

Journal of Environmental Accounting and Management

Editors

Zhifeng Yang
School of Environment
Beijing Normal University
Beijing 100875, China
Fax: +86 10 58800397
Email: zfyang@bnu.edu.cn

Sergio Ulgiati
Department of Science and Technology
Parthenope University of Napoli
Centro Direzionale, Isola C4. 80143 Napoli, Italy
Fax: +39 081 547 6515
Email: sergio.ulgiati@uniparthenope.it

Associate Editors

Mark T. Brown
Department of Environmental Engineering Sciences
University of Florida.
Gainesville, FL, USA
Fax: 352-392-3624
Email: mtb@ufl.edu

Biagio Giannetti
Paulista University
Laboratório de Produção e Meio Ambiente (LaProMA)
Sao Paulo, Brazil
Email: biafgian@unip.br

Bin Chen
School of Environment
Beijing Normal University
Beijing 100875, China
Fax: +86 10 58801732
Email: chenb@bnu.edu.cn

Hans Schnitzer
Institute for Process Engineering
Graz University of Technology
Graz, Austria
Fax: 43(0)316-873/7469
Email: hans.schnitzer@tugraz.at

Editorial Board

Salvatore Arico
Division of Ecological Sciences
UNESCO, Paris, France
Fax: 33 1 4568 5804
Email: S.Arico@unesco.org

Guoqian Chen
Dept. of Mechanics and Engineering Science
Peking University
Beijing, China
Email: gqchen@pku.edu.cn

Helmut Haberl
Institute of Social Ecology
Alpen Adria Universität
Vienna, Austria
Email: helmut.haberl@uni-klu.ac.at

Bhavik Bakshi
Department of Chemical Engineering
The Ohio State University
Columbus Ohio 43210, USA
Fax: (614)292-3769
Email: bakshi.2@osu.edu

Francesco Cherubini
Dept. of Energy and Process Engineering
Norwegian Univ. of Science and Technology
Trondheim, Norway
Email: francesco.cherubini@ntnu.no

Gordon Huang
Dept. of Environmental Systems Eng.
University of Regina
Regina, Saskatchewan, Canada
Fax: (306) 585-4855,
Email: gordon.huang@uregina.ca

Enrico Benetto
Public Research Centre Henri Tudor
Resource Centre for Environmental
Technologies
66, rue de Luxembourg, P.O. BOX 144
L-4221 Esch-sur-Alzette - Luxembourg
Email: enrico.benetto@tudor.lu

Brian D. Fath
Department of Biological Sciences
Towson University
Towson, MD 21252, USA
Fax: 410-704-2405
Email: bfath@towson.edu

Shu-Li Huang
Graduate Institute of Urban Planning,
National Taipei University, Taiwan
Fax: 886 (2) 8671-8801,
Email: shuli@mail.ntpu.edu.tw

Federico M. Butera
Dept. of Building & Environment Science &
Technology (BEST)
Politecnico di Milano, Milano, Italy
Fax: 02-2399-5151
Email: federico.butera@polimi.it

Matthias Finkbeiner
Department of Sustainable Engineering
Techinical University Berlin, Germany
Fax +49 (0)30 314-21720
Email: matthias.finkbeiner@tu-berlin.de

Wesley W. Ingwersen
Sustainable Technology Division
National Risk Management Research
Laboratory, US EPA
Cincinnati, OH 45268, USA
Email: Ingwersen.Wesley@epamail.epa.gov

Daniel E. Campbell
United States Environmental Protection
Agency
Wakefield, RI, USA
Fax: 401-783-3945
Email: Campbell.Dan@epamail.epa.gov

Pier Paolo Franzese
Industrial Ecology Programme
Norwegian Univ. of Science and Technology
Trondheim, Norway
Email: pierpaolo.franzese@ntnu.no

Christine Jasch
Vienna Institute for Environmental
Management and Economics, IÖW
Rechte Wienzeile 19/10
A-1040 Vienna ,AUSTRIA
Email: jasch.christine@ioew.at

Continued on back materials

Journal of Environmental Accounting and Management

Volume 3, Issue 2, June 2015

Editors
Zhifeng Yang
Sergio Ulgiati



L&H Scientific Publishing, LLC, USA

Publication Information

Journal of Environmental Accounting and Management (ISSN 2325-6192 (print), eISSN 2325-6206 (online)) is published quarterly (March, June, September, and December) by L & H Scientific Publishing, LLC, P.O. Box 99, Glen Carbon, IL62034, USA. Subscription prices are available upon request from the publisher or from this journal website. Subscriptions are accepted on a prepaid basis only and entered on a calendar year basis. Issues are sent by standard mail (surface in North America, air delivery outside North America). Priority rates are available upon request. Claims for missing issues should be made within six months of the date of dispatch.

Changes of Address

Send address changes to L&H Scientific Publishing, LLC, P.O. Box 99, Glen Carbon, IL62034, USA. Changes of address must be received at L&H Scientific Publishing eight weeks before they are effective.

Authors Inquiries

For inquiries relative to the submission including electronic submission where available, please visit journal website or contact journal Editors-in-Chief.

Advertising Information

If you are interested in advertising or other commercial opportunities, please email via lhscientificpublishing@gmail.com and your enquiry will be handled as soon as possible.

© 2015 L&H Scientific Publishing, LLC. All rights reserved

L&H Scientific Publishing, LLC requires the authors to sign a Journal Copyright Transfer Agreement for all articles published in L&H Scientific. The Copyright Transfer Agreement is an agreement under which the author retains copyright in the work but grants L & H Scientific Publishing LLC the sole and exclusive right and license to publish the full legal term of copyright.

Authors are responsible for obtaining permission from copyright holders for reproducing any illustrations, tables, figures or lengthy quotations published somewhere previously.

For authorization to photocopy materials for internal or personal use under those circumstances not falling within the fair use provisions of Copyright Act, requests for reprints and translations should be addressed to the permission office of L&H Scientific publishing, LLC via lhscientificpublishing@gmail.com or call: 1-618-402-2267. Permission of the Publisher and payment of a fee are required for all other photocopying, including multiple or systematic copying, copying for advertising or promotional purposes, resale, and forms of document delivery. Special rates are available for educational institutions to make photocopies for non-profit educational classroom use.

Subscribers may reproduce tables of contents or prepare lists of articles including abstracts for internal circulation within their institutions. Permission of the publisher is required for resale or distribution outside the institution.

Permission of the Publisher is required to store or use electronically any materials contained in this journal, including any entire or partial article, please contact the publisher for advice. Otherwise, no part of this publication can be reproduced, stored in a retrieval systems or transmitted in any form or by means, electronic, mechanical, photocopying, recording or without prior written permission of the Publisher.

Disclaimer

The authors, editors and publisher will not accept any legal responsibility for any errors or omissions that may be made in this publication. The publisher makes no warranty, express or implied, with respect to the material contained herein.

Printed in USA on acid-free paper.

Aims and Scope

The peer-reviewed journal publishes original research results in the field of environmental and ecological science with focus on applications to the sustainable management of natural, human-dominated, and man-made ecosystems. The aim of the journal is to provide a place for a rapid exchange of new ideas and concepts for scientists and engineers in the fields of environmental accounting, human and systems ecology, and environmental management. Manuscripts on environmental accounting and managements are solicited, including: mathematical modeling; computational and management techniques in environmental, ecological, energy and information science; environmental technology and engineering; human managed ecosystems such as agricultural, urban, coastal, riparian, and wetland ecosystems. Topics of interest include, but not limited to:

- Environmental and ecological economics, environmental accounting, environmental impact assessment, ecosystem service assessment, energy and resource use, social factors and management.
- Modeling in environmental conservation and restoration, eco-hydrology and water resources management, ecological process and pattern, climate change effects, environmental engineering and technology.
- Planning and management in human dimension-institutions and patterns for socio-economic systems, industrial ecology, ecological informatics, landscape design, and urban planning.
- Environmental policy, legislation, and innovations with environmental and strategic impact assessment, project appraisal and auditing, and environmental protection.

No length limitations for contributions are set, but only concisely written manuscripts are considered for publication. Brief papers can be published on the basis of Technical Notes. Discussions of previous published papers are welcome.

Peer Review

Journal of Environmental Accounting and Management adopts the traditional blind-review policy in which the reviewers' names are concealed for submission author(s). Each submitted manuscript is reviewed by at least two expert referees in the related research field.

Manuscript Submission Guidelines

For manuscript submission, authors can send their manuscripts to one of the Editors-in-Chief. Manuscript preparation should follow the sample papers and journal manuscript templates (word file or Latex files), which can be found on the journal website at <https://lhscientificpublishing.com/Journals/JEAM-Default.aspx>

Proofs and Electronic Offprints

Authors will receive a PDF proof of their articles and, on publication, electronic offprints of the article.

Open Access

After manuscripts acceptance, author(s) have a right to request the accepted manuscripts published by L&H Scientific publishing with open access, and the author(s) have a responsibility to paying the open access publication fee with US\$30 per page. The copyright is still held by the Publisher. Without any request of the open access publication, the accepted manuscripts are assumed to be published traditionally.

Continued from inside front cover

Christer Jonasson

Department of Earth Sciences
Uppsala University
Sweden
Fax: +46 920 22 84 11
Email: christer.jonasson@ans.polar.se

Dan L. Johnson

Department of Geography
University of Lethbridge
Alberta, Canada
Fax: (403) 332-4039
Email: dan.johnson@uleth.ca

Sven Erik Jørgensen

Institute A, Environmental Chemistry
Copenhagen University
Copenhagen, Denmark
Fax: +45 35305968
Email: msijapan@hotmail.com

Noam Lior

Dept. of Mech. Eng. & Applied Mech.
University of Pennsylvania
Philadelphia, PA 19104, USA
Fax: +1-215 573 6334
Email: lior@seas.upenn.edu

Hongfang Lu

South China Botanical Garden
Chinese Academy of Science
Guangzhou, China
Fax: 020-37084273
Email: luhf@scbg.ac.cn

David Maradan

Department of Economics
University of Geneva
Genève, Switzerland
Fax: (+4122) 705-8293
Email: maradan@ecosys.com

Antonino Marvuglia

Public Research Centre Henri Tudor
Resource Centre for Environmental
Technologies
66, rue de Luxembourg, P.O. BOX 144
L-4221 Esch-sur-Alzette - Luxembourg
Email: antonino.marvuglia@tudor.lu

Editorial Assistants

Gengyuan Liu

School of Environment
Beijing Normal University
Beijing, China
Email: liugengyuan@bnu.edu.cn

Paolo Masoni

The LCA and Ecodesign Laboratory
ENEA
via Martiri di Monte Sole, 4
40129 Bologna, Italy
Email: paolo.masoni@enea.it

Andrzej Nienartowicz

Institute of Ecology and Protection of the
Environment
Nicolaus Copernicus University
Torun, Poland
Email: anienart@umk.pl

Enrique Ortega

School of Food Engineering, the State
University of Campinas
Campinas, São Paulo, Brazil
Fax: +55 19 3521 4027
Email: ortega@fea.unicamp.br

Walter A. Pengue

Universidad Nacional de General Sarmiento
Gepama Fadu UBA
Buenos Aires, Argentina
Emails: wapengue@ungs.edu.ar

Marco Raugei

Dept of Mechanical Engineering and
Mathematical Sciences,
Oxford Brookes University
Wheatley, UK
Email: marco.raugei@brookes.ac.uk

B. Sudhakara Reddy

Indira Gandhi Institute of Development
Research
Goregaon, Mumbai, INDIA
Fax: 022 2840 2752
Email: sreddy@igidr.ac.in

Joseph A. Tainter

Department of Environment and Society
Utah State University
Logan, UT 84322
USA
Email: Joseph.Tainter@usu.edu

David R. Tilley

Dept. of Environmental Science and Tech.
University of Maryland,
College Park, MD 20742 , USA
Fax: (301) 405-8027
Email: dtilley@umd.edu

Alicia Valero

Department of Mechanical Engineering
University of Zaragoza
Zaragoza, SPAIN
Fax: +34 976 732 078
Email: aliciavd@unizar.es

Cecilia M. Villas Bôas de Almeida

Dept. of Production Engineering
Paulista University
Rua Doutor Bacelar 1212
Sao Paulo 04026-002, Brazil
Email: cmvbag@unip.br

Mathis Wackernagel

Global Footprint Network
312 Clay Street, Suite 300
Oakland, CA 94607-3510
USA
Email: mathis@footprintnetwork.org

Maochao Yan

Institute of Geographical Science and
Natural Resource Research
China Agricultural University
Beijing 100094, China
Email: yanmc@igsnrr.ac.cn

Maciej Zalewski

Department of Applied Ecology
University of Lodz
Poland
Fax: : (+48) 42 665 58 19
Email: m.zalewski@erce.unesco.lodz.pl

Silvio Viglia

Department of Science and Technology
Parthenope University of Napoli
Centro Direzionale, Isola C4. 80143 Napoli, Italy
Email: silvio.viglia@uniparthenope.it