

Domestic Review of the calculation of the Harvested Wood Products Pool in Switzerland

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Summary

The review focused on 1) reproducibility of the results including transparency of the description of the procedure, and 2) consistency with the 2006 IPCC guidelines and the 2013 Revised Supplementary Methods and Good Practice Guidance Arising from the Kyoto Protocol.

The review was based on the following documents:

- "Handbuch: Berechnung der Holz Emissionsfaktoren 2018"
- "Harvested wood products (HWP) in the Swiss GHG inventory".
- "Berechnungstabelle HWP NIR2017.xlsx"
- "2018_QC_checklist_LULUCF-HWP"

The review did not identify major errors and found that the calculations are consistent with the IPCC guidelines. Few aspects were identified that could result in errors, particularly regarding the values for 1961 to 1989 for the import and export totals of 'Industrial Roundwood(C) + (Total)' and 'Industrial Roundwood(NC) + (Total)' in 'Berechnungstabelle HWP NIR2017.xlsx', sheet 'Input data FAOstat 1961-2020'; see specific comments for details. Few minor inconsistencies such as references to individual cells in the Excel workbook calculations are listed under specific comments. Overall, the documentation is transparent and values could be reproduced. The documentation could be further improved by explaining individual work steps carried out in the 'Berechnungstabelle' in the manual.

General comments

1. Reproducibility

- The import of the FAO data based on the manual is straightforward. Suggestions for improvements are listed below or inserted directly into the manual.
- The calculations in 'Berechnungstabelle HWP NIR2017.xlsx' are overall transparent but some data are missing or their source is not explained (data for import and export totals of 'Industrial Roundwood(C) + (Total)' and 'Industrial Roundwood(NC) + (Total)', 'Input data FAOstat Indrw List') resulting in limitations to reproduce the data.
- Based on information from P. Camin, the implementation of the calculation of paper products is still in progress. This was therefore not assessed.
- More detailed information on which software and the version was used; for example the FAO data download using Firefox was possible but the data could not be formatted consistently with the instructions.

2. Consistency with the 2006 IPCC guidelines and the 2013 Revised Supplementary Methods and Good Practice Guidance Arising from the Kyoto Protocol

- Calculations are consistent with IPCC guidelines.

- No errors in the calculation in 'Berechnungstabelle HWP NIR2017.xlsx' were found and table calculations are consistent with the description in "Harvested wood products (HWP) in the Swiss GHG inventory".

3. Additional comments

- Access to data and documents:
 - internal links could not be tested;
 - links to FAO database are correct.
- I am missing efforts to verify the results with independent data. If such data are not available then a comparison with neighboring countries may be appropriate.
- Based on the checklist section 4, the manual is to be updated every year. In the manual as in the Berechnungstabelle it would be valuable to list recent revisions. This would improve the understanding of revisions and explain immediately any changes to the time series.

Specific comments

4. Document „Handbuch: Berechnung der Holz Emissionsfaktoren 2018“:
 - The manual is in German, which may be problematic for non-German speakers.
 - The manual is limited to the description of the import of FAO data; it does not explain the calculation steps in 'Berechnungstabelle HWP NIR2017.xlsx'.
 - Some problems were experienced regarding data download, data import and formatting. They could all be attributed to software issues. It would be very helpful to state which software and version was used.
 - Title: - use of the year '2018' is misleading as the subtitle indicates that the manual is relevant for NIR submission 2017.
 - Chapters 1 & 2: ignored; not relevant for calculations.
 - Chapter 3: all documents available.
 - Chapter 4: see comments inserted directly into the document
 - Chapter 5:
 - An automated calculation is likely efficient but it may not be transparent. The implemented approach however could work well if additional explanations are added. Some steps are not transparent and no explanation is given, e.g. for 'Input data FAOstat Indrw List' or 'Input Prod HWP 1900-1960 HIS'. It would be very helpful to describe the different steps in the calculations. This is missing currently.
 - Regarding comment by P. Camin on QC: I agree. A check of the current and the most recent time series could ensure that recalculations by FAO are picked up. This is included as an item in the checklist.
 - Further comments and language editing suggestions were made directly in the document using 'Track changes'.

- In 'Berechnungstabelle HWP NIR2017.xlsx', sheet 'Input data FAOstat 1961-2020', values for 1961 to 1989 for the import and export totals of 'Industrial Roundwood(C) + (Total)' and 'Industrial Roundwood(NC) + (Total)' exist. Such data do not exist in the downloaded data from FAO. If the downloaded data are pasted as instructed into the respective rows in 'Berechnungstabelle HWP NIR2017.xlsx', the existing values are overwritten. Consequently, the values with aggregated data in rows 'available Industrial roundwood for production HWP- production+import-export' and 'Balance industrial roundwood/HWP' differ from the original values. If the respective values for the years 1961-1989 are correct and should remain, this would need to be emphasized in the manual. **Please check!**
- Data on "Rodungsanteil" appear to be missing.
- Chapters 6 to 7: links could not be followed. No explanations are given. This appears to be work in progress.

5. Document "Berechnungstabelle HWP NIR2017.xlsx":

- Worksheet „readme“ is incomplete. Maybe indicate here the link to the chapters in "Harvested wood products (HWP) in the Swiss GHG inventory". It may be valuable to include here or as a separate worksheet a documentation of revisions to the calculations in this document.
- Worksheet „half life factors“: it may be more transparent to use the English terms as done throughout the manual and the further worksheets rather than "Schnittwaren", "Platten", and "Papier"; sources of the equation and the half-lives are missing, i.e. IPCC 2014 eq. 2.8.5 and table 2.8.2, or link to "Harvested wood products (HWP) in the Swiss GHG inventory".
- Worksheet „ Conversion factors “:
 - First table: I could not find "Kollmann, 1982". The reference is also not given in "Harvested wood products (HWP) in the Swiss GHG inventory". Are these values justified? For some products they differ from the values in Tab. 2.8.1 in IPCC 2014. Also, some values are used from IPCC 2003 but updated values are available in Tab. 2.8.1 in IPCC 2014. Since Annex I parties shall use the IPCC 2006 guidelines (15/CP.17), as a consequence the IPCC 2014 values shall be used.
 - Second table: here are the updated values from IPCC 2014. In worksheet "Berechnung Anteile DH, FM, DEF" the updated values are used; maybe this could be indicated here.
 - Third table: what are these values? where do they come from?
 - Note that the correct spelling is "conversion" not "conversion".
- Worksheet „ Input Prod HWP 1900-1960 HIS “: According to the readme, these data are not used. It may be more appropriate to move this worksheet to an appendix?
- Worksheet „ Input data FAOstat 1961-2020“:
 - source of data import and export totals of 'Industrial Roundwood(C) + (Total)' and 'Industrial Roundwood(NC) + (Total)' 1961-1989 not clear;
 - calculations in lines 51 and 58 not clear; presumably they are just for cross-checking but with no explanation this is confusing;
 - see also comments on the manual.

- Worksheet "Share Ind Rdw + Pulp":
 - Link to ch. 4.4 in "Harvested wood products (HWP) in the Swiss GHG inventory".
 - A comment on the calculations made here would be valuable such as a link to eq. 2.8.1 in IPCC 2014.
 - In Table part 'Ind Rdw C', the value in 1961 for the import quantity of 'Industrial Roundwood(C) + (Total)' is 0 based on the link to another worksheet. This link is not consistent with the links for data 1962-1989. Please check.
 - Many values link to worksheet "Input data FAOstat Indrw List" which is hidden. This is not transparent and may be a source of errors if these values change, due to a recalculation by FAO. It should also be explained why data <1990 are based on a different worksheet than the data >1989.
- Worksheet „ Berechnung Anteile DH, FM, DEF “:
 - Link to ch. 4.3 in "Harvested wood products (HWP) in the Swiss GHG inventory".
 - Values of insulating board are assigned values of other fiberboard. This is not transparent and should be explained.
 - Industrial roundwood is not considered yet as values are missing? work in progress?
 - It may be useful to refer to "Harvested wood products (HWP) in the Swiss GHG inventory" to explain why initially the mean 1961-1970 and later the annual values are used to estimate the domestic production.
 - I assume that values for "Deforestation ratio (Berechnungen RN, 24.10.16)" are correct as they are not further explained.
 - In "HWP Production from domestic harvesting in Gg C from DF" it appears that the cell reference (i.e. to line 45) for the years <1990 is incorrect.
- Worksheet „HWP - Inflow FM “:
 - what is the meaning of the constant '1' used in the calculation of the inflow; since it is 1 for all 3 products it appears redundant.
- Worksheet "Stock change Sawnwood 1900 FM": calculations correct, no errors found; graphics not examined.
- Worksheet „Stock change Panels 1900 FM “: calculations correct, no errors found; graphics not examined.
- Worksheet „ Stock change Paper 1900 FM “: not examined as this is work in progress according to P. Camin
- Worksheet „ HWP - Inflow DEF “:
 - what is the meaning of the constant '1' used in the calculation of the inflow; since it is 1 for all 3 products it appears redundant.
- Worksheet „Stock change Sawnwood 1990 DEF“: calculations correct, no errors found; graphics not examined.
- Worksheet "Stock change Panels 1990 DEF": calculations correct, no errors found; graphics not examined"
- Worksheet "Stock change Paper 1990 DEF": not examined as this is work in progress according to P. Camin
- Worksheet "Share INDRW vergleich JB": appears to be some cross-check and work in progress.

- Worksheets "Table 4.G s1 (2)", "Table 4.G s2", and "4(KP-I)C": not examined. work in progress?

6. Document "Harvested wood products (HWP) in the Swiss GHG inventory":

Chapters 3 and 4 repeat primarily general information on HWP accounting from the guidance documents. The country-specific information on the implementation is not clearly identified reducing the transparency of the document; see comments in the document.

- ch. 5.2.1 is unclear: is it the obvious choice and do the data meet the requirements? What is the meaning of the last two sentences?
- ch. 6.1: there are several statements that do not match the data in the corresponding figures; description of Fig. 5 is unclear; the final paragraph is supposedly intended to recapitulate the conditions in 2015, i.e. the latest and the reporting year but the structure is misleading. (see comments in text)
- ch. 6.2.2 is the same as ch. 7.4
- ch. 6.2.3: chapter should provide supporting information to values used in NIR, ch. 6.11.3

7. Document "2018_QC_checklist_LULUCF-HWP"

- Refer in each section to relevant documents, ie. manual and 'Berechnungstabelle'.
- Section 1, „Prüfung der Plausibilität und Qualität der Inputdaten“; see comment by P. Camin in chs 5.2.1, 5.2.2, 5.2.3 in the manual.
- Section 1: include more detail as for example in section 2? Production data correct, separation into pools correct, proportions DH, FM and DEF correct, conversion factor up-to-date
- Section 2: be more explicit? For example, check half-lives.
- Section 2, item "Korrekte Aggregation der Daten": „Zwischenresultate der Berechnungen sind in der Berechnungsdatei dokumentiert“ is not yet the case; these interim results would need to be clearly identified.
- Section 3, „Methodenwahl“: uncertainties are not document in NIR ch 11.3.1.5 as stated but rather in ch. 6.11.3.
- Section 4: I am not familiar with the archiving concept at BAFU. Are there backups of annual data and documents also for local data? Should there be a check that after completion of annual calculations all relevant data, incl. local documents are backed up?

Birmensdorf, 11.09.2017

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