FIRST QUEBEC LCI DATABASE

WHAT IS THE QUEBEC LCI DATABASE ?

Worldwide environmental concern has led to an increase in demand for greener products and services. Life cycle tools that assess the impacts of products throughout their life cycle (from cradle-to-grave) are now being used to provide reliable environmental product information to policy-makers and stakeholders. Among the most widely used are Life Cycle Assessment (LCA), Environmental Product Declarations (EPDs) and carbon footprints (life cycle GHG emissions). These tools can present a non-tariff barrier to trade for countries lacking the infrastructure required to provide life cycle information on their products and services.

Recognizing the importance of developing a life cycle inventory (LCI) database to meet this challenge, the Quebec government (MDDEP) awarded a $1.5M grant to the Centre for the Life Cycle of Products, Processes and Services (CIRAIG) for the development of such a database adapted to the Quebec context. This LCI database will support the government's sustainable development goals and enhance industry competitiveness. The starting point for this 3-year project is a Quebec adaptation of the renowned Swiss ecoinvent database beginning with data from three main sectors: energy, mines and metals, and pulp and paper. Thanks to this governmental grant, free support will be made available to companies wishing to provide data.

For this initiative to become a world-class database, it must ensure the data it contains is reliable, relevant and accurate. This can only be achieved through the active participation and contribution of Quebec LCI data providers from all major industry sectors. With your help, this LCI database will become a reference and provide Quebec with a competitive edge, joining the ranks of leading countries including Japan, the U.S, China and some European countries.

A FIRST STEP TOWARDS A CANADIAN LCI DATABASE

This Quebec LCI database represents a first step towards the development of a Canadian LCI database, a cornerstone upon which all life cycle assessments and other life cycle tools are built. To meet this goal, the CIRAIG is thus actively looking for additional funding, estimated at $900K, from government, industrial associations, research centres and LCA consultants. The CIRAIG is also teaming up with other LCA organizations to create a quality and comprehensive LCI database.

Make a significant impact, become a data provider!

WHAT'S AN LCI?

A life cycle inventory (LCI) is a form of information infrastructure for evaluating the environmental impact of products and services. It includes a collection of interrelated datasets which describe activities related to each life cycle stage of a product or service, including resource extraction, production, distribution, use, disposal or recycling. Each dataset describes the inputs and outputs from and to the environment (e.g.: resource extraction and emissions to air, water and soil) as well as those to and from other activities (e.g.: goods and services flowing from one activity to another). When interrelated, these datasets provide a global picture of all the inputs and outputs associated with a good or service.

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ALUMINIUM PRODUCTION: AN LCI EXAMPLE

The production of aluminium ingots is composed of numerous steps, expressed as **unit processes** in LCA (boxes in Figure 1). Among these: anode production, electrolysis and ingot casting.

Figure 1 illustrates the dataset (inputs and outputs) for the **electrolysis** unit process. All the inputs and outputs are themselves linked to thousands of other background unit processes, leading to an impressive quantity of data associated with the production of one aluminium ingot!

Data providers from the aluminium industry can contribute to the Quebec LCI database by supplying Quebec-specific data related to these different unit processes. For example, they could provide data associated with the production of cryolite and its transport to the smelting plant. Data providers are not required to supply data for the thousands of background processes, but only for the processes they operate.

These thousands of interrelated unit processes provide the "**life cycle emissions**" of a product (aluminium ingots in this case) and the potential impacts associated with these life cycle emissions are often referred to as the "**environmental footprint**" of the product.

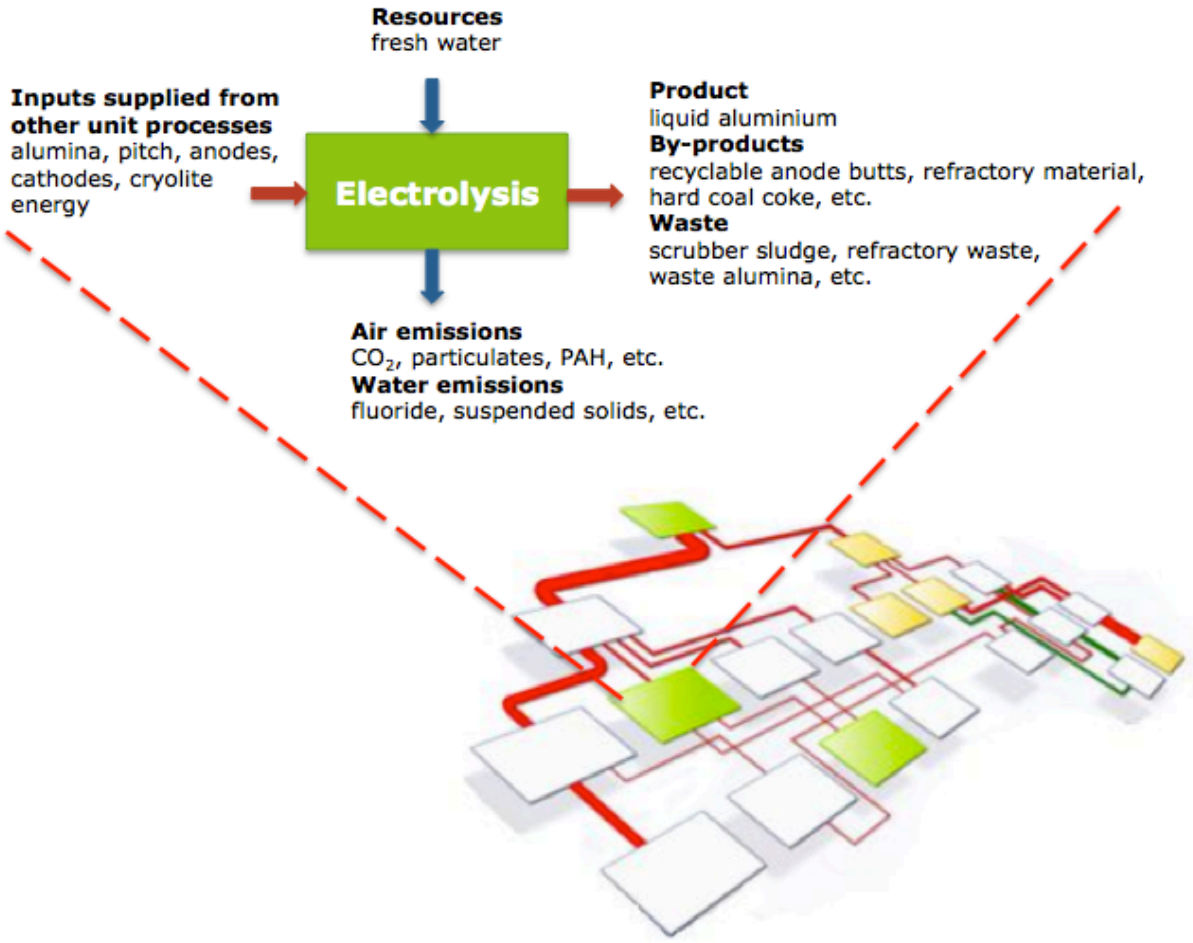


Figure 1: Primary aluminium production

PARTNERSHIP WITH THE ECOINVENT CENTER

Rather than starting from scratch to develop its LCI database, the CIRAIG decided to launch this initiative in partnership with the ecoinvent Center, and build upon the most renowned LCI database worldwide, the **ecoinvent database**, whose characteristics include the following:

- Datasets are available at a transparent, disaggregated level, a necessary condition for adaptation and continuous, decentralized peer review.
- Very comprehensive international LCI database, covering over 4000 unit processes.
- Included in the leading LCA software.
- All datasets are fully documented and referenced and reviewed by independent experts before their publication, ensuring data quality.
- Applies a consistent methodology.
- More than 2 500 users in over 40 countries worldwide.

In addition, the ecoinvent Center:

- Is currently working on data globalization, in line with this initiative.
- Supports, financially and technically, national database initiatives.

SUBMISSION PROCESS

The ecoinvent data submission system is simple, and thanks to the MDDEP grant, the CIRAIG and its partners can assist you for free at each step. All submitted data goes through a free review by experienced, independent editors. The submission process includes the following steps:

1. Submission file creation

The data provider must gather the necessary data, consisting of process inputs, outputs and emissions. Datasets should be consistent, transparent and on a unit process level. Authors can download the free ecoEditor software to create the submission file. The data collection process must be documented. Online documentation guidelines are available for this step. Copyright remains with the author.

2. The submission goes through the free editorial process

The dataset is reviewed by three independent experts, including one in the corresponding field, to maintain quality and check for errors or inconsistencies. Comments and requests for corrections are directly loaded to the author's ecoEditor installation, where they can be viewed and answered case by case. Once all editors are satisfied, the dataset is accepted for publication.

3. Further steps after acceptance

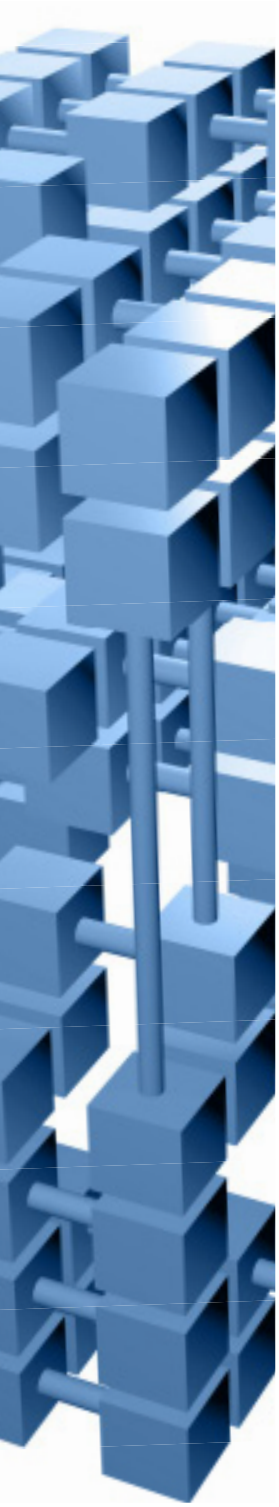
The dataset will be included in the next release of the ecoinvent database where it will be used by thousands of sustainability experts.

ABOUT THE ECOINVENT CENTER

Created in 1997, the ecoinvent Centre is a Swiss-based not-for-profit competence centre whose core objective is the maintenance and expansion of the ecoinvent database. They are the world's leading supplier of consistent and transparent LCI data of known quality. Its high-quality generic LCI datasets are based on industrial data and have been compiled by internationally renowned research institutes and LCA consultants. More information at: **www.ecoinvent.org**

ABOUT THE CIRAIG

The Interuniversity Research Centre for the Life Cycle of Products, Processes and Services (CIRAIG), which includes nine Quebec universities, was founded by École Polytechnique de Montréal in collaboration with Université de Montréal and HEC Montréal. The CIRAIG was created to meet the demands of industry and governments to develop leading edge academic expertise in sustainable development tools. The CIRAIG collaborates with numerous research centres worldwide and has been actively involved in the research and development of tools for the industry and government sectors.
More information at: **www.ciraig.org**



WHAT'S IN IT FOR MY ORGANIZATION?

There are many reasons why collecting and supplying LCI data can be beneficial:

- Show your organization's environmental commitment and leadership.
- Gain insight into the life cycle impacts of your products and supply chains.
- Gain access to environmental data for other purposes (Carbon Disclosure Project, Global Reporting Initiative and Corporate Sustainability Responsibility reporting).
- Reduce future costs for your LCA studies.
- Ensure that the datasets in the Quebec LCI database are accurate and reliable.
- Track your organization's improvements: you can easily change the supplied dataset each year.
- Possibility of developing "branded datasets" including your company's logo (for a fee).
- Confidentiality of sensitive data ensured.
- Gain free access to strong LCA expertise from the CIRAIG and its partners.
- Provide Quebec products with a competitive advantage by reporting lower impact data related to the use of hydroelectricity.
- Get data required to obtain a carbon footprint certification, initiative for which the Quebec government earmarked 24 M$ over three years starting with the 2010-2011 budget.
- Gain access to a free fact sheet outlining your product cradle-to-gate environmental impacts (developed by CIRAIG).

SIGN ME UP!

The data submission system is **free**. Quebec organizations can obtain support for their data collection and data submission efforts from the CIRAIG the ecoinvent center for free. If you are interested in providing data to this Quebec LCI database initiative (or the Canadian LCI database), please contact us at **support_Quebec_LCI_DB@ciraig.org**. To submit data directly to ecoinvent, please contact: **support@ecoinvent.org**.

More info: www.ciraig.org/CIRAIG_LCI_DB