Call for Tenders

for developing and providing ecoinvent with a “modelling tool for calculating and generating LCI for activities on treatment of wastewater of varied composition”.

This is an open invitation for tender.

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1. Background & project description

The ecoinvent association 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 wastewater treatment activities.

2. Eligibility Criteria

Proposals can be submitted by public and/or private entities which are eligible according to their respective national/regional regulations, such as, but not limited to higher education institutions, public research institutes, private research institutes, companies, etc. The tender can come from a single institution or a consortium of institutions.

No subcontracting of tasks to external institutions is permitted.
3. Task description

The tender shall develop and supply ecoinvent with a Modelling Tool for calculating and generating LCI for wastewater treatment activities. The Modelling Tool shall follow the functionality of the existing Modelling Tool in ecoinvent version 2 for wastewater-specific inventories\(^1\), but updated and adapted to ecoinvent version 3, and extended with more applications and functionalities to cover a wider range of wastewater compositions, wastewater treatment technologies in geographies listed in Table 1. The developed Modelling Tool shall be flexible to accommodate for future additions and for updating of the underlying model.

The Modelling Tool consists essentially of two aspects:

- The *model*, which is a conceptual framework for calculating LCI data of wastewater treatment activities based on the composition of the wastewater, technology of wastewater treatment and the capacity of the WWT plant and
- The *calculation tool*, which is the software platform (for example an excel sheet) to enable and facilitate the exchange of information between the underlying model and the user, delivering results in the form of ecoSpol2 Unit Processes.

The tool is built to implement the model, to form a Modelling Tool for wastewater treatment. A detailed description is as following:

2.1. LCI Model

The tender shall generate and supply ecoinvent with an LCI modelling framework to be applicable to wastewater treatment activities in ecoinvent database version 3. The model shall allow for estimating the energy use, infrastructure and emissions associated with, and generating unit process datasets for wastewater treatment activities, according to the composition of wastewater input, common wastewater treatment practice(s) and technologies with respect to wastewater type and legislations, geographical considerations, and climatic conditions.

**Wastewater composition**: The model shall consider at minimum all relevant wastewater compositions already present in the ecoinvent database, including average wastewater and industrial processes. Additionally, the model shall be able to fit any wastewater composition into the calculation routine, provided the geographical scope and treatment technology are known.

**Treatment practices:** The model shall include relevant disposal practices and/or treatment technologies (including untreated wastewater dumping) for the following regions with focus on specific countries: Latin America (Colombia, Peru and Brazil), Southern Asia (India), and Sub-Saharan Africa (South Africa), as well for Switzerland, representing Europe, for comparative purposes. The underlying model shall be valid globally and for the wastewater treatment activities currently available in the ecoinvent database to ensure comparability of results.

**Treatment technologies within the treatment plant:** each wastewater treatment plant contains different types of technologies of wastewater treatment. These can be organized in different order. The tenderer is expected to consider a modular approach which would allow users of the tool certain flexibility when it comes to a selection of technologies included in the wastewater treatment plant. The user of the model should be able to combine the different technologies of wastewater treatment (within what can be still considered a reasonable combination) to build the requested wastewater treatment plant.

The model shall be consistent with and be prepared according to the ecoinvent Data Quality Guidelines v3. It shall be provided in a form so that changes to basic underlying assumptions can be made easily, to facilitate future maintenance and updating of the model.

**2.2. Calculation tool**

The calculation tool shall be the users’ interface to facilitate the transformation of input data (such as wastewater compositions) into LCI datasets, using the model explained above. The tool shall have a user interface to receive inputs - such as composition of the wastewater, type(s) of wastewater treatment technologies, geography - and generate LCI datasets in ecospold 2 format.

The tool can be implemented in any common software platform, such as MS Excel, or be based on a standalone solution. Regardless of the type of platform, it should allow the users to trace the calculations performed by the model.

The tool shall imperatively be user-friendly to facilitate the generation of LCI datasets for inexperienced users. The Modelling Tool shall be provided with an easy-to-follow user-guide manual.
Table 1: Scope of requested services

<table>
<thead>
<tr>
<th>Geography</th>
<th>Global, with focus on Southern Asia (India), Sub-Saharan Africa (South Africa) and Latin America (Brazil, Colombia, Peru)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Products/services</td>
<td>An LCI Modelling Tool for wastewater treatment activities</td>
</tr>
<tr>
<td>Sectors</td>
<td>Wastewater treatment activities</td>
</tr>
</tbody>
</table>

4. List of deliverables

A globally applicable LCI Modelling Tool, for calculating and generating LCI datasets for wastewater treatment activities, according to composition of the wastewater, treatment technology, as well as local conditions and regulations. The tool shall be based on a model that is updateable and well documented. The Modelling Tool shall have a user interface for entering the user inputs (such as wastewater composition, treatment technology, and geography), and it shall be supplemented with a user manual and information about the composition of average wastewater as well as for common industrial processes for the geographies listed in Table 1, Switzerland and Europe.

5. 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.

6. Reporting procedure

The data provider shall report to and collaborate with the ecoinvent management and respective editors during the project.

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.
7. Transfer of rights and acknowledgements

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

8. Schedule and timeframe

It is required that the Modelling Tool is provided to ecoinvent by the end of September 2017.

9. Budget

The funding ceiling to carry out the subcontracted tasks is limited to CHF 45,000 (forty-five 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.

10. Application requirements

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

A. Types and formats of inputs and outputs
B. Methodologies employed in the Model to calculate LCI
C. Software platform used to develop the Tool
D. Integrated Background data
E. Special features (if any)

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.
11. 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 performing LCA, and 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 the data preparation to create LCI datasets according to ecoinvent Data Quality Guidelines v3 (Min=1, Max=5)
- similar software/Tools development experience (Min=1, Max=5)
- Composition of the project team. Including experts (and allocating budget to) from the list of geographies in Table 1 is considered as a strong bonus (Max=1, Max=10)

List and quality of proposed deliverables (50%)

- Specifications of the Modelling Tool (methodology, format, ease of use) developed for generation of LCI data for wastewater disposal and treatment (Min=1, Max=10)
- 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=10)
- integrability of the Modelling Tool 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)

12. 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 17th of March 2017.
13. **Closing date for proposal submissions**

23rd of March 2017

14. **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.