

Executive Summary – LCA of EPFL’s mouse animal facility

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Introduction

A first Life Cycle Assessment (LCA) of EPFL’s mouse animal facility was carried out by Quantis in 2012. Seven years later, Zero Emission Group conducted a second LCA to assess the evolution of environmental impacts of the facility over the years. The project was supported by Act 4 Change Lab and reviewed by Quantis.

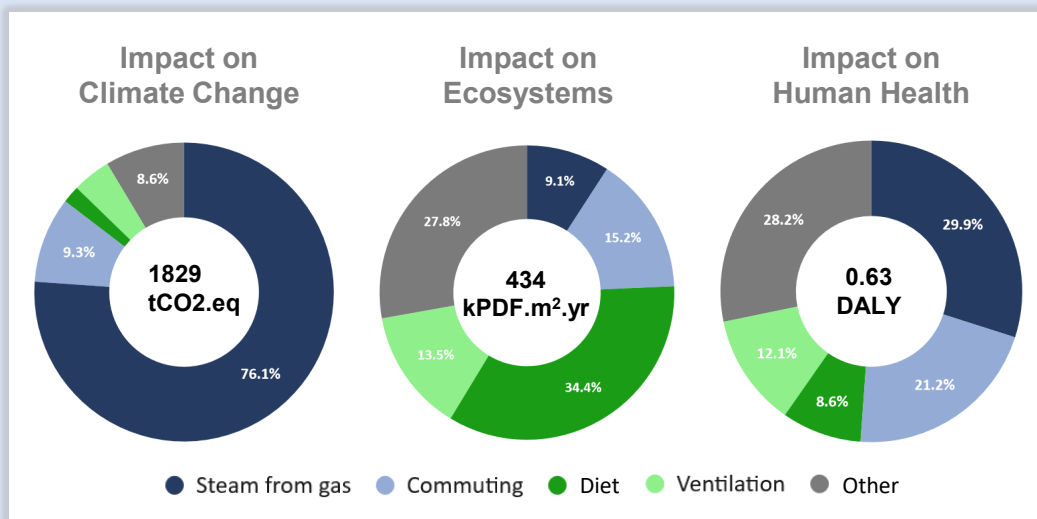
Methodology

- *System boundaries:* Due to their negligible contribution, mice transportation and waste management were excluded from the scope.
- *Functional unit:* A full year of activity of the mouse animal facility.
- *Assessed impacts:* Climate Change, Ecosystems and Human Health (*Impact2002+*).

Results

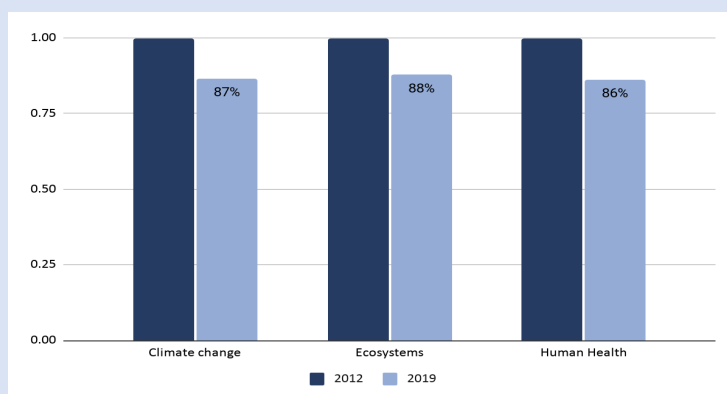
In 2019, impacts were generated by four major sources:

- Steam from gas / Commuting of employees / Mice diet / Ventilation



Steam from gas has large impacts on climate change and human health, whereas mice diet has a large impact on ecosystems.

Reduction of impacts between 2012 and 2019:



Environmental impacts were reduced by 13% between 2012 and 2019 across all the three categories.

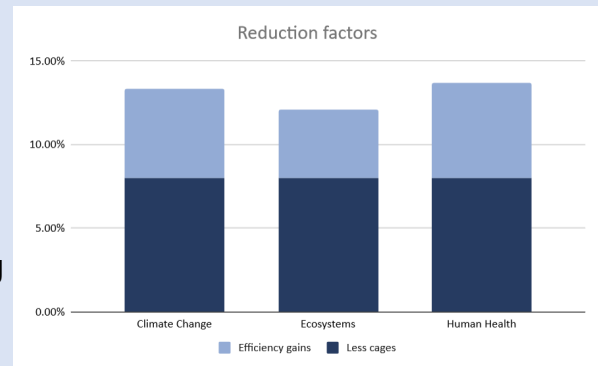
Reduction of impacts from 2012 to 2019

Decreased activity (-8%)

Fewer mice and fewer employees

Efficiency gains (+5%)

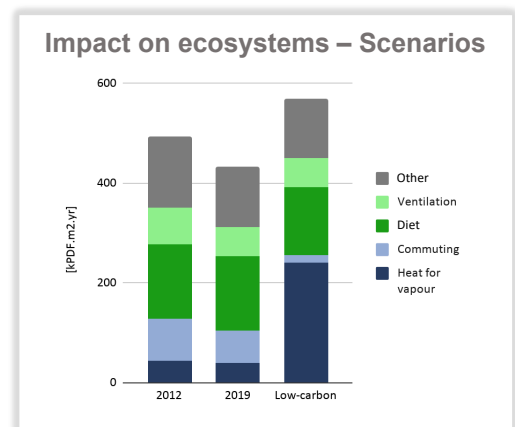
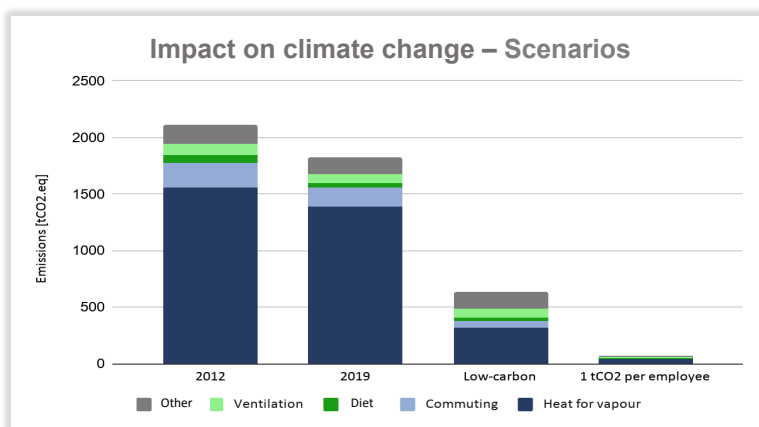
- New diet supplier
- Increased carpooling
- Decreased frequency of changing cages
- Decreased frequency of the draining of washing equipment from 5 times to once a week



Towards a low-carbon mouse animal facility

Scenario hypotheses

- Replacing of the gas boiler with a [heat pump](#)
- Optimising the number of animals required in the breeding phase and anticipating needs
- Reducing diet waste
- Promoting the use of public transportation and carpooling among employees
- Decreasing the frequency of cage washing



Adopting the low-carbon scenario would allow to **divide CO₂ emissions by 3**, however, **impacts on ecosystems would increase slightly**

Conclusion

Environmental impacts have been **reduced by 13%** between 2012 and 2019.

At least **5%** of the benefits come from **efficiency measures**.

Impactful CO₂ mitigation measures include:

- **Replacing the gas boiler** with a heat pump
- Promoting **shared mobility**
- **Increasing efficiency** in the use of resources including food, water and energy