# Економіка природокористування Міжнародний науковий журнал Том 7, №4, 2016

Журнал засновано у 2010 році Видається щоквартально ISSN 1998-6041 (друкована версія) ISSN 1998-605X (онлайн-версія) Реєстраційне свідоцтво КВ №21680 — 1580 Р від 21.08.2015 р.

Головний редактор Євген Хлобистов

Журнал присвячено дослідженню теоретичних, методологічних та методичних завдань, а також прикладних задач економіки природокористування та захисту навколишнього середовища.

Головні питання: економічне обгрунтування природноресурсного потенціалу та стану навколишнього середовища; теорія та методологія економічних відносин у сфері охорони навколишнього середовища; фінансування охорони навколишнього середовища; зовнішні впливи та проблеми охорони навколишнього середовища на міжнародному рівні; природні та техногенні катастрофи; екологічні аспекти управління соціально-економічними системами та економічні аспекти довгострокового екологічного розвитку; економічні проблеми глобального потепління.

#### Видавець:

Товариство з обмеженою відповідальністю "Консалтингово-видавнича компанія "Лілові перспективи"

пров. Григорія Сковороди, 10 м. Суми, Україна, 40022

E-mail: head@businessperspectives.org URL: http://www.businessperspectives.org

За достовірність інформації, що міститься в опублікованих матеріалах, відповідальність несуть автори.

© ТОВ "КВК "Ділові перспективи", 2016

Закон про авторське право: Усі права захищено. Жодну частину даного видання не можна відтворювати, зберігати, передавати, рекламувати, демонструвати, адаптувати, переробляти, перекладати в будь-якій формі та будь-яким способом. Це також стосується розповсюдження, відчуження, здання в майновий найм, комерційний будь-який інший чи передрукування, розміщення на сайтах, імпортування та публічного показу. У випадку передрукування та відтворення матеріалів попереднє письмове узгодження з видавцем є обов'язковим. Усі вищевказані вимоги стосуються і некомерційних засад, а також будь-якого вільного доступу до попередніх, теперішніх та майбутніх випусків публікації.

## Environmental Economics International Research Journal Volume 7, Issue 4, 2016

Issued from 2010 Published quarterly ISSN 1998-6041 (print) ISSN 1998-605X (online) Certificate #21680 – 1580 P from 21.08.2015

Editor-in-Chief Yevgen Khlobystov

The purpose of the journal is to investigate theoretical, methodological and methodical issues as well as applied problems of environmental economics and environmental protection.

Key topics: economic assessment of natural resources potential and quality of the environment; theory and methodology of economic relations in the area of environmental management; finance of environmental management and environmental protection; external effects and international problems of environmental management; natural and man-made disasters economics; ecological aspects of socio-economic systems management and economic aspects of sustainable ecological development; economic problems of global warming.

Published by:

**Limited Liability Company**"Consulting Publishing Company
"Business Perspectives"

Hryhorii Skovoroda lane, 10 Sumy 40022 Ukraine

E-mail: head@businessperspectives.org URL: http://www.businessperspectives.org

The authors are responsible for the reliability of information which materials published contain.

© LLC "CPC "Business Perspectives", 2016

Copyright: All rights reserved. No part of this publication may be reproduced, stored, transferred, advertised, demonstrated, adaptated, rearranged, translated in any form or bought by any means. This also concerns the distribution, disposition, property renting, commercial renting, or any other kind of renting, reprinting, siting, importing or public demonstration. In case of reprinting reproduction of the materials the prior written permission of the Publisher is required. The abovenamed requirements should be also referred to nonprofit basis as well as any free access to the previous, current and future issues of the publication.

#### Head of the Board

Yevgen Khlobystov, D.Sc., Professor at the University of Economics and Humanities (Poland)

### **Advisory Board**

**Madhur Anand**, Associate Professor, Canada Research Chair in Global Ecological Change, Department of Environmental Biology, University of Guelph (Canada) **Sanja Tišma**, Ph.D., Dr., Director of the Institute for International Relations in Zagreb (Hungary)

#### **Editorial Board**

**Elvio Accinelli**, Dr., Professor of Economics, the Economics School, Autonomous University of San Luis Potosi (Mexico)

**Elijah M. Akunda**, Ph.D., Dr., University of Nairobi (Kenya)

**Jahir Bin Alam**, Professor, Department of Civil and Environmental Engineering, Department of Science and Technology, Shahjalal University, Sylhet (Bangladesh)

**Yerramilli Anjaneyulu**, Ph.D., Professor and Director of the Trent Lott Geospatial and Visualisation Research Center, Jackson State University (USA)

**Mehedi Ahmed Ansary**, Professor, Department of Civil Engineering, Bangladesh University of Engineering and Technology (Bangladesh)

**Adam Barcikowski**, Professor, Head of the Department of Plant Ecology and Nature Conservation, Nicolaus Copernicus University (Poland)

**Frank Biermann**, Professor of Political Science and Environmental Policy Sciences, Vrije Universiteit in Amsterdam (Netherlands)

**Salvatore Bimonte**, Associate Professor of Economics, Department of Economics, University of Siena (Italy)

**N. Bose**, Ph.D., Professor, Department of Mechanical Engineering, Mepco Engineering College (India)

**Stewart Burn**, Professor, Senior Principal Research Scientist Stream Leader, Infrastructure Technologies, CSIRO Water for a Healthy Country; Group Leader, Urban Water Systems Engineering, CSIRO – Land and Water (Australia)

Juan Gabriel Brida, Assistant Professor, Competence Center in Tourism Management and Tourism Economics, School of Economics and Management, Free University of Bolzano (Italy)

**Javier Carrillo-Hermosilla**, Ph.D., Professor, Head of the Department of Economic Environment of Business, IE Business School (Spain)

**Graciela Chichilnisky**, Professor of Mathematics and Economics, Director of the Columbia Consortium for Risk Management, Columbia University (USA)

**Eugene Cloete**, Dean of the Faculty of Natural Science, Stellenbosch University (South Africa)

**Mark A. Cohen**, Vice-President for Research and Senior Fellow of the Resources for the Future (USA)

**Robert Costanza**, Dr., Professor, Chair in Public Policy at the Crawford School of Public Policy, Australian National University (Australia)

**Ellen Van Donk**, Professor, Head of the Department of Aquatic Ecology, Netherlands Institute of Ecology (Netherlands)

**Monica Dudian**, Ph.D., Professor, Department of Economics, Bucharest Academy of Economic Studies (Romania)

**Christian-Oliver Ewald**, Dr., Dr., Professor, Adam Smith Business School, University of Glasgow (United Kingdom)

**Daniel A. Farber**, Sho Sato Professor of Law, Head of the Energy and Resources Group, University of California, Berkeley (USA)

**Manuel Frondel**, Dr., Professor, Head of the Department of Environment and Resources, Rhenish-Westphalian Institute for Economic Research, Ruhr-University Bochum (Germany)

**R. Quentin Grafton**, Professor of Economics, Crawford School of Economics and Government, Australian National University, Canberra (Australia)

**Regina Grazuleviciene**, Dr. Habil, Professor, Department of Environmental Sciences, Faculty of Natural Sciences, Vytautas Magnus University (Lithuania)

Józef Antoni Haber, Ph.D., Honorary Professor of Jean Monnet Project of the European Union; Honorary Professor of the Ukrainian Banking Academy; Member of Ukrainian Economic and Philosophic Scientific Association; Head of the International Relations Department, Poznan School of Banking, Faculty in Chorzow (Poland)

**Jimmy Hendrick**, Associate Professor of Horticulture, Director of School of Environmental Science, College of Agriculture and Environmental Sciences, UNISA (South Africa)

**Shi-Ling Hsu**, Associate Professor, University of British Columbia, Faculty of Law (Canada)

**Vandna Jowaheer**, Ph.D., Associate Professor of Statistics, Department of Mathematics, University of Mauritius (Mauritius)

M. Ozgur Kayalica, Associate Professor, Department of Management Engineering, Faculty of Management, Istanbul Technical University (Turkey) **Claudia Kemfert**, Professor of Energy and Sustainability, Private University, Hertie School of Governance (Germany)

**Himayatullah Khan**, Professor of Economics, Institute of Development Studies, NWFP Agricultural University Peshawar (Pakistan)

**Joseph Ikechukwu Muoghalu**, Professor, Head of the Department of Botany, Obafemi Awolowo University (Nigeria)

**Alexandru Nedelea**, Ph.D., Associate Professor of Marketing, University Stefan cel Mare of Suceava (Romania)

Valentina Okaru-Bisant, Ph.D., Sogato Strategies, LLC (Global Strategy and Risk Advisory Firm), The George Washington University, Elliott School of International Affairs, The Catholic University of America (USA)

**Shen Q. Pan**, Associate Professor and Deputy Head of the Department of Biological Sciences, National University of Singapore (Singapore)

**Boris A. Portnov**, Professor, Department of Natural Resource & Environmental Management, Faculty of Social Sciences, University of Haifa (Israel)

**Metta Ramanjaneyulu**, Ph.D., Professor & Chairman P.G. of the Department of Economics, Bangalore University (India)

**Ravinder Rena**, Adjunct Professor of Economics at Monarch Business School (Switzerland)

**Matthias Ruth**, Director, Professor, School of Public Policy & Urban Affairs, Professor of Department of Civil and Environmental Engineering, Northeastern University (USA)

**Sylvie Thoron**, Assistant Professor, University of Toulon, Member of the Institute for Public Economics in Marseille (France)

**Kamal Upadhyaya**, Professor and Head of the Department of Economics and Finance, College of Business, University of New Haven (USA)