



# “Handbook of Research on Advancements in Environmental Engineering”

Editor: Nediljka Gaurina-Medjimurec

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The book „Handbook of Research on Advancements in Environmental Engineering“ was printed in 2015 (in the English language) in circulation of IGI Global, USA. The editor of the book is PhD Nediljka Gaurina-Medjimurec, full professor of the Faculty of Mining, Geology and Petroleum Engineering, University of Zagreb. Authors of specific chapters are mostly university and institute staff, from Croatia, USA, Germany, Turkey, India and South Africa.

The book’s format is A4 (210 x 297 mm), including 660 pages with a foreword, preface, the main text with 19 chapters, a compilation of references, contributors curriculum vitae and an index. The book includes 143 figures and 74 tables. In addition, each chapter contains an abstract, the main text, a reference list, an additional reading section and key terms and definitions. The chapter titles are:

- 1) **Greenhouse Gas Emissions from the Petroleum Industry** (author Lidia Hrnčević),
- 2) **Soil Carbon Sequestration: An Alternative Option for Climate Change Mitigation** (authors Manish Kumar Goyal & Irom Royal);
- 3) **Photocatalytic Purification of Air: Principles, Opportunities, and Challenges** (authors Vesna Tomašić, Karolina Maduna Valkaj & Jerome Le Cunff);
- 4) **Basin-Scale, Real-Time Salinity Management Using Telemetered Sensor Networks and Model-Based Salt Assimilative Capacity Forecasts** (authors Nigel W. T. Quinn, Roberta Tassej & Jun Wang);
- 5) **Electrochemical Technologies for Industrial Effluent Treatment** (authors Rohit Misra & Neti Nageswara Rao);
- 6) **Water Pollution and its Treatment** (authors Amita Jaiswal & Mahesh Chandra Chattopadhyaya);
- 7) **Soil Contamination** (author Tarlan Sheikhavandi);
- 8) **The Effect of Soil Contamination on the Selection of Remediation Method** (author Ivica Kisić);
- 9) **A Case Study on Collaborative Modeling of Environmental Decision Processes** (author Kathrin Kircher);
- 10) **Plastics and Priority during Recycling** (authors Ljerka Kratofil Krehula, Zlata Hrnjak-Murgić & Zvonimir Katančić);
- 11) **E-waste Recycling by Electrostatic Separation** (author Gordan Bedeković);
- 12) **Alternative, Environmentally Acceptable Materials in Road Construction** (authors Sanja Dimter, Tatjana Rukavina & Ivana Barišić);
- 13) **Drilling Waste Control: Mud Dewatering** (author Andrew K. Wojtanowicz);
- 14) **Deep Geological Disposal of Spent Nuclear Fuel and High Level Waste: Current State and Future Challenges** (authors Želimir Veinović, Biljana Kovačević Zelić & Dubravko Domitrović);
- 15) **Underground Injection of Drilling Waste** (author Nediljka Gaurina-Medjimurec);
- 16) **Modeling and Simulation of Polymer Solar Cells** (author Gavin Buxton);
- 17) **Landslides – A Guide to Researching the Landslide Phenomena and Processes** (authors Snježana Mihalić Arbanas & Željko Arbanas);
- 18) **Optimization of Tuned Mass Dampers to Improve the Earthquake Resistance of High Buildings** (author Rolf Steinbuch);
- 19) **Environmental Cost Studies and their Application in Environmental Protection Planning for Electricity Production** (author Željko Tomšić);

With the book “*The Handbook of Research on Advancement in Environmental Engineering*” IGI global proceed with publishing titles in *The Advances in Environmental Engineering and Green Technologies (AEEGT) book series*. Because the book covers a very broad area of environmental engineering, it’s organized in seven thematic sections. The first section includes the first three chapters and covers topics related to climate change and air pollution control. The second section includes chapters 4, 5 and 6 and covers topics related to water pollution. In the next section (chapters 7, 8 & 9), authors give an advancement in solving soil contamination problems. The section “Recycling and Waste Disposal” (chapters 10 through 15) consider issues related to the recycling of plastics and E-waste, usage of environmentally acceptable materials in road construction and underground methods for waste disposal. The fifth section with only one chapter (16) covers issues related to renewable resources, and the sixth section with two chapters (17 & 18) covers topics in natural hazard and risk management. The last section with one chapter considers environmental cost study and its application in environmental protection planning for electricity production.

About the editor:

**Nediljka Gaurina-Medjimurec** is a Professor at the Faculty of Mining, Geology and Petroleum Engineering at the University of Zagreb, specializing in drilling, drilling fluids, wellbore stability, cementing, and environmental protection in petroleum engineering. She holds a BS and PhD degree in petroleum engineering from the University of Zagreb, and a MS degree in petroleum engineering from the University of Belgrade. She has published over one hundred technical and scientific papers. She was head of the Petroleum Engineering Department from 1996-1998, and Vice Dean for Finance and Administration of the Faculty of Mining, Geology and Petroleum Engineering from 2005-2009. She is a member of the Society of Petroleum Engineers (SPE), the Croatian Academy of Engineering (HATZ), and the Croatian Academy of Science and Art (HAZU) - Scientific Council for Oil. Her bibliography is available at <https://bib.irb.hr/lista-radova?autor=98545>

# „Handbook of Research on Advancements in Environmental Engineering”

Urednica: Nediljka Gaurina-Medjimurec

Book review



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Knjiga „Handbook of Research on Advancements in Environmental Engineering” tiskana je 2015. godine na engleskome jeziku u nakladi izdavačke kuće IGI Global iz Sjedinjenih Američkih Država. Urednica je knjige dr. sc. Nediljka Gaurina-Medjimurec, redovita profesorica na Rudarsko-geološko-naftnome fakultetu Sveučilišta u Zagrebu, dok su autori pojedinih poglavlja uglavnom sveučilišni nastavnici ili zaposlenici na institutima iz različitih država (Hrvatske, Sjedinjenih Američkih Država, Njemačke, Turske, Indije i Južnoafričke Republike).

Knjiga je A4 formata (210 x 297 mm) te sadržava 660 stranica koje obuhvaćaju predgovor, uvod, glavni tekst podijeljen u devetnaest poglavlja (uključujući 143 grafička i 74 tablična prikaza), popis literature, kratke životopise autora pojedinih poglavlja i indekse. Također, svako poglavlje dodatno sadržava sažetak, glavni tekst, popis literature, popis dodatne literature te definicije ključnih pojmova. U nastavku su navedeni originalni naslovi pojedinih poglavlja te pripadajući autori:

- 1) *Greenhouse Gas Emissions from the Petroleum Industry* (autor Lidia Hrnčević)
- 2) *Soil Carbon Sequestration: An Alternative Option for Climate Change Mitigation* (autori Manish Kumar Goyal i Irom Royal)
- 3) *Photocatalytic Purification of Air: Principles, Opportunities, and Challenges* (autori Vesna Tomašić, Karolina Maduna Valkaj i Jerome Le Cunff)
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- 18) *Optimization of Tuned Mass Dampers to Improve the Earthquake Resistance of High Buildings* (autor Rolf Steinbuch)

- 19) *Environmental Cost Studies and Their Application in Environmental Protection Planning for Electricity Production* (autor Željko Tomšić).

Knjiga „Handbook of Research on Advancement in Environmental Engineering” najnoviji je u nizu naslova u izdanju IGI Global na temu napretka u zaštiti okoliša i razvoju ekološki prihvatljivih tehnologija (*Advances in Environmental Engineering and Green Technologies (AEEGT) book series*). Kako se radi o vrlo širokome području inženjerstva okoliša, knjiga je radi preglednosti podijeljena u sedam tematskih cjelina, odnosno sekcija. Prva tematska cjelina sadržava prva tri poglavlja knjige i pokriva područje klimatskih promjena i onečišćenja zraka. Druga sekcija također obuhvaća tri poglavlja (4, 5 i 6) te se tematski odnosi na onečišćenje vode. U sljedećoj tematskoj cjelini koja obuhvaća poglavlja 7, 8 i 9 autori se bave napretkom znanosti i tehnologije u rješavanju problema onečišćenja tla. Autori poglavlja u tematskoj cjelini „Recikliranje i odlaganje otpada” (poglavlja od 10 do 15) obrađuju problematiku recikliranja plastičnoga i elektroničkoga otpada, mogućnosti primjene otpadnih materijala u cestogradnji te različite postupke za odlaganje otpada u podzemlju. Petu tematsku cjelinu čini samo jedno poglavlje (poglavlje 16) u kojemu se obrađuju polimerne solarne ćelije, odnosno mogućnost uporabe solarne energije, dok šesta sekcija (poglavlja 17 i 18) obuhvaća prirodne hazarde (potresi, klizišta) i procjene rizika. Zadnja tematska cjelina obuhvaća samo jedno poglavlje u kojemu se autor bavi problematikom troškova provođenja mjera zaštite okoliša kod proizvodnje električne energije.

O urednici:

**Nediljka Gaurina-Međimurec** redovita je profesorica u trajnome zvanju na Rudarsko-geološko-naftnome fakultetu Sveučilišta u Zagrebu. Područja su njezina nastavnog i znanstveno-istraživačkog djelovanja: izrada kanala bušotine, bušotinski fluidi, stabilnost kanala bušotine, cementacije i zaštita okoliša u naftnome rudarstvu. Diplomirala je i doktorirala na Rudarsko-geološko-naftnome fakultetu Sveučilišta u Zagrebu, a magistrirala na Rudarsko-geološkome fakultetu Univerziteta u Beogradu. U razdoblju od 1996. do 1998. godine bila je predstojnica Zavoda za naftno inženjerstvo, dok je od 2005. do 2009. godine obnašala dužnost prodekanice za financije i poslovanje na Rudarsko-geološko-naftnome fakultetu. Prof. dr. sc. Nediljka Gaurina-Međimurec članica je hrvatske sekcije svjetskoga strukovnog udruženja naftnih inženjera (SPE), Hrvatske akademije tehničkih znanosti (HATZ) te Znanstvenoga vijeća za naftu Hrvatske akademije znanosti i umjetnosti. U svojem dosadašnjem znanstvenom i stručnom radu objavila je preko sto znanstvenih i stručnih radova, čiji se detaljan popis može pronaći na sljedećoj adresi <https://bib.irb.hr/lista-radova?autor=98545>.

