Invitation to tender for supplying a modelling tool for agricultural activities

October 2016
Call for Tenders

for developing and providing ecoinvent with a “modelling tool for calculating and generating LCI for agricultural activities”.

This is an open invitation for tender.

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1. Background & project description

**ecoinvent** is the world’s leading supplier of consistent and transparent Life Cycle Inventory (LCI) data of renowned quality. ecoinvent is a proud partner of the Sustainable Recycling Industries (SRI) programme, a programme funded by the Swiss State Secretariat for Economic Affairs (SECO) and jointly implemented by the Swiss Institute for Materials Science & Technology (Empa), the World Resources Forum (WRF) and ecoinvent, through three interconnected programme components:

Component A - Life Cycle Inventories: SRI gathers and provides local LCI data for the assessment of agricultural and industrial activities through the enhancement of local and regional LCA expertise with the aim to provide freely available regionalized LCI data for India, India, South Africa and Egypt

Component B - Recycling Initiatives: SRI improves local capacity for sustainable recycling activities together with private and public institutions, as well as the informal sector in a number of partner countries (Peru, Colombia, Ghana, Egypt, India)

Component C - SRI Roundtable: SRI facilitates a stakeholder consultation for the development of sustainability criteria for secondary raw materials

Ecoinvent is in charge of component A of the SRI project. With this call ecoinvent aims to subcontract the task of developing a modelling tool for calculating and generating LCI datasets for waste disposal and treatment activities

2. Task description

The tender shall develop and supply ecoinvent with a Modelling Tool for Agricultural activities (MTfA). The MTfA shall facilitate conducting LCA, and generating LCI for agricultural activities for the ecoinvent database. The MTfA shall be supplied with embedded data and models which are used/required to conduct LCA of agricultural activities and generation of LCI datasets. Ideally MTfA can be employed for the SRI project to generate LCI datasets for the running data collection projects on agricultural activities.

Table 1 summarizes the scope of the required services for this call for tender. Appendix A contains technical details and the specifications required for the MTfA.

<table>
<thead>
<tr>
<th>Geography</th>
<th>Global, with focus on India, South Africa, and Latin America (Brazil, Colombia, Peru)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Products/services</td>
<td>Modelling tool to facilitate calculating and generating LCI datasets for agricultural activities</td>
</tr>
<tr>
<td>Sectors</td>
<td>Agriculture and forestry</td>
</tr>
</tbody>
</table>

Table 1: Scope of requested services
3. List of deliverables

A globally applicable LCI Modelling Tool for calculating and generating LCI datasets for agricultural activities. The MTfA shall come with embedded data on LC stages of agricultural activities and incorporate the models for the calculation of LCI of such activities. The MTfA shall have a human-interface for entering the user inputs, and it shall be supplemented with a user manual and information on how to use and implement the MTfA, including examples and recommendations.

The decision of the models to calculate LCI, the embedded data in MTfA, as well as specific details and the source of data shall be taken in consultation with ecoinvent management and in the initial phases of the project.

For full details on the specifications of the MTfA, please see Appendix A.

4. Support during project implementation

Ecoinvent management and its editors, who will be selected based on the type and sector of the LCI data, will provide support and guidance to a certain extent during different phases of project inception and execution.

5. Reporting procedure

The tool providers shall report to ecoinvent, through appropriate means such as telephone conversation or written documents, the status and progress of the project according to the original plan of action submitted along with the proposal.

6. Transfer of rights and acknowledgements

During the submission process submitters will be asked to grant ecoinvent the ownership of the software and the background model included in the Modelling Tool.

7. Schedule and timeframe

It is required that the Modelling Tool is provided to ecoinvent within 5 months from the start of the project and signing the contract.
8. Budget

The funding ceiling to carry out the subcontracted tasks is limited to CHF 40,000 (forty thousand Swiss Francs), including any applicable VAT. The budget shall include all costs, including personnel and operational costs to carry out the project. The contract will be issued in CHF.

9. Application requirements

Interested tenders shall provide a detailed explanation on the LCI Modelling Tool to develop, including

A. The tool software platform and user interface, ideally a scheme of how the MTfA would look like
B. A scheme of the operation and application of the tool
C. The embedded data and methodologies in MTfA and the prospect for inclusion of more methodologies/data required by ecoinvent management
D. Consistency with the existing structure of the ecoinvent database
E. Prospects for the extension and updating the MTfA
F. Special features (if any)

In addition, the tenders must demonstrate that they possess the resources and thus are competent enough to fulfil the aforementioned project. The tenders shall provide the name and CV of all the key persons who will participate in different tasks of the data collection project, along with their expertise level, estimated time devoted to the project, and their respective charging fee (per day).

A tender can come from an organization or consortium of organizations. No subcontracting of tasks to external institutions will be allowed.

10. Evaluation criteria

The assessment to select the project partner(s) will be based on the following criteria:

Expertise and experience of the institution or combination of institutions (50%)

- demonstrated knowledge and expertise in the sector detailed in Table 1 of this call for tender (Min=1, Max=15)
- experience in LCA and in LCI data collection activities, specifically related to the activities/sectors detailed in Table 1 (Min=1, Max=10)
- experience in working with ecoinvent version 3, the LCI data preparation to create LCI datasets according to ecoinvent Data Quality Guidelines v3, and the submission process to ecoinvent version 3, using the ecoEditor tool (Min=1, Max=5)
- similar software development experience (Min=1, Max=5)

List and quality of proposed deliverables (50%)

- Specifications of the MTfA (methodology, format, ease of use) (Min=1, Max=10)
- integratability of the MTfA with the existing methodology of the ecoinvent database (Min=1, Max=10)
- required budget to carry out the proposed project, with offers significantly below the maximum amount being rewarded extra points up to the maximum for free offers (Min=1, Max=5)
- a timetable that presents the plan according to which the tender intends to realize sub-tasks related to the offer in this call for, with speedier delivery being considered a bonus (Min=1, Max=5)

11. Question and answer period

A question and answer period is envisaged for interested parties to submit questions related to the preparation and submission of the full proposal. All such inquiries and technical questions shall be directed to Amir Safaei via email: safaei@ecoinvent.org. The deadline to register your questions is 10th of November 2016.

12. Closing date for proposal submissions

15th of November 2016

13. Submission procedure

Tenderers shall submit tenders in electronic format by email to safaei@ecoinvent.org before the closing date for proposal submission indicated above.

The evaluation will be performed within two weeks of the deadline for tender and the bidders will be informed immediately. The draft contract will be issued within 2 weeks after the selection of the successful bidder and work has to start within one weeks after the signature of the contract. In case of any questions, please contact Amir Safaei at safaei@ecoinvent.org.
Appendix A

The Modelling Tool for Agriculture (MTfA)

The tender shall develop and supply ecoinvent with a Modelling Tool to facilitate calculating and generating LCI datasets (understood as multioutput unallocated UPR) for agricultural activities for ecoinvent database, according to well-established methodologies already in use or compliant with the ecoinvent v3 methodology.

1.1 Background data in the tool and outcoming results

Performing LCA and generating LCI datasets for agricultural activities are burdensome due to several stage/input/outputs to the systems as well as the complex models for the calculation of emissions. The MTfA can be understood as a tool to support LCA practitioners to generate LCI datasets of agricultural activities. For this purpose, the MTfA shall be parametrized for the main lifecycle stages of agricultural activities, their inputs and outputs, and also embed the models which are used for the calculation of emissions and generation of LCI datasets.

The MTfA shall ensure consistency and completeness in constructing agricultural datasets, but it does not replace the knowledge of an experienced LCA practitioner. The tool shall allow the entry of primary data by the users, but also shall be parametrized providing a predefined list of choices for each parameter, and suggest the default (most reliable) values for less experienced users or in case such data does not exist.

The MTfA shall be parametrized at least for the following fields:

A. Geography, and the related important parameters such as average precipitation or temperature per different months,
B. Type and properties of the crops, as well as data specific to the production of the crop (e.g. yield, production volumes, mass properties like dry mass, wet mass, carbon content...).
C. Land use.
D. Type and amount of different types of agricultural inputs, namely the type and amount of energy carriers, as well as pesticides and fertilizers
E. Type and amount of irrigation (irrigated (types) and non-irrigated)
F. Types of production scheme (e.g. intensive vs extensive; conventional or organic, or other schemes used across geographies)
G. Utilities inputs (electricity, heat…), and waste outputs.
H. Types of field work used for cultivation (preparations: green manuring, tillage, sowing; cultivation and harvesting: irrigation fertilisation and pesticides spreading; harvesting)
I. Infrastructure used in the above activities including construction and machinery (including i.e. greenhouse).
The above parameters are the minimum requirements—the list of parameters and choices can be extended to include additional data. The parameters shall be regionalized with defaults values for each one that changes according to geography. It is not necessary that the model contains values for all the geographies, but specific data for major global agricultural producers, as well as specific values for SRI focus regions, i.e. India, Latin America (Brazil, Colombia, Peru), and South Africa shall be provided within the model.

1.2 Naming Conventions, Methodologies, and user interface

The naming conventions and the choice of functional units shall be consistent with the ecoinvent data quality guidelines, and the latest published version of the database. In addition, the methodologies embedded in the model to calculate and generate datasets should be compliant with the methodologies already in practice in the ecoinvent database. The equations employed in the MTfA shall be transparent and accessible for the users to facilitate the learning process. The ecoinvent management has the right to impose the most suitable methodology for each aspect. The tenderers shall therefore consider a level of flexibility in their offer and leave space for scope changes required by the ecoinvent database in the initial phases of the project.

The tool shall explore the possibility of ultimately delivering ecoinvent v3 compliant datasets. For that, Comment, Source and Uncertainty per flow as well as Meta Information per activity has to be included in the MfTA to be included in the final dataset.

The MTfA shall have a human interface to receive user inputs and generate LCI datasets, and can be developed in any common software platform, such as MS Excel, or be based on a standalone solution. It is also imperative that the tool shall be user-friendly, and come with instructions, to facilitate the generation of LCI datasets for inexperienced users.