Update of the ILCD 2011 Midpoint method version 1.04 in SimaPro

September 2014

Introduction

The update is needed as some shortcomings to ILCD 2011 Midpoint method version 1.03 were found.

The ILCD method has now been improved and expanded. We have also added normalization factors. As we cannot replace the current ILCD method, version 1.04 will be added as a new method while the current version 1.03 will be moved to the Superseded category.

Since the method is used in the currently running European PEF/OEF pilot, we found it important to send out this intermediate update to all our users. Note that if you are participating in the pilot project you probably already have received the update through other channels. If you already imported the update, there is no need to import this update as it is the same.

This note describes:
1. Issues found and how they were solved in the corrected version
2. Background of the new normalisation sets
3. Instructions for importing the update and performing the append action
Known issue: information on missing water flows in ecoinvent v3.0.1 processes

Should you have any questions about the update procedure or the method implementation in SimaPro, feel free to contact us at support@pre-sustainability.com.

1 Issues found in ILCD 2011 midpoint version 1.03

There are several impact categories in which problems were found:

1. **Land use.** Several land occupation and transformation flows were missing. For example, "Occupation, arable" was included, but "Occupation, arable, conservation tillage" and "Occupation, arable, conventional tillage" were not included while they should have the same factor as the first flow. In total 113 of the 238 were missing. These factors have been added to the new version. Factors of flows that are not specified in the source spreadsheets of the method, such as unknown land occupation and flows related to water bodies, are assumed zero.

2. **Water resource depletion.** A factor for "Water, turbine use, unspecified natural origin" without region specification was incorrectly added in version 1.03. This can significantly distort the results when using ecoinvent 2.2. The factor for "Water, turbine use, unspecified natural origin" without region specification was set to zero. This factor is only used in ecoinvent 2.2 but should not be counted, as ecoinvent 2.2 does not contain a water balance, there is only water use and no water release. When using ecoinvent 3.01 the method is correct, but there is an issue in the water balance of some processes in the 3.01 ecoinvent data (see description of this issue below).

3. **Mineral, fossil & renewable resource depletion.** 39 of the 44 fossil resource flows in SimaPro are missing in the method and the factors of the 5 existing fossil resource flows are incorrect. This can underestimate the results considerably. These factors have been corrected and the missing factors have been added. Characterisation factors for renewable energy flows were missing, but they have not been supplied by the JRC, so they are all assumed zero and added with a factor zero.

4. **Toxicity.** Several metal flows are missing. It concerns a metal that occurs in different ionic forms: Chromium III, IV, and VI. The unspecified Chromium, Chromium III and Chromium IV flows to several sub-compartments were missing. These have been added.

5. **Particulate matter.** Characterisation factors for "Particulates, < 10um (mobile)" and "Particulates, < 10um (stationary)" were missing. These were added assuming they are the same as for "Particulates, < 10 um". Characterisation factors for "Carbon monoxide, biogenic", "Carbon monoxide, fossil", and "Carbon monoxide, land transformation" were missing. These were added assuming they are the same as for "Carbon monoxide". No characterisation factors are supplied by the JRC for "Particulates, > 2.5 um, and < 10um", for Particulates > 10 um, for Particulates without size specification and TSP (total suspended particulates). These were therefore all assumed zero.

6. **Freshwater eutrophication.** The flows "Fertiliser, applied (P content)" and "Manure, applied (P content)" were missing. The factors were not supplied by the JRC, but we assumed the same factor as in ReCiPe.

7. **Marine eutrophication.** The flows "Fertiliser, applied (N content)" and "Manure, applied (N content)" were missing. The factors were not supplied by the JRC, but we assumed the same factor as in ReCiPe.

8. **Climate change.** The characterisation factors for "Methane, land transformation" was missing. It was added assuming the same factor as for "Methane".

We apologize for the inconvenience. We are still trying to determine how these issues could have occurred, as the data had been reviewed by several internal and external persons.

2 Normalisation factors added

Besides these corrections, the normalization factors were added as provided in "European Commission, 2014, Environmental Footprint Pilot Guidance document - [Guidance for the implementation of the EU Product Environmental Footprint (PEF) during the Environmental Footprint (EF) pilot phase, v. 4.0](), May 2014". Weighting factors were added with equal weights for each of the recommended categories as indicated by the guidance document.
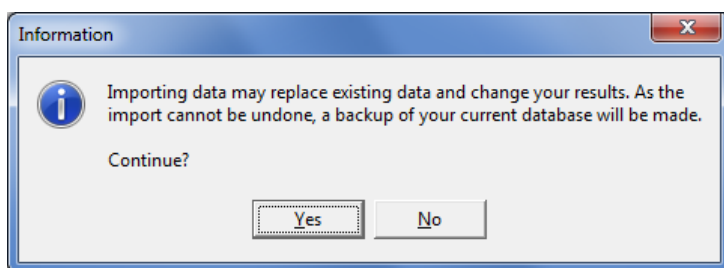
3 Instructions for installing version 1.04

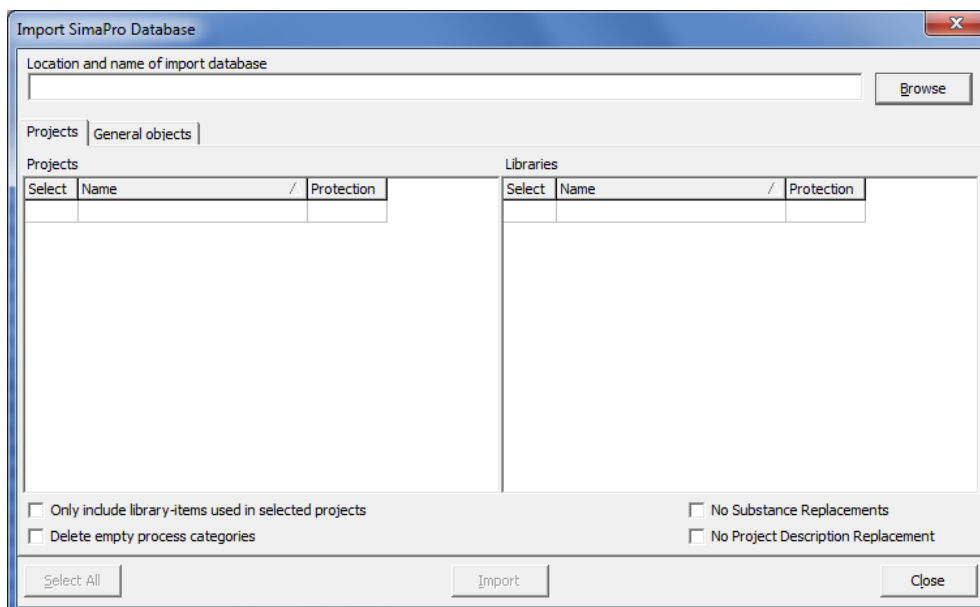Please follow the following instructions to install the updated version of the ILCD 2011 Midpoint method.

The update will add a new method "ILCD 2011 Midpoint+" version 1.04 to the Methods library and move the original "ILCD 2011 Midpoint" version 1.03 to the category Superseded.

Note that any changes you made in the original "ILCD 2011 Midpoint" method will be lost when the data is replaced. To avoid this, you can open and rename the method before starting the installation process.
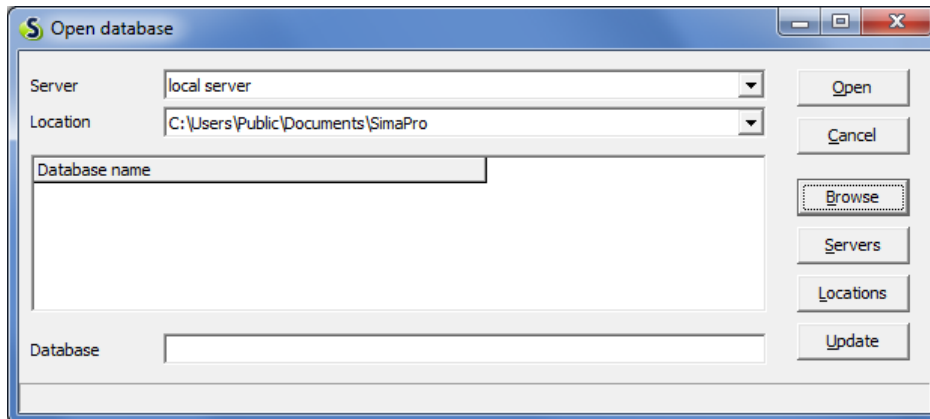
1. Unzip the MethodsUpdate803.zip file and make a note of the directory where you unzipped to.
2. Start SimaPro. If you have a SimaPro Multi-user version: Login as Manager. Make sure no other users are logged in at that moment, as the database will be locked during import
3. Check if SimaPro has opened the database that you want to update. If not, go to File> Open SimaPro Database and select the database you want to update (the database you usually work in).
4. Go to File > Import SimaPro Database. Click <u>Y</u>es to continue when the message below appears:
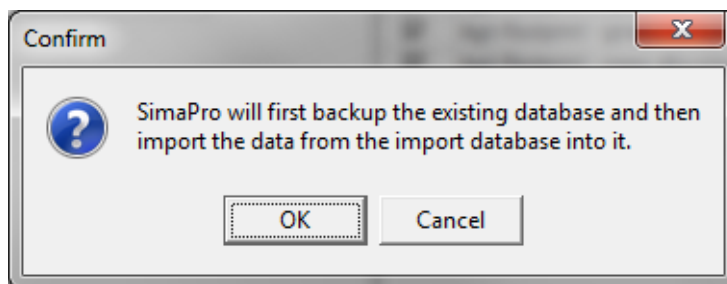

5. The "Import SimaPro Database" dialogue box will appear:

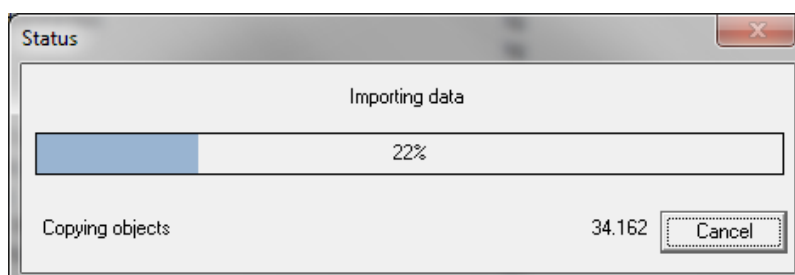6.   Click Browse. The "Open database" dialogue box will appear ("local server" is shown in Multi user versions only):

7.   Click Browse and go to the directory where you have unzipped the update database and select the "MethodsUpdate803" database and click OK.
8.   The update database (MethodsUpdate803) will appear in the open database dialogue box. Click Open. Click the "Select all" button in the bottom left of the window. Click on the Import button.
9.   The data will be scanned and an overview is generated of all the data that is added or replaced. We recommend that you save this overview. Remember that any changes you made in the original ILCD method will be lost when the data are replaced. Click OK to start the import process. SimaPro asks you to verify the replacement of each process when updating existing libraries. Click "Yes to all" to accept all replacements.
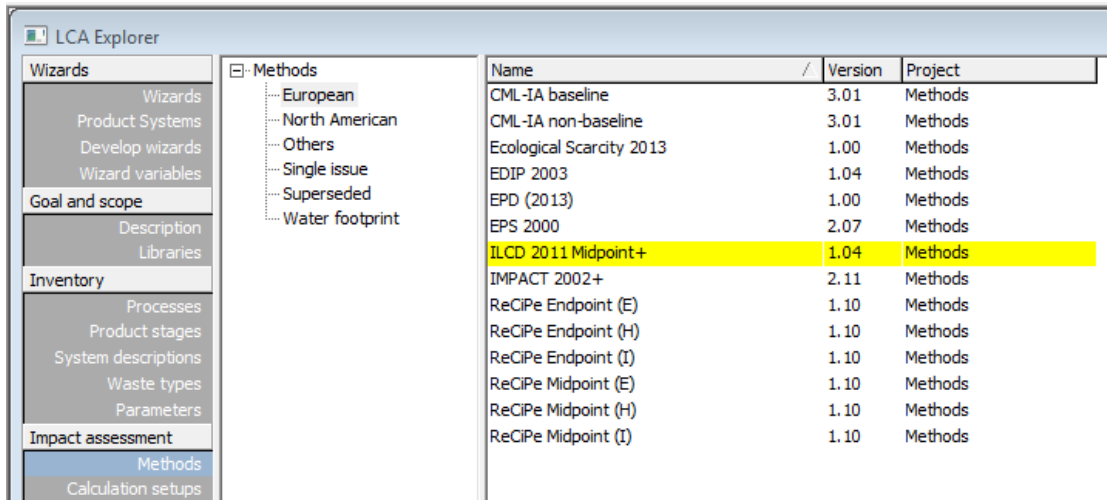10. After that, a back-up has to be made.

After clicking OK, you need to select a folder to save the update. **Note: If you click Cancel, the update procedure is stopped.**

11. Once the back-up has been created, the data in the update database will imported into the current database.

12. Once the update has finished, you can work with the updated database, which includes ILCD 2011 Midpoint+ (version 1.04).

13. As a final step, you may need to perform an Append action. This is only needed if you work in SimaPro 8.0.2 or earlier. If you have updated to SimaPro 8.0.3 and have already done the last append action, there is no need to do this again.

The "Append substances" action is created to convert substance names in your database to the substance naming convention in SimaPro. If you do not do this, mismatches between life cycle inventory and impact assessment data may occur, leading to incorrect LCA results. Appending merges two synonymous substances names into one. For example, CO_2 can be appended to Carbon dioxide, the latter being the default name used in SimaPro. Since Carbon dioxide is therefore also the substance name used in the impact assessment methods, any use of the substance name CO_2 in processes will not show an impact assessment result.

Please follow the procedure below to perform the Append action:
1. Go to the "Substances" section under "General data" in the LCA Explorer screen.
2. Click "Append". A new window will open.
3. Click "Load" on the right hand side and select the append file: "AppendSubstances803.xls". The append file is included zip file and can be found in the directory where you unzipped the update database.
4. The warning message *"* out of * lines are skipped. Do you want to see the errors and warnings?"* refers to non matching substance names in the Append list. These substances are mostly not relevant as they have been appended in the past. If you are not interested in this list, click No.
5. Click the Append button on the right hand side of the window. After final confirmation, the substances will be appended. Depending on the size of your database this may take some time. (If you see no substances, there is no need to append and you can cancel this function)
6. After finishing the append action, you may want to create a backup of the fully updated database via File > Database Management > Backup/Restore > Backup.

Known Issue:
Water balance issue in ecoinvent 3.0.1

There is a known water balance issue in ecoinvent 3.0.1, which will be solved in the upcoming update to ecoinvent 3.1.

High voltage electricity from hydro-electric plants processes have a high water intake, but approx. 140 of the 160 hydro-electric processes do not include water flows back to the river. This means that for part of the processes the ILCD 2011 Midpoint method will give wrong results. The error margin is of course related to the contribution of these process to the total model.

For more information on this issue, please contact us at support@pre-sustainability.com.