Call for Tenders

for Life Cycle Inventory (LCI) model development, LCI data collection, LCI dataset creation and submission to ecoinvent

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 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 tasks of developing an LCI model and LCI dataset submission to the ecoinvent database.

2. Task description

The tender shall realize two correlated tasks related to this call for tender. The first task concerns developing and supplying ecoinvent with a Model for calculating and generating LCI data for the petroleum refinery industry worldwide (denoted hereafter Task A: LCI Model development). The second task is related to LCI data collection, dataset creation and submission to ecoinvent database for particular energy carriers in selected geographies (denoted hereafter Task B: LCI data collection and submission). The Model developed through Task A shall be employed to calculate and generate LCI data required for Task B.

Task A: LCI Model development

The tender shall generate and supply ecoinvent with a Model for petroleum refinery industry. The Model shall allow for estimating the energy use and emissions associated with, and generating LCI for refinery units according to the composition and quality specifications of the input crude oil industry, as well as other inputs and product outputs based on the product blending and quality requirements within the range of configurations in the industry. The Model shall also incorporate
a framework for allocation of environmental burdens among various outputs of the refinery industry according to different allocation criteria.

The underlying Model shall be globally applicable to the refinery industry to ensure comparability of results, but specific data collection—including data on the refinery operation, supply and demand, and comprehensive inter-regional transportation of raw, intermediate, and final products related to the refining industry—is only required for the listed geographies in Table 1. The Model shall be provided in a form so that changes to basic underlying assumptions can be made easily, to facilitate future updating of the Model.

The developed Model shall be employed to realize Task B of this call for tender, i.e. generate LCI datasets representing the refinery industry in geographies listed in Table 1.

Task B: LCI data collection and submission

The tender shall collect LCI data as well as information necessary for allocation, construct datasets in the form of unallocated unit process (UPR) activities, validate the constructed datasets to ensure consistency and compliancy with the ecoinvent version 3 quality guidelines, document these datasets, submit them to ecoinvent v3 database by employing the free ecoEditor software, and apply the corrections required by editors and reviewers organized by ecoinvent until the acceptance of the datasets by the ecoinvent in the form of publication in a release of the ecoinvent database. The data collection activities shall be carried out according to the scope (type of sector and geography) shown in Table 1.

<table>
<thead>
<tr>
<th>Geography</th>
<th>Southern Asia (India), Southern Africa (South Africa) and Latin America (Brazil, Peru, Colombia)</th>
</tr>
</thead>
</table>
| Products/services* | - Liquid Petroleum products namely light distillates (e.g. liquefied petroleum gas, gasoline, naphtha), middle distillates (e.g. kerosene, jet fuel, diesel), and heavy distillates (e.g. heavy fuel oil, lubricating oils, wax, asphalt), as well as any related by-products of the refinery stage  
- Synthetic liquid fuels derived from coal-to-liquids and gas-to-liquid processes** |

* including the refinery stage, as well as the information required to create upstream (downstream) Market datasets which supply (receive) the inputs (outputs) to (from) the refinery, with data on type, quality specifications and transportation of raw, intermediate, and final products related to the refinery

* excluding the upstream stages to extract and produce the primary energy carriers, i.e. petroleum, natural gas and coal.

** Synthetic fuel datasets can be specific to the listed geographies and are only required if the technology is significant in a given geography.

Table 1: Scope of required LCI data
The data provider shall report to and collaborate with the ecoinvent management and respective editors during different phases of the project.

A more detailed task description includes:

a. **Data collection**
   - Acquiring data, which are needed for the creation of datasets in the form of unallocated unit process activity (UPR), through appropriate and coherent means, such as field measurements, interviews, questionnaires, literature research, estimations or calculations, for the sectorial data detailed in Table 1. The data represents the information required to create transforming datasets\(^1\) (LCI data), as well as Market datasets. The data collection project has to be carried out in alignment with Data Quality Guidelines for the ecoinvent database version 3.

b. **LCI datasets creation and entry to ecoEditor**
   - Using the collected data, construct datasets in the form of UPR activities. The dataset creation has to conform to the instructions provided in the ecoinvent Data Quality Guidelines of version 3. Existing ecoinvent datasets may serve as starting point or template for such datasets. Datasets shall integrate with and build on top of the existing ecoinvent database.
   - Enter the created datasets in the ecoEditor tool, i.e. the tool to create, edit, review and upload datasets for the ecoinvent database, to create LCI datasets in ecoSpold 2 format. The software "ecoEditor for ecoinvent version 3" is free to use and can be downloaded from the [ecoinvent website](https://ecoinvent.ch).

c. **Datasets validation: compliancy and consistency**
   - Run the off-line and on-line validation checks of datasets created in ecoEditor software, using the respective functions of the software, according to the instructions provided in chapter 12 (Validation and review) of Data Quality Guidelines of ecoinvent version 3.
   - Perform an internal review of the created datasets to ensure comprehensiveness, adherence to the quality guidelines (compliancy with ecoinvent version 3), consistency with similar activities in other geographies or using similar technologies, and to eliminate data entry errors.

d. **LCI datasets documentation**

\(^1\) A market dataset collects all activities with the same reference product in a certain geographical region. Furthermore, it includes average transports of that product within the geography, as well as inputs of the product itself to cover losses in trade and transport. In other words, they are consumption mixes of a certain product in a certain geographical region. For more information on Market datasets and other types of datasets in ecoinvent, please refer to Data Quality Guidelines for the ecoinvent database version 3.
- Document the datasets to be compliant with the ecoinvent “good practice for
documentation”, as described in section 7 of the Data Quality Guidelines for the ecoinvent
database version 3.
- Provide a thorough “sectorial overview” of refinery industry production, with focus on the
geographies listed in Table 1. The documentation shall present all the information valid
for LCI Model and the datasets submitted and cover background information for refinery
sector in geographies listed in Table 1. Such a report shall help the users better
understand the underlying assumptions implemented in the LCI Model and the refinery
sector, provide the goal and scope of different LCI datasets. This report serves as
supporting information to the documentation present directly in the datasets.

e. LCI dataset submission and integration into ecoinvent database

- Gather the necessary information for submission according to the Data Quality Guidelines
of ecoinvent database version 3, and submit the UPR datasets to ecoinvent by using the
ecoEditor. The submission process has to be done according to the procedure detailed in
Data Quality Guidelines of ecoinvent database version 3.
- Upon receiving the feedback from the ecoinvent editors as well as its external and the
technical reviewers, apply for the corrections required by the editors until the final
acceptance of the datasets by the ecoinvent. This is an iterative process, and it is
concluded when Life Cycle Impact Assessment (LCIA) results are checked and approved
by the data provider as well as ecoinvent and the datasets are published in a release of
the ecoinvent database.

3. List of deliverables

Task A: LCI Model development

A universally compliant LCI Model for calculating and generating LCI for refinery industry. The
Model shall model the energy use and emissions, and calculate and generate LCI of refinery units
according to a common range of a configurations in the industry, such as types, specifications,
quality and quantity of inputs and outputs, different product blending, efficiencies, and regional
differences.

Task B: LCI data collection, dataset creation and submission

A. A set of LCI datasets, in UPR format, which has been constructed, documented and reviewed
according to the quality requirements of ecoinvent version 3, submitted to ecoinvent, and passed
the review and validation phase of ecoinvent management and its editors to be published in a
release of the ecoinvent database. The datasets shall conform to the scope (type of sector and
geography) shown in Table 1.
B. Information required to create upstream (downstream) Market datasets\textsuperscript{1} which supply (receive output from) the above datasets
The LCI Model, the datasets and the related documentation shall be provided in English language.

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 data collection, dataset creation, review and submission processes. Table 2 demonstrates the supporting role of ecoinvent management and its editors in different phases of data collection and submission to ecoinvent.

Table 2: Supporting role of ecoinvent centre during different phases of data submission

<table>
<thead>
<tr>
<th>Task B: LCI data collection and submission</th>
</tr>
</thead>
<tbody>
<tr>
<td>Submission of the list of data to be collected and datasets to be developed</td>
</tr>
<tr>
<td>Data collection</td>
</tr>
<tr>
<td>Dataset creation, entry into ecoEditor, and datasets validation</td>
</tr>
<tr>
<td>Submission of datasets into review</td>
</tr>
<tr>
<td>Final submission of datasets following the review of ecoinvent</td>
</tr>
<tr>
<td>Checking and Approving the LCIA results after integration of the datasets into the working version of ecoinvent database</td>
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<td></td>
</tr>
</tbody>
</table>

5. Reporting procedure
The project implementer 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
Upon submission, submitters will be asked to grant ecoinvent the ownership of the Model developed for the refinery industry. Similarly, during the data submission process, data providers shall grant ecoinvent the non-exclusive right to use the datasets. All copyrights to the submitted data remain with the authors of the dataset. The exact text of this agreement follows:

"I confirm to hold the copyright to the uploaded data and to be entitled to dispose of these copyrights. I hereby transfer the non-exclusive right of use of the uploaded data to the ecoinvent Centre for publication in the ecoinvent database, including but not limited to the right to publish, republish, transmit, sell, distribute, modify, change, complete and otherwise use the contributed dataset in electronic and print form and in derivative works throughout the world, in all languages, and to license or permit others to do so. This transfer of non-exclusive right of use cannot be withdrawn without a full payment of compensation to the ecoinvent Center to cover damages or a replacement of the withdrawn data. I maintain the right to use the transferred data for my own scientific work as well as to use it with third parties on a non-exclusive basis, including for commercial purposes."

In addition, the funding and supporting institutions in collecting the LCI data and preparing the datasets shall be acknowledged.

7. Schedule and timeframe

It is considered as a bonus (see evaluation criteria) if the data collection and submission of the developed Model and LCI data can be committed to be finalized within one year since the start of the project. The tenderers shall provide a precise schedule according to which they would start and finalize each of the tasks described in the “Task Description” section of this call for tender. Within one month of the start of the project, the data provider shall submit to ecoinvent the updated list of data to be collected and datasets to be developed. This list shall include all the datasets included in the original proposal for the call for tender, as well as any related datasets that will be required to be submitted along with the datasets in the proposal, in order to make the submission version 3-compliant. Furthermore, early commencement of datasets submission to ecoinvent—e.g. within three months of the start of the project—to allow for a prompt review procedure by the ecoinvent centre and its reviewers, is highly valued.

8. Budget
The funding ceiling to carry out the subcontracted tasks is limited to CHF 60,000 (sixty 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

1. a list of LCI datasets they propose to submit, along with an estimated time (in terms of hours) to create and submit each batch of datasets, by filling-in the template (Table A.1) provided in the Appendix A of this call for tender. The tenderers shall also indicate in the proposal the required budget to carry out the offered data collection and delivery.

2. detailed explanation on the LCI Model for refinery industry including the format, integral methodological framework, types of acceptable inputs and outputs and special features (if any).

It is considered a bonus the project is finalized within less than 12 months of the start of the project, and an extra bonus if tenderer’s offer is significantly below the budget ceiling (60 000 CHF). Table A.1 shall be filled-in by the data providers with the appropriate information and submitted to ecoinvent as one of the required documents for the evaluation of proposal.

In addition, the tenders must demonstrate that they possess the resources and thus are competitive 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=5)
- experience in LCI data collection activities, specifically related to the activities/sectors detailed in Table 1 (Min=1, Max=5)
- experience in working with ecoinvent version 3, and in data submission process to ecoinvent version 3, using the ecoEditor tool (Min=1, Max=5)
- experience in the LCI data preparation to create LCI datasets according to ecoinvent Data Quality Guidelines v3 (Min=1, Max=5)

**List and quality of proposed deliverables (50%)**

- Specifications of the LCI Model (methodology, format,) developed for refinery industry (Min=1, Max=10)
- Type, quality, and quantity of the LCI data the tender would commit to submit to ecoinvent database, which shall be related to sectors listed in Table 1 (Min=1, Max=10)
- A timetable that presents the plan according to which the tender intends to deliver the Model, as well as each type of dataset (or batch of datasets), with speedier delivery being considered a bonus (Min=1, Max=5)
- Integratability of the Model and LCI data with the existing structure and data in the ecoinvent database (Min=1, Max=10)
- Required budget to carry out the proposed project, with offers significantly below the maximum offer being rewarded extra points up to the maximum for free offers (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 20th of May 2016.

12. **Closing date for proposal submissions**

29th of May 2016

13. **Submission procedure**

Tenderers shall submit tenders 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 week after the signature of the contract. In case of any questions, please contact Amir Safaei at safaei@ecoinvent.org.
Appendix A

Scope of the data call: list of datasets

Table A. 1: Proposed dataset submission template (includes example data that can be discarded)

<table>
<thead>
<tr>
<th>Process (activity) name</th>
<th>Number/detail of related UPRs</th>
<th>Hours required to gather/submit data</th>
<th>Proposed delivery date</th>
<th>Similar existing global datasets in ecoinvent (if any)</th>
</tr>
</thead>
</table>
| Soybean production      | 4 regions, plus required datasets on deforestation and land transformation, as well as 4 datasets for organic fertilizer not present in ecoinvent so far, plus 1 irrigation dataset for India adapted from existing ecoinvent data | 48                                  | 4 months after contract signature | - Soybean production  
- Soybean production, on land recently transformed                     |
| Chicken production      | 1 dataset on chicken production, 1 dataset on feed                                             | 6                                   | 4 months after contract signature |                                                                        |
| Cement production       | 4 states in India, plus required datasets (8 total) on upstream processes of clinker production | 20                                  | 4.5 months after contract signature | - Cement production, Portland, CH 2010                                 |