carbon models	3
Biomass density maps from remotely derived data	3

Requirements for relevant spatially-explicit datasets

Criteria	Most common answer
Spatial resolution	10-30 m OR 0.01 – 0.09 ha (MMU)
Temporal frequency	Annual
Temporal range	Since 1990

In the absence of a complete time series, most respondents would consider the product, if the method to reconstruct the time series with ancillary data can ensure consistency with IPCC guidelines

Limitations / challenges on spatially-explicit estimating

Criteria	# replies
Limited availability of data sources and approaches (e.g., spatial or temporal resolution)	5
Limited potential to ensure a consistent land representation and/or consistency with national definitions (e.g., of forests)	5
Lack of temporal consistency or complete time series	4
Concerns that accuracy and consistency of national estimations will decline	4
Limited accuracy of available datasets and approaches	3
Lack of guidance on how to integrate novel spatial data sources/approaches with current approaches for national estimation	3
Lack of national capacity to deal with novel data sources and approaches (e.g., difficulties to process large size datasets)	2

First conclusions

- Need and plans by countries towards spatially-explicit estimations of forest-related GHG emissions and removals
- Prominent motivations: better understand spatio-temporal patterns and for tracking of mitigation activities and related planning/management
- Current use and awareness mostly for land use change; less so for biomass maps and forest/carbon models
- Most need for “high-resolution” (i.e. 10-30 m, annual)
- Consistency is key: long-term, national definitions
- Sense of limited availability/accuracy/consistency of data sources and approaches ... at the same time limited awareness for some new development

Next steps

- If you are representing a national LULUCF GHG inventory agency and have not completed the survey, please do so:

<https://forms.gle/rrSH5cUTEEk3LEzA6>

- Need for further exchange on current practices, evolving needs and novel (technical) opportunities:
 - Raise joint understanding and awareness
 - Scope priorities and activities for collaborative efforts
 - How to best arrange that (WP1/W3 effort)?