QA / QC procedures

Training seminar on QA/QC procedures in Land use, Land-use change and Forestry sector
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Activity data

- NFI land use, living and dead biomass:
  - identification of outliers in data base *(extraordinary large stocks or increments, enormous dimensions of trees, unrealistic land uses – swamps with trees characteristic for stands having high site index atc.)*;
  - proposals for correction of data in NFI *(internal quality procedures are applied to correct data)*;
  - Pivot tables based evaluation of land use changes between NFI cycles and manual identification of doubtful cases;
  - proposals for correction of initial land use category if it is required by logic tests *(like 10 years old forest on bare ground settlement in previous cycle)*.

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Other activity data

- Country area check in statistical databases *(no changes are applied; however NFI shows some reduction of area due to water erosion).*

- Comparison of forest fire and other statistics to identify if there are changes in historical data.

- Comparison of croplands area under LULUCF and statistics of agriculture *(if there are too few croplands to cover all reported activities).*

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QC checks of the estimates

- A comparison of the methodologies used to estimate emissions and removals with those recommended in the newest guidelines.

- A review of alternative methodologies and their potential impact.

- A comparison of *(higher tier)* estimates with lower tiers.

- A comparison of estimates to those of inventories from countries with similar national circumstances *(not possible now)*.

- A review of the assumptions assumptions.

- A check *(internal discussion)* of whether the allocation to categories in the CRF is correct.

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Time series consistency
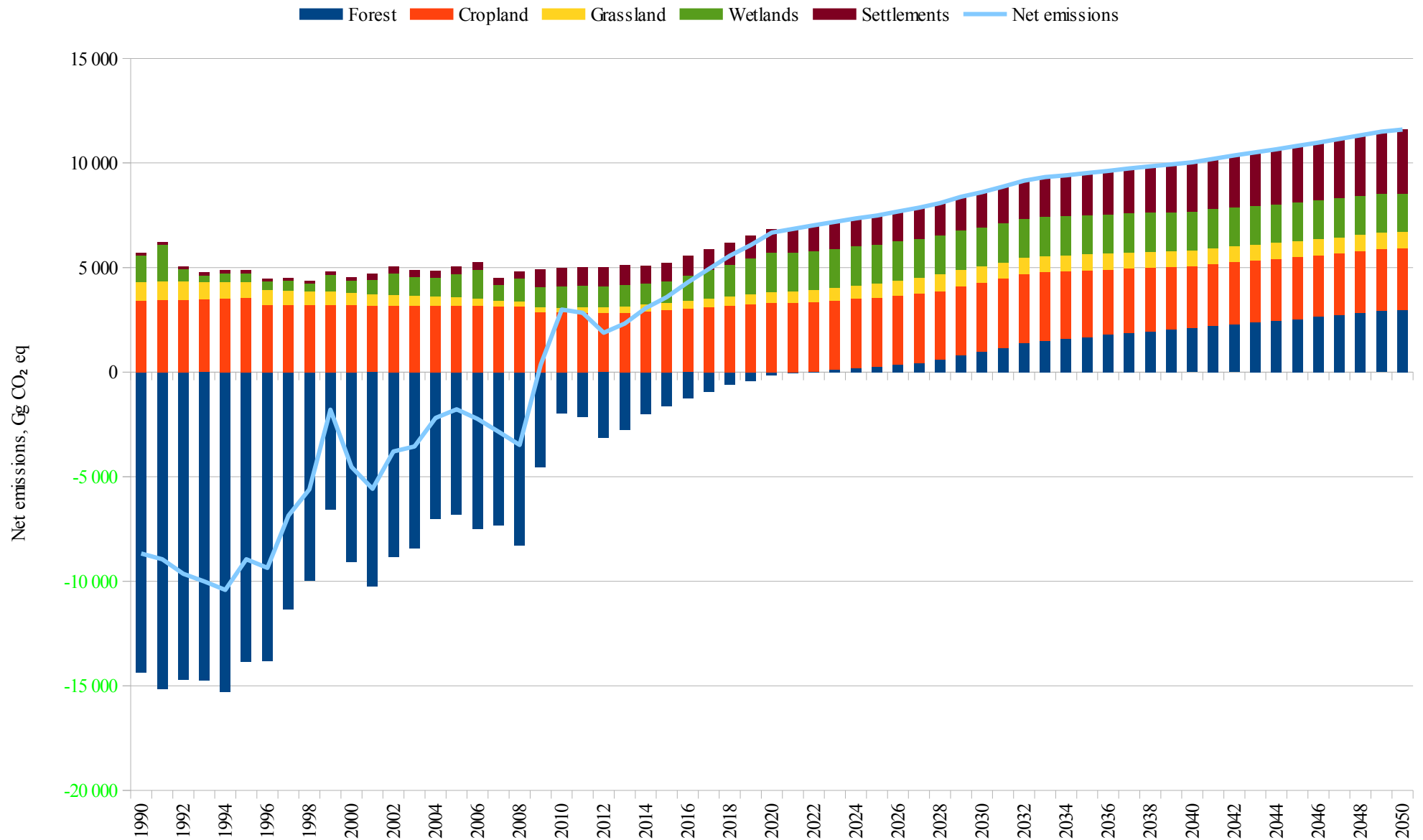
Carbon stocks
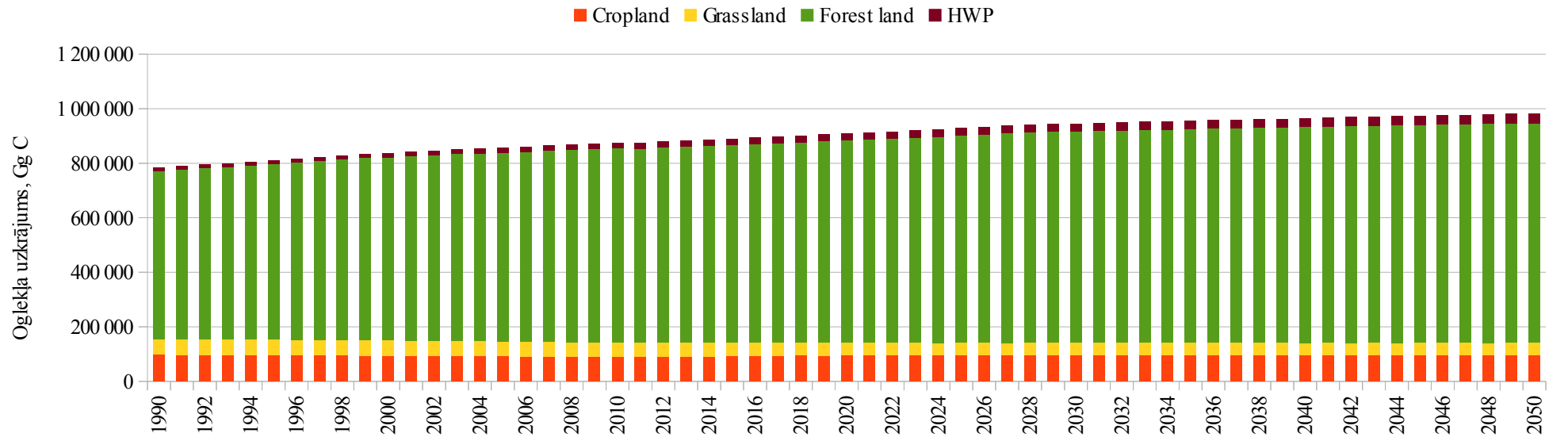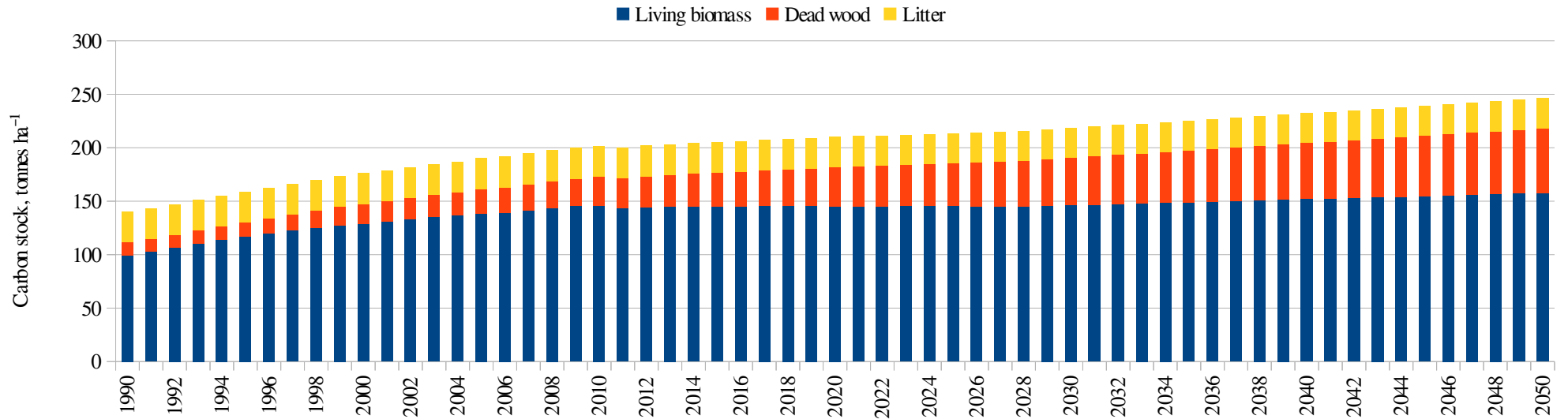
Completeness check

- Automated completeness is checked in the CRF reporter.

- Check inclusion of all emission/removal sources listed in 2006 IPCC guidelines.

- Selected LULUCF and KP tables in CRF are inspected for missing or misplaced annual values.

- Comparison of sums reported under KP-LULUCF and LULUCF.

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Emission factors & other parameters

- A comparison of the emission factor with those recommended in the Guidelines and identified through a literature search *(done once or in case of changes of guidelines).*

- An assessment of the applicability of the emission factors used for national circumstances *(usually results in recommendation for improvement plan).*

- A quantification of the uncertainty *(addressing statistical and non-statistical errors).*

- An assessment of changes in emission factors over time due to changes in management *(mortality).*

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Recalculations

- Recalculations of sink/source categories are explain in the NIR chapters.

- Additional explanation *(about 1 sentence)* of changes larger than 50 %.

- Double check of emission factors *(discussion with responsible expert)*, if it is the reason for considerable changes.

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Tracking of changes in calculations

Not implemented very well in NIR.

Cross-sectoral issues

- Biomass in energy sector – if the values are realistic in relation to felling stock / import / export of roundwood.

- Woody biomass in landfills *(we are, probably, overestimating emissions from HWP, because no removals of biomass is considered in landfills).*

- Sown areas and organic soils in agriculture – if they are smaller or equal to cropland in LULUCF.

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Improvement plan

- Proposals are based on technical needs and key source analysis; issues are removed from the list of improvements if they are successfully solved *(approved by reviewers)*.

- Development of production version of EPIM tool *(includes uncertainties, comprehensive representation of land use change including drained and wet organic and mineral soils, merging of land use & emissions calculation modules as well as KP-LULUCF and LULUCF calculation modules, 1900-2050)*.

- Implementation of principle – all data from the same tool.

- Improvements based on the new representation of NFI inventory data *(polygon based land use and carbon stock changes)*.

The highest priorities

- Development and implementation of country specific decay periods for dead wood *(below and above ground harvesting residues; stem, below and above ground stumps and roots and crown biomass)*.

- Soil carbon stock changes in drained organic soils *(forest land, cropland, grassland)* and naturally wet organic soils.

- CH_4, DOC and N_2O emissions from drained and wet organic and mineral soils.

- More accurate accounting of losses in living biomass due to deforestation.

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Questions, comments?