# CML - Institute of Environmental Sciences

Faculty of Science

Universiteit Leiden

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# Institute of Environmental Sciences

CML is one of the leading institutes in environmental sustainability worldwide. Our aim is to contribute to sustainable governance of biodiversity and natural resources. CML offers environmental education, and has two distinct research programmes: Conservation Biology and Industrial Ecology.

## Industrial Ecology: Supporting Sustainable Production & Consumption

The Industrial Ecology programme develops tools for decision-making on sustainable production and consumption. Industrial Ecology takes a systemic approach, integrating technical, environmental and social aspects. It uses models such as Material Flow Accounting (MFA), Life Cycle Assessment (LCA) or Input-Output Analysis (IOA).

Research areas include:

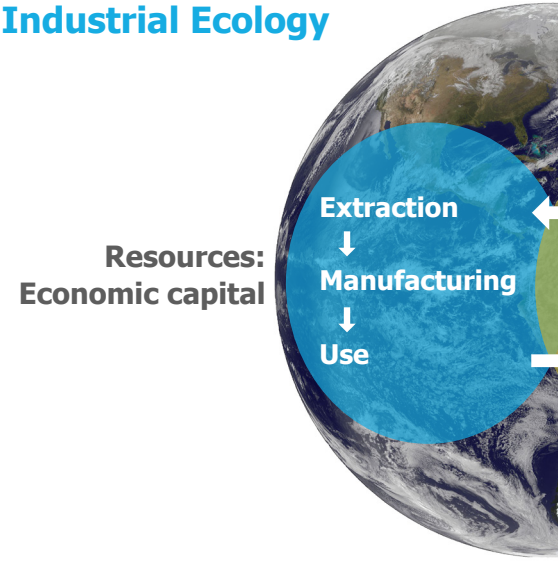
> Footprinting the consumption of nations
> Global effectiveness of climate policies
> Material needs of renewable energy systems
> Resilience of critical material supply chains
> Environmental implications of novel food production systems

## EXIOBASE: Global Resource Footprint

The use of natural resources takes place at millions of production sites all over the world. This forms a complex web of activities impacting the environment in multi-faceted ways. This web is captured in EXIOBASE, a database that helps to provide insights into how consumption drives environmental pressures. Industrial Ecology Professor Arnold Tukker developed Exiobase together with partners.

*For more information see* exiobase.eu

## Industrial Ecology



# Environmental Education

CML's courses prepare students for a role in managing the world's natural resources and biodiversity. Our education is aimed on linking science to societal issues. Students work together in multidisciplinary groups using interactive learning methods.

We offer:
> A Master's programme in Industrial Ecology
> A Bachelor minor in Sustainable Development
> A Master specialization track in Conservation Biology
> An open online course (MOOC) on Metal Scarcity
> A PhD programme
> Biology education at Leiden University

## Conservation Biology


**Biodiversity: Natural capital**

### Conservation Biology: Managing Human Impacts on Nature

The Conservation Biology programme studies the effects of human activities on the entire biological chain. We study biological mechanisms at different levels. In particular we integrate both the impacts of man on nature and the importance of nature for man. Our programme offers a strong combination of fundamental research and societal relevance. By quantifying the interplay between man and nature, we aim to raise appreciation for our natural resources and to conserve biodiversity.

Research areas include:
> Landscape complexity
> Ecotoxicity
> Sustainable forest management
> Ecosystem services

### Ecotox: Assessing Environmental Risk

CML started ecotoxicological research 15 years ago to define the toxicity of chemicals in our environment, both in the short and long term. The impacts of pesticides and nanomaterials on aquatic model organisms are tested in lab conditions, while integrated impacts on ecosystems are tested in the field. The Dutch government uses CML's research to determine policy on agricultural pesticide use.

*For more information see*
ecotox.science.leidenuniv.nl



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