

ISSN: 2152-2197 Volume 14, Number 12, December 2023



Journal of Environmental Protection



ISSN: 2152-2197



<https://www.scirp.org/journal/jep>

Journal Editorial Board

ISSN: 2152-2197 (Print), 2152-2219 (Online)

<https://www.scirp.org/journal/jep>

Editors-in-Chief

Prof. Thangarasu Pandiyan

National Autonomous University of Mexico (UNAM), Mexico

Prof. Qingren Wang

University of Florida, USA

Editorial Board

Prof. Josh T. Ackerman

U.S. Geological Survey, USA

Prof. Ana Alebic-Juretic

University of Rijeka, Croatia

Dr. Raslan Alenezi

College of Technological Studies, Kuwait

Prof. Taha Alkhamis

Mutah University, Jordan

Dr. Assad Ahmed Al-Thukair

Life Sciences Department, King Fahd University of Petroleum, Saudi Arabia

Dr. Mohamed Alwaeli

Silesian University of Technology, Poland

Prof. Lemnuel V. Aragones

University of the Philippines, Philippines

Dr. Nanjappa Ashwath

Central Queensland University, Australia

Prof. Sandhya Babel

Thammasat University, Thailand

Prof. Shuguang Deng

New Mexico State University, USA

Prof. Larry Eugene Erickson

Kansas State University, USA

Prof. Ludmila A. Golovleva

Russian Academy of Sciences, Russia

**Prof. El-Sayed El-Deeb Mehana
Hamouda**

Alexandria University, Egypt

Dr. Amanda D. Harwood

Alma College, USA

Prof. Chin-Pao Huang

University of Delaware, USA

Prof. Madan Kumar Jha

Indian Institute of Technology Kharagpur, India

Prof. Ganesh Raj Joshi

United Nations Center for Regional Development (UNCRD), Japan

Prof. Rameshwar S. Kanwar

Iowa State University, USA

Prof. Hyun-Joong Kim

Seoul National University, South Korea

Prof. Raghava R. Kommalapati

Prairie View A&M University, USA

Prof. Ashok Kumar

University of Toledo, USA

Prof. Robert Li

United States Department of Agriculture-Agricultural Research Service, USA

Prof. Julio Cesar Marin-Leal

Universidad del Zulia, Venezuela

Prof. Krishna Mazumdar

Indian Statistical Institute, India

Prof. Jiangming Mo

Chinese Academy of Sciences, China

Prof. Subhash C. Mojumdar

University of Guelph, Canada

Prof. Saied Mostaghimi

Virginia Polytechnic Institute and State University, USA

Dr. Shaibal Mukerjee

U.S. Environmental Protection Agency, USA

Prof. Carmen N. Moelders aka

Department of Atmospheric Sciences, Geophysical Institute and College of

Nicole Mölders

Natural Sciences and Mathematics, University of Alaska Fairbanks, USA

Dr. Ed Carlo Rosa Paiva

Federal University of Goiás, Brazil

Prof. Pucheng Pei

Tsinghua University, China

Prof. Anjanapura V. Raghu

Department of Chemistry, Jain University, India

Dr. Muneer Aziz Mohammed Saleh

University Teknologi Malaysia (UTM), Malaysia

Prof. Miklas Scholz

Lund University, Sweden

Prof. Adriana Soares de Schueler

Department of Architecture and Urbanism, Universidade Federal Rural do Rio de Janeiro, Brazil

Prof. Abdulaziz R. Seroji

Umm Al-Qura University, Saudi Arabia

Dr. Mohammad Nahid Siddiqui

King Fahd University of Petroleum & Minerals, Saudi Arabia

Prof. Gilbert Sigua

United States Department of Agriculture-Subtropical Agricultural Research Station, USA

Prof. Nguyen Van Song

Resource Economic Department, Agriculture University of Hanoi, Vietnam

Dr. Sulejman Sulce

Agricultural University of Tirana, Albania

Prof. Hongwen Sun

Nankai University, China

Prof. Cornelia Vasile

Laval University, Canada

Prof. Qingwei Yang

Chongqing Jiaotong University, China

Prof. Ierotheos Zacharias

University of Patras, Greece

Prof. Jinheng Zhang

America-China Culture & Education Foundation, USA

Table of Contents

Volume 14 Number 12

December 2023

**A Comparison of Two Macroinvertebrate Multi-Plate Sampling Methods
to Inform Great Lakes Monitoring and Remediation Efforts**

R. Yeardley, B. Duffy, K. Kimbrough, J. Lazorchak, M. A. Mills, E. Johnson 933

**Estimation of the Carbon Sequestration Dynamics of Senegal's Great Green Wall
Based on Land Cover over the Past Three Decades**

B. T. O. Gore, A. Aman, Y. K. Kouadio, O.-M. Duclos, K. Sato..... 954

**Exploring the Nexus between Climate Hazards and Conflict in Lamu County:
Implications for Community Adaptation Action Plans**

M. Zachary, S. Mwadiga, M. Abubakar, H. Boneya, O. Linet, A. Okello, M. R. Dirie, M. Orero 984

**Total Indicative Dose Determination in Water from the North Riviera
Well Field of SODECI in Abidjan, Cote d'Ivoire**

E. Z. T. K. Achi, B. D. L. H. Gogon, N. G. L. Oka, A. A. Koua, M. C. K. Goffri 1006

Evaluation of Operating Room Noise by Different Medical Specialists

E. Erkiliç, Y. Akçalan, A. D. Özcan, Y. F. Güneş, L. Öztürk, T. Gümüş, O. Kanbak..... 1016

**Air Pollution and Sex Hormone Levels among Mechanics in Brazzaville
(Republic of Congo)**

R. C. D. Diambalou, P. J. I. M. Dzamba, M. D. Kaya-Ongoto, S. W. Odzebe Anani, A. A. Abena 1025

Journal of Environmental Protection (JEP)

Journal Information

SUBSCRIPTIONS

The *Journal of Environmental Protection* (Online at Scientific Research Publishing, <https://www.scirp.org/>) is published monthly by Scientific Research Publishing, Inc., USA.

Subscription rates:

Print: \$79 per issue.

To subscribe, please contact Journals Subscriptions Department, E-mail: sub@scirp.org

SERVICES

Advertisements

Advertisement Sales Department, E-mail: service@scirp.org

Reprints (minimum quantity 100 copies)

Reprints Co-ordinator, Scientific Research Publishing, Inc., USA.

E-mail: sub@scirp.org

COPYRIGHT

Copyright and reuse rights for the front matter of the journal:

Copyright © 2023 by Scientific Research Publishing Inc.

This work is licensed under the Creative Commons Attribution International License (CC BY).

<http://creativecommons.org/licenses/by/4.0/>

Copyright for individual papers of the journal:

Copyright © 2023 by author(s) and Scientific Research Publishing Inc.

Reuse rights for individual papers:

Note: At SCIRP authors can choose between CC BY and CC BY-NC. Please consult each paper for its reuse rights.

Disclaimer of liability

Statements and opinions expressed in the articles and communications are those of the individual contributors and not the statements and opinion of Scientific Research Publishing, Inc. We assume no responsibility or liability for any damage or injury to persons or property arising out of the use of any materials, instructions, methods or ideas contained herein. We expressly disclaim any implied warranties of merchantability or fitness for a particular purpose. If expert assistance is required, the services of a competent professional person should be sought.

PRODUCTION INFORMATION

For manuscripts that have been accepted for publication, please contact:

E-mail: jep@scirp.org



Journal of Environmental Protection (JEP)

ISSN: 2152-2197 (Print) ISSN: 2152-2219 (Online)

<https://www.scirp.org/journal/jep>

JEP is an international refereed journal dedicated to the latest advancements in Environmental Protection. The goal of this journal is to keep a record of the state-of-the-art research and promote the research work in these fast moving areas.

Editors-in-Chief

Prof. Thangarasu Pandiyan National Autonomous University of Mexico (UNAM), Mexico
Prof. Qingren Wang University of Florida, USA

Subject Coverage

This journal invites original research and review papers that address the following issues in Environmental Protection. Topics of interest include, but are not limited to:

- **Air pollution and air quality**
 - Air pollution monitoring and modeling
 - Air pollution prevention and control
 - Air quality measurement and management
 - Sources of air pollution
 - Urban/indoor air pollution and control
- **Environmental pollution and public health**
 - Chemical pollutants and its effects on health
 - Effects of air pollution on public health
 - Food and drug safety control
 - Global climate changes and human health
 - Land pollution and its effects on health
- **Ecosystem restoration, toxicology and sustainability**
 - Ecosystem restoration
 - Environmental toxicology
 - Greenhouse gas emission monitoring and solutions
 - Hazardous materials management
 - Radiation safety in atomic industry
 - Solid waste management
 - Sustainable development of environment and ecosystem
- **Hydrology and water quality**
 - Ground water pollution control
 - Hydrobiology and water pollution
 - Methods of monitoring water quality
 - Modeling and measuring of water pollution
- **Environment assessment and policy**
 - Environmental impact assessment
 - Environmental policy
 - Risk assessment of contaminated environments
 - Water resources and quality assessment
 - Water resource protection and sustainable use
- **Wastewater treatment and utilization**
 - New wastewater treatment technologies
 - New water purification technologies
 - Purification of drinking-water supplies
 - Treatment, disposal and discharge of wastewater

We are also interested in short papers (letters) that clearly address a specific problem, and short survey or position papers that sketch the results or problems on a specific topic. Authors of selected short papers would be invited to write a regular paper on the same topic for future issues of the *JEP*.

Notes for Intending Authors

Submitted papers should not have been previously published nor be currently under consideration for publication elsewhere. Paper submission will be handled electronically through the website. All papers are refereed through a peer review process. For more details about the submissions, please access the website.

Website and E-Mail

<https://www.scirp.org/journal/jep> E-mail: jep@scirp.org