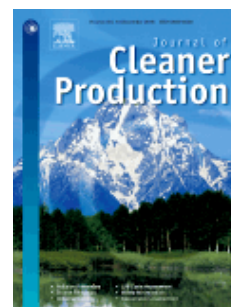




### TABLE OF CONTENTS

---

●	<b>Description</b>	<b>p.1</b>
●	<b>Audience</b>	<b>p.1</b>
●	<b>Impact Factor</b>	<b>p.1</b>
●	<b>Abstracting and Indexing</b>	<b>p.2</b>
●	<b>Editorial Board</b>	<b>p.2</b>
●	<b>Guide for Authors</b>	<b>p.7</b>



ISSN: 0959-6526

### DESCRIPTION

---

The *Journal of Cleaner Production* is an international, transdisciplinary journal focusing on Cleaner Production, Environmental, and Sustainability research and practice. Through our published articles, we aim at helping societies become more sustainable.

'Cleaner Production' is a concept that aims at preventing the production of waste, while increasing efficiencies in the uses of energy, water, resources, and human capital.

The *Journal of Cleaner Production* serves as a platform for addressing and discussing theoretical and practical cleaner production, encompassing environmental, and sustainability issues in corporations, governments, education institutions, regions, and societies.

Subject areas include, but are not limited to: Cleaner production and technical processes Sustainable Development and Sustainability Sustainable Consumption Environmental and sustainability assessment Sustainable Products and Services Corporate sustainability and Corporate Social Responsibility Education for Sustainable Development Governance, legislation, and policy for sustainability

For a full list of topics, please have a look [here](#).

### AUDIENCE

---

a. Managers, engineers, designers in all the process and service industries; b. Academic and research scientists specializing in cleaner production, regional sustainability, and education for sustainable development;c. Consultants, regulatory leaders, policy makers, planners and NGOs.

### IMPACT FACTOR

---

2017: 5.651 © Clarivate Analytics Journal Citation Reports 2018

## ABSTRACTING AND INDEXING

---

Geographical Abstracts  
Engineering Village - GEOBASE  
Fluid Abstracts  
FLUIDEX  
Scopus  
Science Citation Index Expanded

## EDITORIAL BOARD

---

### **Co-Editors-in-Chief**

**Jiří Jaromír Klemeš**, Brno University of Technology (VUT Brno), Brno, Czech Republic  
Cleaner Production and Technical Processes; Green/sustainable engineering; Green/sustainable supply chains; Biomass; Energy use and consumption; Waste minimisation; Pollution reduction; Renewable energy; Environmental assessment; Emergy/exergy analyses; LCA of product and process - Footprints and other assessment types; Supply chains (modelling, mathematical, and engineering); Eco-industrial parks; Energy-water nexus

**Cecília Maria Villas Bôas de Almeida**, Paulista University, São Paulo, Brazil

\*Cecília is the first contact point for Review articles\*

**Yutao Wang**, Fudan University, Shanghai, China

Cleaner production; Circular economy; Climate change policy and adaptation; Bio-based industry; Extended producer responsibility; Industrial ecology; Life cycle assessment; Eco-efficiency; Sustainable products and services; Waste management; Ecological management and natural capital; Renewable resource; Environmental behavior; Urban metabolism; Environmental nexus; Energy policy; Sustainable consumption; Sustainable urbanization and Regional sustainability; Education for sustainability

### **Founder and Editor-in-Chief Emeritus**

**Don Huisingh**, University of Tennessee, Knoxville, Tennessee, USA

### **Associate Editors**

**Kathleen Aviso**, De La Salle University, Manila, Philippines

**Giovanni Baiocchi**, University of Maryland, College Park, Maryland, USA

Climate change mitigation; sustainable lifestyles; environmental accounting; environmental economics; sustainable agriculture; industrial ecology; input-output sustainability analyses; trade and environment; alternative consumption patterns; carbon footprints of cities

**Nicole D. Berge**, University of South Carolina, Columbia, South Carolina, USA

Municipal solid waste; sustainable waste conversion; landfills; hydrothermal carbonization; nanomaterials; resource recovery; leachate; life cycle assessment; waste degradation; fate and transport

**Giorgio Besagni**, Ricerca sul Sistema Energetico - RSE S.p.A., Milan, Italy

Energy efficiency; Computational Fluid Dynamics, Energy Poverty; Multiphase flows; Energy system analysis; Ejector and refrigeration technology; Rational use of energy, Energy storage; Renewable energy; Energy use and consumption

**Jun Bi**, Nanjing University, Nanjing, China

environmental policy, environmental risk management, environmental health, environmental governance, environmental behavior, low carbon development, air pollution, watershed management, enterprise environmental management, EHS (environment, health & safety)

**Sandra Caeiro**, Universidade Aberta, Lisbon, Portugal

Coastal Zone Management; Marine protected areas; Coastal issues (i.e. beaches, dredging, natural disasters, hazards management, pollution, etc.)

**Hua Cai**, Purdue University, West Lafayette, Indiana, USA

**Bin Chen**, Beijing Normal University, Beijing, China

Environmental and ecological management; Environmental nexus; Energy economics; Thermoecconomics; Urban metabolism; Systems ecology

**Charbel Jose Chiappetta Jabbour**, Montpellier Business School, Montpellier, France

Change management for sustainability; environmental training and awareness; human aspects of cleaner production; green human resource management; sustainable human resource management; corporate social responsibility; corporate environmental management.

**Kannan Govindan**, University of Southern Denmark, Odense M, Denmark

Sustainable Supply Chain Management, Sustainable Operations Management, Green Supply Chain Management, Reverse Logistics, Closed Loop Supply Chain, Corporate Social Responsibility, Corporate Sustainability, Sustainable Consumption and Production, Extended Producer Responsibility, Optimizations Methods, Decision Analysis, Multi Attribute Decision Making methods (Multi Criteria Decision Making and Multi Objective Decision Making), Analytical Modelling, Fuzzy and Grey Set Theory

**Baoshan Huang**, University of Tennessee, Knoxville, Tennessee, USA

Sustainable Geo/Transportation Infrastructure – Multi-Scale Characterization and Modeling of Infrastructure Materials; Innovative Technologies Supporting Sustainable and Environmentally Friendly Subsurface Infrastructure Systems

**Mingzhou Jin**, University of Tennessee - Knoxville, Knoxville, Tennessee, USA

Advanced and Sustainable Manufacturing; Green Supply Chain; Sustainable Operations; Energy Efficiency; Optimization; Remanufacturing; Environmental Policy; Life Cycle Assessment

**Jin-Kuk Kim**, Hanyang University, Seoul, The Republic of Korea

Environmental process modeling and simulation; Process systems engineering; Energy system analysis; Techno-economic analysis; Process optimization; CO<sub>2</sub> capture and utilization; Water minimization; Natural gas processing; Industrial energy saving; Waste heat recovery

**Chew Tin Lee**, Universiti Teknologi Malaysia, Skudai, Johor, Malaysia

Organic waste management; Composting; LCA of products and processes; Waste treatment technology; Wastewater treatment; Environmental assessment; Waste to energy; Low-carbon emissions policy; Socio-economic impacts; Greenhouse gas mitigation

**Zhen Leng**, The Hong Kong Polytechnic University, Hung Hom, Kowloon, Hong Kong

Sustainable infrastructure; Environment-friendly construction materials; Clean infrastructure construction technologies; Green pavement material and technologies; Life cycle assessment; Eco-efficiency analysis; Value-added waste recycling; Nondestructive evaluation of transportation infrastructure

**Mattias Lindahl**, Linköping Universitet, Linköping, Sweden

Ecodesign (Environmentally Conscious Design, Design for Environment (DfE)); Sustainable Business Models; Circular Economy; Sustainable Consumption; Product Development; Engineering Design Methods; Product-Service Systems (PSS); Integrated Product and Service Engineering (IPSE); Service Engineering

**Zhifu Mi**, University College London (UCL), London, England, UK

Climate change economics; energy policy; air pollution; green economy; carbon footprint; low carbon; econometrics; optimization model; input output analysis; integrated assessment model

**Maria Theresa (Maite) Moreira Vilar**, Universidade de Santiago de Compostela, Santiago de Compostela, Spain

Biochemical Engineering, Enzyme Reactors, Wastewater Treatment, Environmental Management, Life Cycle Assessment, Carbon Footprint, Eco-design, Eco-efficiency

**Tomás Ramos**, Universidade NOVA de Lisboa, Caparica, Portugal

Sustainability Assessment and Indicators, Sustainability Reporting, Strategic Environmental Assessment and Planning, Environmental Impact Assessment, Stakeholder Engagement, Organisational Sustainability, Environmental Management, Green Jobs

**Tomohiko Sakao**, Linköping Universitet, Linköping, Sweden

Ecodesign (environmentally conscious design); Engineering design methods; Life Cycle Engineering; Life Cycle Management; Product-Service System (PSS); Circular Economy; Sustainable Consumption and Production; Computer support; Intelligent machines

**Panos Seferlis**, Aristotle University of Thessaloniki, Thessaloniki, Greece

Process design, Process optimization, Energy efficiency, Mathematical modeling, Automatic control, Sustainable process design, Energy conversion systems, Renewable energy systems, Emission reduction, Energy and water integration

**Lei Shi**, Tsinghua University, China

Industrial ecology, industrial complexity, complex network, complex systems, industrial ecosystem, industrial symbiosis, industrial metabolism, eco-innovation, circular economy, process systems engineering, cleaner production in developing countries

**Vladimir Strezov**, Macquarie University, New South Wales, Australia

sustainable energy, environmental engineering, chemical engineering, mineral processing, life cycle analysis, sustainability assessment, pollution control, waste management, environmental impact assessment, industrial ecology

**Xin Tong**, Peking University, Beijing, China

Extended Producer Responsibility; Sustainable consumption and production; Industrial ecology; Sustainable behaviour studies; Green supply chain; Spatial analysis; Global production network; Rural-urban transition; Technological transition; Urban and regional planning

**Zheming Tong**, Zhejiang University, Zhejiang, China

Air Pollution; Sustainable building; Built environment; Urban Physics; Urban vegetation; Traffic emission; Cabin environmental quality; Emission control; Computational Fluid Dynamics (CFD); Sustainable manufacturing

**Krzysztof Urbaniec**, Warsaw University of Technology, Plock, Poland

Innovation for sustainability; Energy efficiency; Hydrogen technology; Biotechnology

**Sharifah Rafidah Wan Alwi**, Universiti Teknologi Malaysia, Johor, Malaysia

process systems engineering, water, energy, Pinch Technology, Optimisation, Industrial applications

### **International Editorial Board**

**José Francisco Armendáriz López**, Universidad Autonoma de Baja California, Mexicali, Mexico

Low energy in Buildings; Energy polices; Renewable energy systems; Photovoltaic systems; Solar thermal systems; Life cycle assessment; Natural ventilation; Climate change; Sustainability; Low carbon economy

**Nicholas Ashford**, Massachusetts Institute of Technology, Cambridge, Massachusetts, USA

**Lucie Bartoňová**, VŠB-Technical University of Ostrava, Ostrava, Czech Republic

Coal combustion; Unburned carbon; Yttrium; Arsenic; Desulphurization additives; Heavy metals; Emissions; Coal geochemistry; Sequential leaching; Adsorption

**Rupert Baumgartner**, Karl-Franzens-Universität Graz, Graz, Austria

**Vincent Blok**, Wageningen Universiteit, Wageningen, Netherlands

**Syed Awais Ali Shah Bokhari**, Universiti Teknologi PETRONAS, Perak, Malaysia

Biofuel production; Cleaner process development; Intensification technologies; Hydrodynamic cavitation; Ultrasonics; Biomass conversion; Energy; Sustainable Engineering; Non-edible oils; Biodiesel synthesis

**Cassandra Bong Phun Chien**, Universiti Teknologi Malaysia, Skudai, Johor, Malaysia

Organic waste management; Anaerobic digestion; Composting; Modelling & Kinetics; GHG; Biomass & Bioenergy; Low carbon; Environmental management; Wastewater; Solid waste

**Frank Boons**, University of Manchester, Manchester, England, UK

**Ivan Bozhikin**, University of National and World Economy (UNWE), Sofia, Bulgaria

Environmental Fiscal Policy; Sustainable Waste Management; CSR; Circular Economy; Social Entrepreneurship; Environmental Economics; Eco-efficiency; Tools for Corporate Sustainability; Governmental Policy; Economic and Environmental Policy; Sustainable Business Models

**Mark Brown**, University of Florida, Gainesville, Florida, USA

**Laura Bulgariu**, Technical University Gheorghe Asachi of Iași, Iași, Romania

Environmental pollution; Environmental bioremediation; Heavy metals pollutants; Biosorption/adsorption; Batch and continuous systems; Low-cost biosorbents/adsorbents; Wastewater treatment; Waste recycling; Valorization of exhausted biosorbents/adsorbents; Ecological fertilizers for soils

**Chin Kui Cheng**, Universiti Malaysia Pahang (UMP), Pahang, Malaysia

Renewable energy; Wastewater treatment; Sustainable development; Clean energy; Carbon footprint; Water footprint; Biofuel; Waste-to-wealth; Biofuel; Green chemistry

**Anthony Chiu**, De La Salle University, Manila, Philippines

**Kim Christiansen**, Dansk Standard, Charlottenlund, Denmark

**Xiangzheng Deng**, Chinese Academy of Sciences (CAS), Chaoyang District, China

Environmental and Natural Resource Economics; Land Change Science; Agricultural Policy and Sustainable Development; Water Management and Water Footprint; Ecosystem Services and Functions; Urbanization and Global Environment Change; Energy Economics and climate Policy; Sustainability-based Decision Making

**Stephen DeVito**, US Environmental Protection Agency, Washington, District of Columbia, USA

Pollution prevention; green chemistry; pollutant release and transfer registers; PRTRs; sustainable development

**Sandra Duni Eksjo#lu**, Clemson University, Clemson, South Carolina, USA

**Kai Fang**, Zhejiang University, Hangzhou, China

Environmental Footprint Analysis; Carbon Emission Accounting and Allocation; Environmental Sustainability Assessment; Industrial Ecology; Ecological Economics; Input-Output Analysis; Climate Change; Planetary Boundaries

**Goran Finnveden**, KTH Royal Institute of Technology, Stockholm, Sweden

**Johannes Fresner**, STENUM Environmental Consultancy and Research Company, Graz, Austria

Resource efficiency; Cleaner production; Cleaner technology; Energy efficiency; Environmental management; Energy management; Environmental sound technology; Chemical engineering; Process control; Sectors (metal processing, plastic processing, agroindustries, food, chemicals, wood processing, tourism); Product development; Eco innovation; Circular economy

**Shabbir Gheewala**, King Mongkut's University of Technology Thonburi, Bangkok, Thailand

Life cycle assessment, sustainability assessment of energy systems, sustainability indicators, carbon footprint, water footprint, certification issues in biofuels and agro-industry

**Biagio F. Giannetti**, Paulista University, São Paulo, Brazil

**Stefan Gold**, Nottingham University Business School, Nottingham, England, UK

**Ole Jorgen Hanssen**, Stiftelsen Ostfoldforskning, Frederikstad, Norway

**James Haselip**, Danmarks Tekniske Universitet (DTU), Roskilde, Denmark

**Reinout Heijungs**, Vrije Universiteit Amsterdam, Amsterdam, Netherlands

**Gavin Hilson**, University of Surrey, Guildford, Surrey, England, UK

**Hesam Kamyab**, Universiti Teknologi Malaysia, Kuala Lumpur, Malaysia

Algal biotechnology; Wastewater treatment; Biomass; Agro waste water; Industrial wastewater treatment; Biofuels; Energy; Environmental Biotechnology; Compost; Self-Healing Concrete

**David Kukulka**, The State University of New York at Buffalo, Buffalo, New York, USA

**Feng Li**, Chinese Academy of Sciences (CAS), Beijing, China

urban ecology, ecosystem services, urban land-use change, ecological infrastructure, ecological planning and management

**Jeng Shiun Lim**, Universiti Teknologi Malaysia, Johor Bahru, Malaysia

Process systems engineering for resource conservation; Renewable energy; Carbon planning

**Gang Liu**, University of Southern Denmark, Odense, Denmark

Material, substance, and energy flow analysis; Life cycle sustainability assessment; Urban metabolism; Industrial Ecology; Circular economy; Sustainable resource and waste management; Built environment stocks; Prospective modelling; Climate change mitigation; Linkages of sustainability

**Yang Liu**, University of Vaasa, Vaasa, Finland

**Zhi-Yong Liu**, Hebei University of Technology, Tianjin, China

Wastewater minimization, debottlenecking of distillation columns, energy saving, applied thermodynamics, and simulation and optimization of chemical processes

**Conrad Luttrupp**, KTH Royal Institute of Technology, Stockholm, Sweden

**Thokozani Majozi**, University of the Witwatersrand, WITS, South Africa

Optimization; Batch processes; Water minimization; Energy optimization; Scheduling, Synthesis and Design of batch plants

**Jing Meng**, University of Cambridge, Cambridge, England, UK

Air pollution modeling; Low carbon manufacturing; Energy policy; Climate policy; Carbon footprint; Input output analysis; Learning curve

**Sandro Nižetić**, University of Split, Split, Croatia

Clean Energy & Sustainable Engineering; Energy Efficiency; Mechanical Engineering; Thermodynamics & Fluid Mechanics; Energy and Exergy Analysis; Renewable Energy; Heating and Cooling; Energy Economics; Energy Savings; Energy use and integration

**Michael Overcash**

**Yuanbo Qiao**, Shandong University, Qingdao, China

Sustainable development; Environmental economics; Eco-innovation; Environmental management; Environmental policy; Econometrics; Efficiency assessment; Land economics; Defense economics; Merger and acquisition

**Jaco Quist**, Delft University of Technology, Delft, Netherlands

Sustainable Production and Consumption (SPC); Industrial Ecology; Circular Economy; Renewable Energy; Climate Adaptation; Urban Agriculture and Food

**Darrel Reeve**, Cleaner Production Australia, Eltham, Victoria, Australia

**Matteo V. Rocco**, Politecnico di Milano, Milano, Italy

Exergy analysis; Thermo-economic analysis; Energy conversion systems; Life Cycle Assessment; Input-Output analysis; Energy Modeling; Energy resources; Industrial ecology; Computational sustainability; Environmental policy

**Hans Schnitzer**, Technische Universität Graz, Graz, Austria

Cleaner Production process intensification, resource and energy efficient technologies process assessment energy concepts, use of renewable resources innovations for urban quality of life with the focus on sustainable urban technologies systematic innovation

**Malin Song**, Anhui University of Finance and Economics, Anhui Bengbu, China

Environmental regulation; Environmental efficiency; Sustainable development; Big data analysis

**Mingxing Sun**, Tsinghua University, Beijing, China

Life cycle assessment (LCA); Material flow analysis (MFA); Cleaner production; Circular economy; Environmental policy; Extended producer responsibility (EPR); Bio-industry; Pulp and paper; Eco-efficiency; Waste management.

**Renzhong Tang**, Zhejiang University, Hangzhou, China

**Susan Thorneloe**, U.S. Environmental Protection Agency (EPA), Research Triangle Park, North Carolina, USA

LCS, WM planning

**Andrea Trianni**, University of Technology Sydney, Ultimo, New South Wales, Australia  
 Industrial energy efficiency; Industrial energy management; Resource efficiency; Sustainable production; Sustainable products and services; Sustainable operations management; Closed loop supply chain; Green supply chain management

**Arnold Tukker**, Leiden University, Leiden, Netherlands

**Sergio Ulgiati**, Università degli Studi di Napoli Parthenope, Napoli, Italy

**Venkata Krishna Kumar Upadhyayula**, U.S. Environmental Protection Agency (EPA), Cincinnati, Ohio, USA

**Bart van Hoof**, Universidad de Los Andes, Bogotá, Colombia

**Petar S. Varbanov**, Brno University of Technology (VUT Brno), Brno, Czech Republic

**Philip Vergragt**, Tellus Institute, Boston, Massachusetts, USA

**Harro von Blottnitz**, University of Cape Town, Cape Town, South Africa

**Mathis Wackernagel**, Global Footprint Network, Oakland, California, USA

**Timothy Walmsley**, Brno University of Technology (VUT Brno), Brno, Czech Republic  
 Process Integration including process modelling, optimisation and design; industrial energy efficiency, waste heat recovery, waste-to-energy; macro energy systems modelling, Footprint assessment and sustainability

**Zhaohua Wang**, Beijing Institute of Technology, Beijing, China  
 Energy Economics and Policy; CO2 Emission and Climate Change; Sustainable Production and Consumption; Big Data and Behavior

**Yingfeng Zhang**, Northwestern Polytechnical University, Xi'an, China

**Yue-Jun Zhang**, Hunan University, Changsha, China  
 Carbon emission reduction; Low-carbon policy evaluation; Energy economics; Energy price; Energy finance; Energy efficiency; Carbon trading mechanisms; Econometrics; Data Envelopment Analysis (DEA); Input output method

**Gyula Zilahy**, Corvinus University of Budapest, Budapest, Hungary

**Jian Zuo**, University of Adelaide, Adelaide, South Australia, Australia  
 Resource efficiency; Corporate sustainability; Solid waste management; Sustainable higher education; Green building; Stakeholder engagement; Renewable energy in buildings; Behavioural change; Social sustainability; Indoor environmental quality

**Expanded Editorial Board**

**Javier Dufour Andía**, Rey Juan Carlos University, Spain  
 sustainability, life cycle assessment (LCA), life cycle sustainability assessment (LSCA), process optimization, energy modelling, bioenergy, biofuels, electricity, hydrogen, energy systems

**Yee Van Fan**, Brno University of Technology (VUT Brno), Brno, Czech Republic  
 Solid waste treatment and management; Composting; Waste to energy; Emissions assessment and mitigation; Transportation Mode Choice; Life Cycle Assessment; Footprint and sustainability assessment; Biomass

**Xavier Gabarrell Durany**, Universitat Autònoma de Barcelona (UAB), Barcelona, Spain  
 industrial ecology, ecodesign, circular economy, LCA, MFA, waste management, water management, energy-water-food nexus, regions and urban sustainable transformation

**Xuexiu Jia**, Brno University of Technology (VUT Brno), Brno, Czech Republic  
 Water footprint; Water-energy-food nexus; GHG/carbon emissions; Economics and environmental management

**Feng Li**, Chinese Academy of Sciences (CAS), Beijing, China  
 urban ecology, ecosystem services, urban land-use change, ecological infrastructure, ecological planning and management

**Guozhu Mao**, Tianjin University, Tianjin, China  
 Environmental planning, cleaner production audit, industry ecology, infrastructure ecology, life cycle assessment, green building, circular economy, low carbon economy, alternative energy, CO2 emissions

**Shen Qu**, University of Michigan, Ann Arbor, Michigan, USA  
 Trade and the environment; Urban food-water-energy nexus; Water risk; Sustainable production and consumption

**Joan Rieradevall Pons**, Universitat Autònoma de Barcelona (UAB), Bellaterra, Spain  
 Agourban, Sustainability cites, Life cycle assessment, Eco-design, Eco innovation services, Prevention and recycling of waste, Industrial Ecology, Rainwater, Biomass and Smart cities

**Yi Yang**, University of Minnesota, Minneapolis, Minnesota, USA

## GUIDE FOR AUTHORS

---

### *Types of paper*

The following types of contribution are published in *The Journal of Cleaner Production*:

*Original article*: Standard research papers of 6000-8000 words in length, with tables, illustrations and references, in which hypotheses are tested and results reported.

*Review article*: Review papers provide an extensive overview of recent developments in specific areas that fall within the scope of the journal. They are expected to have an extensive literature review followed by an in-depth analysis of the state of the art, and identify challenges for future research. Review articles are usually up to 12,000 words and must include a Methods section explaining how the literature for review was selected.

*Technical note*: Concise scientific summaries/reports of approximately 500 words of new products/technologies of relevance to the field of cleaner production. Illustrations may be included but not company logos.

*Conference Reports*: Reports on major international conferences of particular interest to The Journal of Cleaner Production, approximately 1000-2000 words.

*Book Reviews*: Reviews of approximately 500-1000 words on new books, software and videos relevant to the scope of The Journal of Cleaner Production.

*Letters to the Editor*: Letters designed to clarify or respond to the content of a paper previously published in the Journal or to raise questions about future directions of The Journal of Cleaner Production or other issues that a reader may wish to pose that are relevant to the mandate of the Journal.

*Special Issue Proposal*: Anyone who wishes to propose or coordinate a Special Issue of The Journal of Cleaner Production is invited to contact the Executive Editor, Dr. Yutao Wang (wang\_yutao@hotmail.com).

### *Contact details for submission*

**Questions or Suggestions to the Editor-in-Chief**: Anyone who wishes to pose questions, make suggestions or to propose to coordinate the development of a Special Issue of *The Journal of Cleaner Production* is invited to contact the Editor-in-Chief of the Journal, Prof. Donald Huisingh at the University of Tennessee: donalduisingh@comcast.net .

## BEFORE YOU BEGIN

### **Ethics in publishing**

Authors have a responsibility to present their work with the intellectual integrity that the scientific community expects. Before submitting a paper for consideration authors should familiarize themselves with the [Ethics Toolkit](#). Authors should ensure that they have written entirely original works, and if they have used the work and/or words of others, these should be appropriately cited or quoted. Authors should not concurrently submit a paper to more than one journal or primary publication, and should not submit a previously published paper for consideration.

For information on Ethics in publishing and Ethical guidelines for journal publication see <http://www.elsevier.com/publishingethics> and <http://www.elsevier.com/journal-authors/ethics>.

### **Declaration of interest**

All authors must disclose any financial and personal relationships with other people or organizations that could inappropriately influence (bias) their work. Examples of potential competing interests include employment, consultancies, stock ownership, honoraria, paid expert testimony, patent applications/registrations, and grants or other funding. Authors must disclose any interests in two places: 1. A summary declaration of interest statement in the title page file (if double-blind) or the manuscript file (if single-blind). If there are no interests to declare then please state this: 'Declarations of interest: none'. This summary statement will be ultimately published if the article is accepted.

2. Detailed disclosures as part of a separate Declaration of Interest form, which forms part of the journal's official records. It is important for potential interests to be declared in both places and that the information matches. [More information](#).

### **Submission declaration and verification**

Submission of an article implies that the work described has not been published previously (except in the form of an abstract, a published lecture or academic thesis, see '[Multiple, redundant or concurrent publication](#)' for more information), that it is not under consideration for publication elsewhere, that its publication is approved by all authors and tacitly or explicitly by the responsible authorities where the work was carried out, and that, if accepted, it will not be published elsewhere in the same form, in English or in any other language, including electronically without the written consent of the copyright-holder. To verify originality, your article may be checked by the originality detection service [Crossref Similarity Check](#).

#### *Preprints*

Please note that [preprints](#) can be shared anywhere at any time, in line with Elsevier's [sharing policy](#). Sharing your preprints e.g. on a preprint server will not count as prior publication (see '[Multiple, redundant or concurrent publication](#)' for more information).

### **Use of inclusive language**

Inclusive language acknowledges diversity, conveys respect to all people, is sensitive to differences, and promotes equal opportunities. Articles should make no assumptions about the beliefs or commitments of any reader, should contain nothing which might imply that one individual is superior to another on the grounds of race, sex, culture or any other characteristic, and should use inclusive language throughout. Authors should ensure that writing is free from bias, for instance by using 'he or she', 'his/her' instead of 'he' or 'his', and by making use of job titles that are free of stereotyping (e.g. 'chairperson' instead of 'chairman' and 'flight attendant' instead of 'stewardess').

### **Changes to authorship**

Authors are expected to consider carefully the list and order of authors **before** submitting their manuscript and provide the definitive list of authors at the time of the original submission. Any addition, deletion or rearrangement of author names in the authorship list should be made only **before** the manuscript has been accepted and only if approved by the journal Editor. To request such a change, the Editor must receive the following from the **corresponding author**: (a) the reason for the change in author list and (b) written confirmation (e-mail, letter) from all authors that they agree with the addition, removal or rearrangement. In the case of addition or removal of authors, this includes confirmation from the author being added or removed.

Only in exceptional circumstances will the Editor consider the addition, deletion or rearrangement of authors **after** the manuscript has been accepted. While the Editor considers the request, publication of the manuscript will be suspended. If the manuscript has already been published in an online issue, any requests approved by the Editor will result in a corrigendum.

#### *Article transfer service*

This journal is part of our Article Transfer Service. This means that if the Editor feels your article is more suitable in one of our other participating journals, then you may be asked to consider transferring the article to one of those. If you agree, your article will be transferred automatically on your behalf with no need to reformat. Please note that your article will be reviewed again by the new journal. [More information](#).

### **Copyright**

Upon acceptance of an article, authors will be asked to complete a 'Journal Publishing Agreement' (see [more information](#) on this). An e-mail will be sent to the corresponding author confirming receipt of the manuscript together with a 'Journal Publishing Agreement' form or a link to the online version of this agreement.

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 and for all other derivative works, including compilations and translations. If excerpts from other copyrighted works are included, the author(s) must obtain written permission from the copyright owners and credit the source(s) in the article. Elsevier has [preprinted forms](#) for use by authors in these cases.



For gold open access articles: Upon acceptance of an article, authors will be asked to complete an 'Exclusive License Agreement' ([more information](#)). Permitted third party reuse of gold open access articles is determined by the author's choice of [user license](#).

### **Author rights**

As an author you (or your employer or institution) have certain rights to reuse your work. [More information](#).

#### *Elsevier supports responsible sharing*

Find out how you can [share your research](#) published in Elsevier journals.

### **Role of the funding source**

You are requested to identify who provided financial support for the conduct of the research and/or preparation of the article and to briefly describe the role of the sponsor(s), if any, in study design; in the collection, analysis and interpretation of data; in the writing of the report; and in the decision to submit the article for publication. If the funding source(s) had no such involvement then this should be stated.

#### *Funding body agreements and policies*

Elsevier has established a number of agreements with funding bodies which allow authors to comply with their funder's open access policies. Some funding bodies will reimburse the author for the gold open access publication fee. Details of [existing agreements](#) are available online.

### **Open access**

This journal offers authors a choice in publishing their research:

#### **Subscription**

- Articles are made available to subscribers as well as developing countries and patient groups through our [universal access programs](#).
- No open access publication fee payable by authors.
- The Author is entitled to post the [accepted manuscript](#) in their institution's repository and make this public after an embargo period (known as green Open Access). The [published journal article](#) cannot be shared publicly, for example on ResearchGate or Academia.edu, to ensure the sustainability of peer-reviewed research in journal publications. The embargo period for this journal can be found below.

#### **Gold open access**

- Articles are freely available to both subscribers and the wider public with permitted reuse.
- A gold open access publication fee is payable by authors or on their behalf, e.g. by their research funder or institution.

Regardless of how you choose to publish your article, the journal will apply the same peer review criteria and acceptance standards.

For gold open access articles, permitted third party (re)use is defined by the following [Creative Commons user licenses](#):

#### *Creative Commons Attribution (CC BY)*

Lets others distribute and copy the article, create extracts, abstracts, and other revised versions, adaptations or derivative works of or from an article (such as a translation), include in a collective work (such as an anthology), text or data mine the article, even for commercial purposes, as long as they credit the author(s), do not represent the author as endorsing their adaptation of the article, and do not modify the article in such a way as to damage the author's honor or reputation.

#### *Creative Commons Attribution-NonCommercial-NoDerivs (CC BY-NC-ND)*

For non-commercial purposes, lets others distribute and copy the article, and to include in a collective work (such as an anthology), as long as they credit the author(s) and provided they do not alter or modify the article.

The gold open access publication fee for this journal is **USD 4050**, excluding taxes. Learn more about Elsevier's pricing policy: <https://www.elsevier.com/openaccesspricing>.

#### *Green open access*

Authors can share their research in a variety of different ways and Elsevier has a number of green open access options available. We recommend authors see our [green open access page](#) for further information. Authors can also self-archive their manuscripts immediately and enable public

access from their institution's repository after an embargo period. This is the version that has been accepted for publication and which typically includes author-incorporated changes suggested during submission, peer review and in editor-author communications. Embargo period: For subscription articles, an appropriate amount of time is needed for journals to deliver value to subscribing customers before an article becomes freely available to the public. This is the embargo period and it begins from the date the article is formally published online in its final and fully citable form. [Find out more](#).

This journal has an embargo period of 24 months.

#### *Elsevier Researcher Academy*

[Researcher Academy](#) is a free e-learning platform designed to support early and mid-career researchers throughout their research journey. The "Learn" environment at Researcher Academy offers several interactive modules, webinars, downloadable guides and resources to guide you through the process of writing for research and going through peer review. Feel free to use these free resources to improve your submission and navigate the publication process with ease.

#### *Language (usage and editing services)*

Please write your text in good English (American or British usage is accepted, but not a mixture of these). Authors who feel their English language manuscript may require editing to eliminate possible grammatical or spelling errors and to conform to correct scientific English may wish to use the [English Language Editing service](#) available from Elsevier's WebShop.

#### **Submission**

Our online submission system guides you stepwise through the process of entering your article details and uploading your files. The system converts your article files to a single PDF file used in the peer-review process. Editable files (e.g., Word, LaTeX) are required to typeset your article for final publication. All correspondence, including notification of the Editor's decision and requests for revision, is sent by e-mail.

#### *Referees*

Please submit, with the manuscript a list of three qualified, independent, prospective reviewers who could perform quality peer reviews of your document. (Include their full names, affiliations and their current E-mail addresses.)

The Journal of Cleaner Production used 'Single-blind' reviewing, where the names of the reviewers are hidden from the Author, but the reviewer knows who the authors are.

## **PREPARATION**

### **Peer review**

This journal operates a single blind review process. All contributions will be initially assessed by the editor for suitability for the journal. Papers deemed suitable are then typically sent to a minimum of one independent expert reviewer to assess the scientific quality of the paper. The Editor is responsible for the final decision regarding acceptance or rejection of articles. The Editor's decision is final. [More information on types of peer review](#).

#### *Use of word processing software*

It is important that the file be saved in the native format of the word processor used. The text should be in single-column format. Keep the layout of the text as simple as possible. Most formatting codes will be removed and replaced on processing the article. In particular, do not use the word processor's options to justify text or to hyphenate words. However, do use bold face, italics, subscripts, superscripts etc. When preparing tables, if you are using a table grid, use only one grid for each individual table and not a grid for each row. If no grid is used, use tabs, not spaces, to align columns. The electronic text should be prepared in a way very similar to that of conventional manuscripts (see also the [Guide to Publishing with Elsevier](#)). Note that source files of figures, tables and text graphics will be required whether or not you embed your figures in the text. See also the section on Electronic artwork.

To avoid unnecessary errors you are strongly advised to use the 'spell-check' and 'grammar-check' functions of your word processor.

### **Article structure**

### *Subdivision - numbered sections*

Divide your article into clearly defined and numbered sections. Subsections should be numbered 1.1 (then 1.1.1, 1.1.2, ...), 1.2, etc. (the abstract is not included in section numbering). Use this numbering also for internal cross-referencing: do not just refer to 'the text'. Any subsection may be given a brief heading. Each heading should appear on its own separate line.

### *Introduction*

State the objectives of the work and provide an adequate background, avoiding a detailed literature survey or a summary of the results.

### *Material and methods*

Provide sufficient details to allow the work to be reproduced by an independent researcher. Methods that are already published should be summarized, and indicated by a reference. If quoting directly from a previously published method, use quotation marks and also cite the source. Any modifications to existing methods should also be described.

### *Theory/calculation*

A Theory section should extend, not repeat, the background to the article already dealt with in the Introduction and lay the foundation for further work. In contrast, a Calculation section represents a practical development from a theoretical basis.

### *Results*

Results should be clear and concise.

### *Discussion*

This should explore the significance of the results of the work, not repeat them. A combined Results and Discussion section is often appropriate. Avoid extensive citations and discussion of published literature.

### *Conclusions*

The main conclusions of the study may be presented in a short Conclusions section, which may stand alone or form a subsection of a Discussion or Results and Discussion section.

### *Appendices*

If there is more than one appendix, they should be identified as A, B, etc. Formulae and equations in appendices should be given separate numbering: Eq. (A.1), Eq. (A.2), etc.; in a subsequent appendix, Eq. (B.1) and so on. Similarly for tables and figures: Table A.1; Fig. A.1, etc.

## **Essential title page information**

- **Title.** Concise and informative. Titles are often used in information-retrieval systems. Avoid abbreviations and formulae where possible.
- **Author names and affiliations.** Please clearly indicate the given name(s) and family name(s) of each author and check that all names are accurately spelled. You can add your name between parentheses in your own script behind the English transliteration. Present the authors' affiliation addresses (where the actual work was done) below the names. Indicate all affiliations with a lower-case superscript letter immediately after the author's name and in front of the appropriate address. Provide the full postal address of each affiliation, including the country name and, if available, the e-mail address of each author.
- **Corresponding author.** Clearly indicate who will handle correspondence at all stages of refereeing and publication, also post-publication. This responsibility includes answering any future queries about Methodology and Materials. **Ensure that the e-mail address is given and that contact details are kept up to date by the corresponding author.**
- **Present/permanent address.** If an author has moved since the work described in the article was done, or was visiting at the time, a 'Present address' (or 'Permanent address') may be indicated as a footnote to that author's name. The address at which the author actually did the work must be retained as the main, affiliation address. Superscript Arabic numerals are used for such footnotes.

## **Abstract**

A concise and factual abstract is required. The abstract should state briefly the purpose of the research, the principal results and major conclusions. An abstract is often presented separately from the article, so it must be able to stand alone. For this reason, References should be avoided, but if essential, then cite the author(s) and year(s). Also, non-standard or uncommon abbreviations should be avoided, but if essential they must be defined at their first mention in the abstract itself.

### *Graphical abstract*

Although a graphical abstract is optional, its use is encouraged as it draws more attention to the online article. The graphical abstract should summarize the contents of the article in a concise, pictorial form designed to capture the attention of a wide readership. Graphical abstracts should be submitted as a separate file in the online submission system. Image size: Please provide an image with a minimum of 531 × 1328 pixels (h × w) or proportionally more. The image should be readable at a size of 5 × 13 cm using a regular screen resolution of 96 dpi. Preferred file types: TIFF, EPS, PDF or MS Office files. You can view [Example Graphical Abstracts](#) on our information site.

Authors can make use of Elsevier's [Illustration Services](#) to ensure the best presentation of their images and in accordance with all technical requirements.

### *Highlights*

Highlights are mandatory for this journal. They consist of a short collection of bullet points that convey the core findings of the article and should be submitted in a separate editable file in the online submission system. Please use 'Highlights' in the file name and include 3 to 5 bullet points (maximum 85 characters, including spaces, per bullet point). You can view [example Highlights](#) on our information site.

### **Keywords**

Immediately after the abstract, provide a maximum of 6 keywords, using American spelling and avoiding general and plural terms and multiple concepts (avoid, for example, 'and', 'of'). Be sparing with abbreviations: only abbreviations firmly established in the field may be eligible. These keywords will be used for indexing purposes.

### *Abbreviations*

Define abbreviations that are not standard in this field in a footnote to be placed on the first page of the article. Such abbreviations that are unavoidable in the abstract must be defined at their first mention there, as well as in the footnote. Ensure consistency of abbreviations throughout the article.

### *Acknowledgements*

Collate acknowledgements in a separate section at the end of the article before the references and do not, therefore, include them on the title page, as a footnote to the title or otherwise. List here those individuals who provided help during the research (e.g., providing language help, writing assistance or proof reading the article, etc.).

### *Formatting of funding sources*

List funding sources in this standard way to facilitate compliance to funder's requirements:

Funding: This work was supported by the National Institutes of Health [grant numbers xxxx, yyyy]; the Bill & Melinda Gates Foundation, Seattle, WA [grant number zzzz]; and the United States Institutes of Peace [grant number aaaa].

It is not necessary to include detailed descriptions on the program or type of grants and awards. When funding is from a block grant or other resources available to a university, college, or other research institution, submit the name of the institute or organization that provided the funding.

If no funding has been provided for the research, please include the following sentence:

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

### *Math formulae*

Please submit math equations as editable text and not as images. Present simple formulae in line with normal text where possible and use the solidus (/) instead of a horizontal line for small fractional terms, e.g., X/Y. In principle, variables are to be presented in italics. Powers of e are often more conveniently denoted by exp. Number consecutively any equations that have to be displayed separately from the text (if referred to explicitly in the text).

### *Footnotes*

Footnotes should be used sparingly. Number them consecutively throughout the article. Many word processors can build footnotes into the text, and this feature may be used. Otherwise, please indicate the position of footnotes in the text and list the footnotes themselves separately at the end of the article. Do not include footnotes in the Reference list.

## Artwork

### Electronic artwork

#### General points

- Make sure you use uniform lettering and sizing of your original artwork.
- Embed the used fonts if the application provides that option.
- Aim to use the following fonts in your illustrations: Arial, Courier, Times New Roman, Symbol, or use fonts that look similar.
- Number the illustrations according to their sequence in the text.
- Use a logical naming convention for your artwork files.
- Provide captions to illustrations separately.
- Size the illustrations close to the desired dimensions of the published version.
- Submit each illustration as a separate file.

A detailed [guide on electronic artwork](#) is available.

**You are urged to visit this site; some excerpts from the detailed information are given here.**

#### Formats

If your electronic artwork is created in a Microsoft Office application (Word, PowerPoint, Excel) then please supply 'as is' in the native document format.

Regardless of the application used other than Microsoft Office, when your electronic artwork is finalized, please 'Save as' or convert the images to one of the following formats (note the resolution requirements for line drawings, halftones, and line/halftone combinations given below):

EPS (or PDF): Vector drawings, embed all used fonts.

TIFF (or JPEG): Color or grayscale photographs (halftones), keep to a minimum of 300 dpi.

TIFF (or JPEG): Bitmapped (pure black & white pixels) line drawings, keep to a minimum of 1000 dpi.

TIFF (or JPEG): Combinations bitmapped line/half-tone (color or grayscale), keep to a minimum of 500 dpi.

#### Please do not:

- Supply files that are optimized for screen use (e.g., GIF, BMP, PICT, WPG); these typically have a low number of pixels and limited set of colors;
- Supply files that are too low in resolution;
- Submit graphics that are disproportionately large for the content.

#### Color artwork

Please make sure that artwork files are in an acceptable format (TIFF (or JPEG), EPS (or PDF), or MS Office files) and with the correct resolution. If, together with your accepted article, you submit usable color figures then Elsevier will ensure, at no additional charge, that these figures will appear in color online (e.g., ScienceDirect and other sites) regardless of whether or not these illustrations are reproduced in color in the printed version. **For color reproduction in print, you will receive information regarding the costs from Elsevier after receipt of your accepted article.** Please indicate your preference for color: in print or online only. [Further information on the preparation of electronic artwork.](#)

#### Figure captions

Ensure that each illustration has a caption. Supply captions separately, not attached to the figure. A caption should comprise a brief title (**not** on the figure itself) and a description of the illustration. Keep text in the illustrations themselves to a minimum but explain all symbols and abbreviations used.

## Tables

Please submit tables as editable text and not as images. Tables can be placed either next to the relevant text in the article, or on separate page(s) at the end. Number tables consecutively in accordance with their appearance in the text and place any table notes below the table body. Be sparing in the use of tables and ensure that the data presented in them do not duplicate results described elsewhere in the article. Please avoid using vertical rules and shading in table cells.

## References

### Citation in text

Please ensure that every reference cited in the text is also present in the reference list (and vice versa). Any references cited in the abstract must be given in full. Unpublished results and personal communications are not recommended in the reference list, but may be mentioned in the text. If these references are included in the reference list they should follow the standard reference style of the journal and should include a substitution of the publication date with either 'Unpublished results' or 'Personal communication'. Citation of a reference as 'in press' implies that the item has been accepted for publication.

### *Reference links*

Increased discoverability of research and high quality peer review are ensured by online links to the sources cited. In order to allow us to create links to abstracting and indexing services, such as Scopus, CrossRef and PubMed, please ensure that data provided in the references are correct. Please note that incorrect surnames, journal/book titles, publication year and pagination may prevent link creation. When copying references, please be careful as they may already contain errors. Use of the DOI is highly encouraged.

A DOI is guaranteed never to change, so you can use it as a permanent link to any electronic article. An example of a citation using DOI for an article not yet in an issue is: VanDecar J.C., Russo R.M., James D.E., Ambeh W.B., Franke M. (2003). Aseismic continuation of the Lesser Antilles slab beneath northeastern Venezuela. *Journal of Geophysical Research*, <https://doi.org/10.1029/2001JB000884>. Please note the format of such citations should be in the same style as all other references in the paper.

### *Web references*

As a minimum, the full URL should be given and the date when the reference was last accessed. Any further information, if known (DOI, author names, dates, reference to a source publication, etc.), should also be given. Web references can be listed separately (e.g., after the reference list) under a different heading if desired, or can be included in the reference list.

### *Data references*

This journal encourages you to cite underlying or relevant datasets in your manuscript by citing them in your text and including a data reference in your Reference List. Data references should include the following elements: author name(s), dataset title, data repository, version (where available), year, and global persistent identifier. Add [dataset] immediately before the reference so we can properly identify it as a data reference. The [dataset] identifier will not appear in your published article.

### *References in a special issue*

Please ensure that the words 'this issue' are added to any references in the list (and any citations in the text) to other articles in the same Special Issue.

### *Reference management software*

Most Elsevier journals have their reference template available in many of the most popular reference management software products. These include all products that support [Citation Style Language styles](#), such as [Mendeley](#) and [Zotero](#), as well as [EndNote](#). Using the word processor plug-ins from these products, authors only need to select the appropriate journal template when preparing their article, after which citations and bibliographies will be automatically formatted in the journal's style. If no template is yet available for this journal, please follow the format of the sample references and citations as shown in this Guide. If you use reference management software, please ensure that you remove all field codes before submitting the electronic manuscript. [More information on how to remove field codes](#).

Users of Mendeley Desktop can easily install the reference style for this journal by clicking the following link:

<http://open.mendeley.com/use-citation-style/journal-of-cleaner-production>

When preparing your manuscript, you will then be able to select this style using the Mendeley plug-ins for Microsoft Word or LibreOffice.

### *Reference formatting*

There are no strict requirements on reference formatting at submission. References can be in any style or format as long as the style is consistent. Where applicable, author(s) name(s), journal title/book title, chapter title/article title, year of publication, volume number/book chapter and the article number or pagination must be present. Use of DOI is highly encouraged. The reference style used by the journal will be applied to the accepted article by Elsevier at the proof stage. Note that missing data will be highlighted at proof stage for the author to correct. If you do wish to format the references yourself they should be arranged according to the following examples:

### *Reference style*

*Text:* All citations in the text should refer to:

1. *Single author:* the author's name (without initials, unless there is ambiguity) and the year of publication;
2. *Two authors:* both authors' names and the year of publication;
3. *Three or more authors:* first author's name followed by 'et al.' and the year of publication.

Citations may be made directly (or parenthetically). Groups of references can be listed either first alphabetically, then chronologically, or vice versa.

Examples: 'as demonstrated (Allan, 2000a, 2000b, 1999; Allan and Jones, 1999).... Or, as demonstrated (Jones, 1999; Allan, 2000)... Kramer et al. (2010) have recently shown ...'

*List:* References should be arranged first alphabetically and then further sorted chronologically if necessary. More than one reference from the same author(s) in the same year must be identified by the letters 'a', 'b', 'c', etc., placed after the year of publication.

*Examples:*

Reference to a journal publication:

Van der Geer, J., Hanraads, J.A.J., Lupton, R.A., 2010. The art of writing a scientific article. *J. Sci. Commun.* 163, 51–59. <https://doi.org/10.1016/j.Sc.2010.00372>.

Reference to a journal publication with an article number:

Van der Geer, J., Hanraads, J.A.J., Lupton, R.A., 2018. The art of writing a scientific article. *Heliyon.* 19, e00205. <https://doi.org/10.1016/j.heliyon.2018.e00205>.

Reference to a book:

Strunk Jr., W., White, E.B., 2000. *The Elements of Style*, fourth ed. Longman, New York.

Reference to a chapter in an edited book:

Mettam, G.R., Adams, L.B., 2009. How to prepare an electronic version of your article, in: Jones, B.S., Smith, R.Z. (Eds.), *Introduction to the Electronic Age*. E-Publishing Inc., New York, pp. 281–304.

Reference to a website:

Cancer Research UK, 1975. Cancer statistics reports for the UK. <http://www.cancerresearchuk.org/aboutcancer/statistics/cancerstatsreport/> (accessed 13 March 2003).

Reference to a dataset:

[dataset] Oguro, M., Imahiro, S., Saito, S., Nakashizuka, T., 2015. Mortality data for Japanese oak wilt disease and surrounding forest compositions. *Mendeley Data*, v1. <https://doi.org/10.17632/xwj98nb39r.1>.

*Journal abbreviations source*

Journal names should be abbreviated according to the [List of Title Word Abbreviations](#).

## **Video**

Elsevier accepts video material and animation sequences to support and enhance your scientific research. Authors who have video or animation files that they wish to submit with their article are strongly encouraged to include links to these within the body of the article. This can be done in the same way as a figure or table by referring to the video or animation content and noting in the body text where it should be placed. All submitted files should be properly labeled so that they directly relate to the video file's content. In order to ensure that your video or animation material is directly usable, please provide the file in one of our recommended file formats with a preferred maximum size of 150 MB per file, 1 GB in total. Video and animation files supplied will be published online in the electronic version of your article in Elsevier Web products, including [ScienceDirect](#). Please supply 'stills' with your files: you can choose any frame from the video or animation or make a separate image. These will be used instead of standard icons and will personalize the link to your video data. For more detailed instructions please visit our [video instruction pages](#). Note: since video and animation cannot be embedded in the print version of the journal, please provide text for both the electronic and the print version for the portions of the article that refer to this content.

## **Data visualization**

Include interactive data visualizations in your publication and let your readers interact and engage more closely with your research. Follow the instructions [here](#) to find out about available data visualization options and how to include them with your article.

## **Supplementary material**

Supplementary material such as applications, images and sound clips, can be published with your article to enhance it. Submitted supplementary items are published exactly as they are received (Excel or PowerPoint files will appear as such online). Please submit your material together with the article and supply a concise, descriptive caption for each supplementary file. If you wish to make changes to supplementary material during any stage of the process, please make sure to provide an updated file. Do not annotate any corrections on a previous version. Please switch off the 'Track Changes' option in Microsoft Office files as these will appear in the published version.

## Research data

This journal encourages and enables you to share data that supports your research publication where appropriate, and enables you to interlink the data with your published articles. Research data refers to the results of observations or experimentation that validate research findings. To facilitate reproducibility and data reuse, this journal also encourages you to share your software, code, models, algorithms, protocols, methods and other useful materials related to the project.

Below are a number of ways in which you can associate data with your article or make a statement about the availability of your data when submitting your manuscript. If you are sharing data in one of these ways, you are encouraged to cite the data in your manuscript and reference list. Please refer to the "References" section for more information about data citation. For more information on depositing, sharing and using research data and other relevant research materials, visit the [research data](#) page.

### *Data linking*

If you have made your research data available in a data repository, you can link your article directly to the dataset. Elsevier collaborates with a number of repositories to link articles on ScienceDirect with relevant repositories, giving readers access to underlying data that gives them a better understanding of the research described.

There are different ways to link your datasets to your article. When available, you can directly link your dataset to your article by providing the relevant information in the submission system. For more information, visit the [database linking page](#).

For [supported data repositories](#) a repository banner will automatically appear next to your published article on ScienceDirect.

In addition, you can link to relevant data or entities through identifiers within the text of your manuscript, using the following format: Database: xxxx (e.g., TAIR: AT1G01020; CCDC: 734053; PDB: 1XFN).

### *Mendeley Data*

This journal supports Mendeley Data, enabling you to deposit any research data (including raw and processed data, video, code, software, algorithms, protocols, and methods) associated with your manuscript in a free-to-use, open access repository. During the submission process, after uploading your manuscript, you will have the opportunity to upload your relevant datasets directly to *Mendeley Data*. The datasets will be listed and directly accessible to readers next to your published article online.

For more information, visit the [Mendeley Data for journals page](#).

### *Data in Brief*

You have the option of converting any or all parts of your supplementary or additional raw data into one or multiple data articles, a new kind of article that houses and describes your data. Data articles ensure that your data is actively reviewed, curated, formatted, indexed, given a DOI and publicly available to all upon publication. You are encouraged to submit your article for *Data in Brief* as an additional item directly alongside the revised version of your manuscript. If your research article is accepted, your data article will automatically be transferred over to *Data in Brief* where it will be editorially reviewed and published in the open access data journal, *Data in Brief*. Please note an open access fee of 500 USD is payable for publication in *Data in Brief*. Full details can be found on the [Data in Brief website](#). Please use [this template](#) to write your Data in Brief.

### *MethodsX*

You have the option of converting relevant protocols and methods into one or multiple MethodsX articles, a new kind of article that describes the details of customized research methods. Many researchers spend a significant amount of time on developing methods to fit their specific needs or setting, but often without getting credit for this part of their work. MethodsX, an open access journal, now publishes this information in order to make it searchable, peer reviewed, citable and reproducible. Authors are encouraged to submit their MethodsX article as an additional item directly alongside the revised version of their manuscript. If your research article is accepted, your methods article will automatically be transferred over to MethodsX where it will be editorially reviewed. Please note an open access fee is payable for publication in MethodsX. Full details can be found on the MethodsX website. Please use [this template](#) to prepare your MethodsX article.



### *Data statement*

To foster transparency, we encourage you to state the availability of your data in your submission. This may be a requirement of your funding body or institution. If your data is unavailable to access or unsuitable to post, you will have the opportunity to indicate why during the submission process, for example by stating that the research data is confidential. The statement will appear with your published article on ScienceDirect. For more information, visit the [Data Statement page](#).

### *Submission checklist*

When registering names in EES, please always enter full first and full last names.

It is hoped that this list will be useful during the final checking of an article prior to sending it to the journal's Editor for review. Please consult this Guide for Authors for further details of any item.

#### **Ensure that the following items are present:**

One Author designated as corresponding Author:

- E-mail address
- Full postal address
- Telephone and fax numbers

All necessary files have been uploaded

- Keywords
- All figure captions
- All tables (including title, description, footnotes)

Further considerations

- Manuscript has been "spellchecked" and "grammar-checked"
- References are in the correct format for this journal
- All references mentioned in the Reference list are cited in the text, and vice versa
- Permission has been obtained for use of copyrighted material from other sources (including the Web)
- Color figures are clearly marked as being intended for color reproduction on the Web (free of charge) and in print or to be reproduced in color on the Web (free of charge) and in black-and-white in print
- If only color on the Web is required, black and white versions of the figures are also supplied for printing purposes

For any further information please visit our customer support site at [service.elsevier.com](http://service.elsevier.com).

## **AFTER ACCEPTANCE**

### **Online proof correction**

Corresponding authors will receive an e-mail with a link to our online proofing system, allowing annotation and correction of proofs online. The environment is similar to MS Word: in addition to editing text, you can also comment on figures/tables and answer questions from the Copy Editor. Web-based proofing provides a faster and less error-prone process by allowing you to directly type your corrections, eliminating the potential introduction of errors.

If preferred, you can still choose to annotate and upload your edits on the PDF version. All instructions for proofing will be given in the e-mail we send to authors, including alternative methods to the online version and PDF.

We will do everything possible to get your article published quickly and accurately. Please use this proof only for checking the typesetting, editing, completeness and correctness of the text, tables and figures. Significant changes to the article as accepted for publication will only be considered at this stage with permission from the Editor. It is important to ensure that all corrections are sent back to us in one communication. Please check carefully before replying, as inclusion of any subsequent corrections cannot be guaranteed. Proofreading is solely your responsibility.

### **Offprints**

The corresponding author will, at no cost, receive a customized [Share Link](#) providing 50 days free access to the final published version of the article on [ScienceDirect](#). The Share Link can be used for sharing the article via any communication channel, including email and social media. For an extra charge, paper offprints can be ordered via the offprint order form which is sent once the article is accepted for publication. Both corresponding and co-authors may order offprints at any time via Elsevier's [Webshop](#). Corresponding authors who have published their article gold open access do not receive a Share Link as their final published version of the article is available open access on ScienceDirect and can be shared through the article DOI link.

## **AUTHOR INQUIRIES**

Visit the [Elsevier Support Center](#) to find the answers you need. Here you will find everything from Frequently Asked Questions to ways to get in touch.

You can also [check the status of your submitted article](#) or find out [when your accepted article will be published](#).

© Copyright 2018 Elsevier | <https://www.elsevier.com>