EDITORIAL

940 Winners of the 2019 Graedel Prizes: The Journal of Industrial Ecology Best Paper Prizes
Chris Kennedy and Reid Lifset

FORUM

943 Suggested use? On evidence-based decision-making in industrial ecology and beyond
Junming Zhu

951 City-level water withdrawal in China: Accounting methodology and applications
Zongyong Zhang, Junguo Liu, Bofeng Cai, Yuli Shan, Heran Zheng, Xian Li, Xukun Li, and Dabo Guan

965 Making use of life cycle assessment and environmental product declarations: A survey with practitioners
Bruno Menezes Galindro, Sebastian Welling, Niki Bey, Stig Irving Olsen, Sebastião Roberto Soares, and Sven-Olof Ryding

METHODS, TOOLS, AND SOFTWARE

976 Efficient computation of environmentally extended input–output scenario and circular economy modeling
Hale Çetinay, Franco Donati, Reinout Heijungs, and Benjamin Sprecher

986 Methodological review and detailed guidance for the life cycle interpretation phase
Alexis Laurent, Bo P. Weidema, Jane Bare, Xun Liao, Danielle Maia de Souza, Massimo Pizzol, Serenella Sala, Hanna Schreiber, Nils Thonemann, and Francesca Verones

1004 Do we have enough natural sand for low-carbon infrastructure?
Dimitra Ioannidou, Guido Sonnemann, and Sangwon Suh

RESEARCH AND ANALYSIS

1016 Life cycle greenhouse gas emission and cost analysis of prefabricated concrete building façade elements
Chunbo Zhang, Mingming Hu, Xining Yang, Arianna Amati, and Arnold Tukker

1031 Rethinking environmental LCA life stages for transport infrastructure to facilitate holistic assessment
Shoshanna Saxe and Dena Kasraian

1047 Energy and capital
Christopher Kennedy

1059 Bioeconomic transition? Projecting consumption-based biomass and fossil material flows to 2050
Raphael Asada, Tamás Krisztin, Fulvio di Fulvio, Florian Kraxner, and Tobias Stern
| Page | Title                                                                 | Authors                                         |
|------|----------------------------------------------------------------------|-------------------------------------------------|
| 1074 | Monitoring domestic material consumption at lower territorial levels: A novel data downscaling method | Marco Bianchi, Carlos Tapia, and Ikerne del Valle |
| 1088 | Irrigation technology and water rebound in China’s agricultural sector | Lin Fang, Fengping Wu, Yantuan Yu, and Lin Zhang  |
| 1101 | Eco-efficiency of water and wastewater management in food production: A case study from a large dairy in Denmark | Julie Skrydstrup, Sille Lyster Larsen, and Martin Rygaard |
| 1113 | Renewables-based decarbonization and relocation of iron and steel making: A case study | Dolf Gielen, Deger Saygin, Emanuele Taibi, and Jean-Pierre Birat |
| 1126 | Economic aspirations connected to innovations in carbon capture and utilization value chains | Henriette Naims |
| 1140 | The relationship between environmental performance and environmental disclosure: A meta-analysis | My Hanh Doan and Remmer Sassen |
| 1158 | Comparing energy and water use of aqueous and gas-based metalworking fluids | Sarang D. Supekar, Diane J. Graziano, Steven J. Skerlos, and Joseph Cresko |
| 1171 | Environmental impact assessment of plasma-assisted and conventional ammonia synthesis routes | Aikaterini Anastasopoulou, Robin Keijzer, Bhaskar Patil, Jürgen Lang, Gerard van Rooij, and Volker Hessel |
Cover Image
The cover image, designed by Peter Hirsch and Yanin Kramsky, evokes a Sankey diagram, a type of flow chart widely used in industrial ecology in which the width of the arrows is proportional to the magnitude of material and energy flows. For a description of the history and methodology of Sankey diagrams, see the work of Mario Schmidt.

The Journal of Industrial Ecology is owned by Yale University and headquartered at the Center for Industrial Ecology of the School of the Environment.
Disclaimer. The Publisher, Yale University and Editors cannot be held responsible for errors or any consequences arising from the use of information contained in this journal; the views and opinions expressed do not necessarily reflect those of the Publisher, Yale University and Editors, neither does the publication of advertisements constitute any endorsement by the Publisher, Yale University and Editors of the products advertised.

Copyright and Copying (in any format). Copyright © 2020, Yale University. All rights reserved. No part of this publication may be reproduced, stored or transmitted in any form or by any means without the prior permission in writing from the copyright holder. Authorization to copy items for internal and personal use is granted by the copyright holder for libraries and other users registered with their local Reproduction Rights Organisation (RRO), e.g. Copyright Clearance Center (CCC), 222 Rosewood Drive, Danvers, MA 01923. USA (www.copyright.com), provided the appropriate fee is paid directly to the RRO. This consent does not extend to other kinds of copying such as copying for general distribution, for advertising or promotional purposes, for republication, for creating new collective works or for resale. Permissions for such reuse can be obtained using the RightsLink “Request Permissions” link on Wiley Online Library. Special requests should be addressed to: permissions@wiley.com.

For submission instructions, subscription, and all the latest information, visit http://onlinelibrary.wiley.com/journal/10.1111/(ISSN)1530-9290