

CENTER FOR INDUSTRIAL ECOLOGY

The interdisciplinary, international team at the Yale Center for Industrial Ecology (CIE) brings training in the environmental, social, and policy sciences, engineering, and management to the analysis of materials and energy in society. Researchers study stocks, flows, and transformation of physical resources in systems at scales ranging from materials, products, and product life cycles, to factories, cities, countries, and globally. The center is dedicated to the development and promotion of research, teaching, and outreach in industrial ecology. Current topics of interest include:

1. Mapping and analyzing stocks and flows of resources and their associated drivers, costs, and environmental impacts with tools such as material flow analysis (MFA), life-cycle assessment (LCA), and environmentally extended input-output analysis (EEIOA).
2. Uncovering social, industrial, and economic dynamics that shape stocks and flows of materials and energy in the analysis and development of the circular economy, sustainable production and consumption, and industrial symbiosis/closed-loop systems.
3. Developing and analyzing policies and corporate strategy relevant for industrial ecology including extended producer responsibility (EPR) and business models supporting sustainable, resource-efficient outcomes.

Together with the Center for Green Chemistry and Green Engineering, CIE forms a specialization in the master's program as well as a broad learning community.

JOURNAL OF INDUSTRIAL ECOLOGY

CIE is home to a highly regarded international journal. Published by Wiley and owned by Yale University, the *Journal of Industrial Ecology* is a peer-reviewed, online, multidisciplinary, bimonthly publication on industry and the environment that is aimed at both researchers and practitioners in academe, industry, government, and advocacy organizations. It is edited in partnership with Tsinghua University in Beijing, China, and the Norwegian University of Science and Technology in Trondheim, Norway. The *Journal of Industrial Ecology* is indexed in Science Citation Index Expanded and Scopus, and it is the official journal of the International Society for Industrial Ecology. See www.wileyonlinelibrary.com/journal/jie.

INDUSTRIAL ENVIRONMENTAL MANAGEMENT PROGRAM

The Industrial Environmental Management (IEM) program at Yale aims to equip students with an integrated set of skills with which to tackle the complex, multifaceted environmental problems facing industrial and corporate managers. The core intellectual framework for IEM is the systems science of industrial ecology, which examines materials, water, and energy in a common framework. Students can pursue specialization and certification through the M.E.M. program in Industrial Ecology and Green Chemistry.

An active Industrial Environmental Management and Energy Student Interest Group (SIG) sponsors field trips to industrial sites, on-campus talks by visiting managers, and symposia on current topics of interest.

PROGRAM ON SOLID WASTE POLICY

The program has two principal goals: (1) to inform contemporary policy discussions about solid waste, materials management, and the circular economy by applying the methods and findings of industrial ecology and the social and environmental sciences; and (2) to develop workable policy solutions that address the impediments to safe, cost-effective solid waste management and the complexities of comprehensive materials and life-cycle management. Current research focuses on high-resolution mapping of nonhazardous industrial waste to improve the potential for reuse and on policies for extended producer responsibility.