

Second International Conference on Sustainable Futures (ICSF 2021)

Environmental, Technological, Social
and Economic Matters

E3S Web of Conferences Volume 280 (2021)

Kyryvyi Rih, Ukraine
19-21 May 2021

Part 1 of 2

Editors:

**S. Semerikov
S. Chukharev
S. Sakhno
A. Striuk
A. Iatsyshyn
S. Klimov**

**V. Osadchyi
T. Vakaliuk
P. Nechypurenko
O. Bondarenko
H. Danylchuk**

ISBN: 978-1-7138-3237-9

Printed from e-media with permission by:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571



Some format issues inherent in the e-media version may also appear in this print version.

This work is licensed under a Creative Commons Attribution 4.0 International License. License details:
<http://creativecommons.org/licenses/by/4.0/>.

No changes have been made to the content of these proceedings. There may be changes to pagination and minor adjustments for aesthetics.

Printed with permission by Curran Associates, Inc. (2022)

For additional information, please contact EDP Sciences – Web of Conferences at the address below.

EDP Sciences – Web of Conferences
17, Avenue du Hoggar
Parc d'Activité de Courtabœuf
BP 112
F-91944 Les Ulis Cedex A
France

Phone: +33 (0) 1 69 18 75 75

Fax: +33 (0) 1 69 28 84 91

contact-edps@webofconferences.org

Additional copies of this publication are available from:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571 USA
Phone: 845-758-0400
Fax: 845-758-2633
Email: curran@proceedings.com
Web: www.proceedings.com

TABLE OF CONTENTS

PART 1

Our Sustainable Pandemic Future	1
<i>Serhiy Semerikov, Serhii Chukharev, Serhiy Sakhno, Andrii Striuk, Andrii Iatsyshyn, Serhii Klimov, Viacheslav Osadchyi, Tetiana Vakaliuk, Pavlo Nechypurenko, Olga Bondarenko, Hanna Danylchuk</i>	

GEOTECHNICAL AND GEOENVIRONMENTAL ENGINEERING

Technological Scheme of the Combined Geothermal-Hydrocarbon System for the Production and Storage of Energy Resources.....	13
<i>Mykhailo I. Fyk, Volodymyr S. Biletskyi, Majid H. Abbood, Oleksandr I. Fyk</i>	
Deposits of the Hydrocarbon Raw Materials of the Republic of Kazakhstan, Where it is Possible to Introduce a Microbiological Method for Stimulating the Formation	19
<i>Olga Kuderinova, Makhambet Shmanov, Mykhailo Filatiev</i>	
Research of the Properties of Quarry Tuff-Stone for Complex Processing.....	25
<i>Zinovii Malanchuk, Vitalii Zaiets, Lesia Tyhonchuk, Svitlana Moshchych, Ganbileg Gayabazar, Phuong Thao Dang</i>	
Modeling the Distribution of Rock Mass and Native Copper Output by Size Classes During Crushing	32
<i>Valerii Korniyenko, Yevhenii Malanchuk, Andriy Khrystyuk, Valentyna Kostrychenko, Assel Shampikova, Kulzhamal Nogaeva, Almaz Kozhonov</i>	
Improving the Methods for Determining the Promising Boundaries of Iron Ore Open Pits	40
<i>Serhii Lutsenko, Yulian Hryhoriev, Volodymyr Peregudov, Aidar Kuttybayev, Asel Shampykova</i>	
Application of Roof Bolting to Reduce Water Inflow into Mine Workings During the Crossing of Tectonic Faults	47
<i>Oleksandr Krukovskyi, Viktoriia Krukovska, Yurii Vynohradov, Vladimir Dyomin</i>	
Principles for Certain Geomechanics Problems Solution During Overworking of Mine Workings	53
<i>Volodymyr Bondarenko, Iryna Kovalevska, Hennadii Symanovych, Mykhailo Barabash, Ildar Salieiev</i>	
Simulation of the Influence of Dynamic Loading on the Stress-Strain State of the Natural and Geoengineering Environment.....	61
<i>Natalya Remez, Alina Dychko, Vadym Bronytskyi, Tetiana Hrebeniuk, Rafael Bambirra Pereira, Petr Ekel</i>	

MEASURING, FORECASTING AND MONITORING SUSTAINABILITY

Shifting Consumers' Sustainable Behavior in the Hospitality Industry	67
<i>I Wayan Edi Arsawan, Viktor Koval, Ni Putu Santi Suryantini, Yuriy Polyezhayev</i>	

Ensuring Sustainable Development of Enterprises in the Conditions of Digital Transformations	73
<i>Maryna Demianchuk, Viktor Koval, Volodymyr Hordopolov, Valentyna Kozłovtseva, Dzintra Atstaja</i>	
Ecological and Economic Aspects of Sustainable Development of Ukrainian Regions	80
<i>Vitalina Babenko, Larysa Zomchak, Maryna Nehrey</i>	
Global Benchmarking for Monitoring Environmental, Economic, and Social Performance for Metallurgical Production Enterprises	86
<i>Valentyna Lavrenenko, Hanna Yanhol, Bohdan Tishkov</i>	
Sustainability and Reliability Ensurance Models for Automated Technological Systems in Chemical Industry: Systemic Ergonomic Approach	98
<i>Evgeniy Lavrov, Olga Siryk, Aleksandr Volosiuk, Aleksandr Zolkin, Nelly Sedova</i>	
The Price for Sustainable Development of Renewable Energy Sector: The Case of Ukraine.....	109
<i>Iryna Sotnyk, Tetiana Kurbatova, Oleksandr Kubatko, Yevhen Baranchenko, Rui Li</i>	
Application of Fuzzy Time Series Forecasting Approach for Predicting an Enterprise Net Income Level.....	116
<i>Kateryna Gorbatiuk, Pavlo Hryhoruk, Oksana Proskurovych, Nina Rizun, Audrius Gargasas, Asta Raupeliene, Tea Munjishvili</i>	
Organizational and Economic Mechanisms of Qualitative Modeling of Sustainable Development of the Enterprise.....	123
<i>Olga Maslak, Natalya Grishko, Mykhailo Odintsov, Yaroslava Yakovenko, Khatuna Buchashvili</i>	
Catastrophes, Fractals and Chaos in Geoengineering and Water Treatment Systems.....	130
<i>Igor Yeremeyev, Alina Dychko, Volodymyr Kyselov, Natalya Remez, Ievgen Khlobystov</i>	
The Intergovernmental Relations and Their Regulation in the Context of Decentralization of Fiscal Policy.....	136
<i>George Abuselidze</i>	

SUSTAINABLE BUILDING AND ARCHITECTURE

Modeling of the Effect of a High-Pressure Jet of Cement Mortar on the Surrounding Soil Environment When Performing Jet Grouting Columns Using Jet Technology.....	150
<i>Natalia Zuiavska, Valentyna Gubashova, Valentyn Korobiichuk</i>	
Computational Aerodynamics in Architectural Siting of the Structures of Agro-Industrial Complex.....	157
<i>Anton Makhinko, Nataliia Makhinko</i>	
Construction Technology for Affordable Housing with the Use of Space-Braced Concrete-filled Steel Tubular Framing.....	163
<i>Mykola Savytskyi, Tetiana Nikiforova, Oleh Nosenko, Mykola Kotov, Ruslan Papirnyk</i>	
Prospects of Application of Roller Compacted Concrete in Hydro Schemes of Ukraine.....	169
<i>Svitlana Butnik, Andrii Mozgovyi</i>	
Analytical Calculation of Tube Confined Concrete Elements with Strengthened Cores	175
<i>Oleksandr Palyvoda, Dmytro Yermolenko, Oleksandr Andriichuk, Mindaugas Vaicekauskas, Intars Dicmanis</i>	

Features of Structures and Calculation of Steel Spiral-Fold Silos..... 181
Sergei Pichugin, Kateryna Oksenenko, Mukhlis Hajiyev, Maria Sulewska

Simulation of Two-Dimensional Distribution Laws of Random Correlated Quantities of Natural-climatic Factors in Context of Probabilistic Assessment of Reliability of Hydraulic Structures of Cascades of Hydroschemes 188
Andrii Mozgovyi, Karina Spirande

SUSTAINABLE CITIES AND SOCIETY

Methods for Developing an Indoor Navigation System 195
Dimitrina Deliyiska, Nikolay Yanev, Mariana Trifonova

The Participative Budget of Making a City Sustainable: Quintuple Helix Approach 201
Mykola Petrusenko, Carsten Grunwaldt

The Transformation of the Engineering and Planning Organization of the Territory of the Luhansk Region in the Conditions of the Functions Changing of the Regional Typology 208
Valerii Sokolenko, Kostiantyn Sokolenko, Oleg Chernih, Sergiy Piddubnyi

Positive Psychology as a Counterweight to Youth Economic Deprivation..... 215
Tamara Hovorun, Kulpreet Kaur, Hanna Ryk, Olha Lomak, Oksana Kikinezhdi

Regional Development of Enterprises: Concept of Sustainable Development and Data Mining 222
Nataliia Maksyshko, Sergey Ivanov, Serhii Cheverda

Modern Development Trend of Normative Monetary Valuation of Non-Agricultural Land Plots in Ukraine 229
Tetiana Anopriienko, Maryna Pilicheva, Volha Sauchanka

Substantiation of the Advanced Training Program “Social Work with Military Personnel and Military-Social Work in the Context of Sustainable Development Goals” 235
Iryna Trubavina, Mykhailo Medvid, Andrew M. Cwer, Ludmyla Petryshyn, Halyna Meshko

Modeling the Assessment of Investment Projects for Territorial Communities in Compliance with the Concept of Sustainable Development..... 249
Alyona Polova, Nataliia Maksyshko, Oksana Vasylieva

Sustainable Development and Tolerance in the Socializing and Resocializing of the Architectural Environment of Cities..... 259
Nadiia Shebek, Viktor Timokhin, Yuliia Tretiak, Ievgenii Kolmakov, Oleksandr Olkhovets

The Response Strategy of Social Work with Displaced Families and the Receiving Community (within the Context of Sustainable Development)..... 267
Iryna Trubavina, Olena Karaman, Dimitrina Kamenova, Viktoriia Stepanenko, Yaroslava Yurkiv

Thermal Comfort Analysis in the Sustainable Educational Building 277
Luiza Debska, Justyna Krakowiak

The Problems of Forming a System of Green Areas as an Ecological Framework of a Large City (on the Example of Kyiv) 282
Alla Pleshkanovska

Higher Education Institutions Energy Efficient Methods of Functional Planning Solution 289
Gelena Kovalska, Irina Bulakh, Margaryta Didichenko, Olena Kozakova, Olena Chala

Is the Hospital-Park Future of the Sustainable Hospital Architecture?	295
<i>Irina Bulakh, Margaryta Didichenko, Olena Kozakova, Olena Chala, Gelena Kovalska</i>	

SUSTAINABLE ENERGY

Modeling of Hydrogen Sulfide Removal Under Biomethane Production in the Concept of Renewable Energy Potential Growth of Ukraine	306
<i>Yelizaveta Chernysh, Magdalena Bálintová, Viktoriia Chubur</i>	
Development of Software Control Tools for Power Systems of Mining and Metallurgical Regions.....	311
<i>Vladimir Morkun, Igor Kotov</i>	
Modeling of Thermal Process in the Energy System “Electrical Network - Asynchronous Motor”	320
<i>Vitaliy Kuznetsov, Mykola Tryputen, Valerii Tytiuk, Zhanna Rozhnenko, Serhii Levchenko, Valeriy Kuznetsov</i>	
Modeling and Simulating Dynamics of Lithium-Ion Batteries Using Block-oriented Models with Piecewise Linear Static Nonlinearity.....	326
<i>Oleksii Mykhailenko</i>	
World Market of Liquid Biofuels: Trends, Policy and Challenges	335
<i>Yevhenii Hyrchenko, Tetiana Skibina, Yana Us, Regina Veckalne</i>	
Predictive Control of Induction Motor Drive	341
<i>Ihor Kozakevych, Kyrylo Budnikov</i>	
Balancing Ukraine’s Energy System: Challenges Under High Renewable Energy Penetration and the COVID-19 Pandemic	349
<i>Tetiana Kurbatova, Iryna Sotnyk, Olha Prokopenko, Roman Sidortsov, Yu-Xia Tu</i>	
Workability Conditions Determination of Network Distribution with Overhead Lines Power Transmission with the 6-35 kV	355
<i>Vasiliy Kutin, Marina Kutina, Artem Kovalov, Sergiy Maksimov</i>	
Research of Modular Multilevel Converter with Phase-Shifted Pulse-width Modulation	362
<i>Ihor Kozakevych, Roman Siyanko</i>	
Research of the Synthesis of Radiant Intensity Indicatrix of Multicomponent Beam Diode Module	372
<i>Ruslan Yakovliev, Yurii Shmelov, Maryna Petchenko, Serhii Honchar, Vasyl Kovalskiyi</i>	
Efficient Use of Energy Resources in the Context of Sustainable Development of the Pulp and Paper Industry of Ukraine	378
<i>Halyna Kupalova, Anzhela Ignatyuk, Nataliia Goncharenko, Uliana Andrusiv, Yuliana Kopetska</i>	
Model Investigations into Assessing Optimal Power Consumption Modes for Major Pump Stations of Iron Ore Underground Mines	387
<i>Igor Sinchuk, Tetyana Beridze, Irina Kasatkina, Roman Krasnopolsky, Oleg Dozorenko, Ryszard Strzelecki</i>	

SUSTAINABLE ENVIRONMENT AND ENVIRONMENTAL MANAGEMENT

Determining the Parameters of the Trajectory of the Bucket of Mining Quarries Excavators	393
<i>Valerii Tytiuk, Kamal Khandakji, Galina Sivyakova, Nadezhda Karabut, Oleksii Chorny, Victor Busher</i>	

Methods of Improving Power Indices of Electric Drive Active Rectifiers for Mine Hoists.....	400
<i>Oleg Sinchuk, Yulii Filipp, Albert Somochkyn, Ryszard Strzelecki, Mila Baranovska</i>	
Study and Modelling of Droop-Controlled Islanded Mesh Microgrids.....	407
<i>Youssef Hennane, Abdelmajid Berdai, Serge Pierfederici, Farid Meibody-Tabar, Vitaliy Kuznetsov</i>	
Economic Feasibility of Wind and Photovoltaic Energy in Kuwait.....	415
<i>Waleed K. Al-Nassar, S. Neelamani, Teena Sara William</i>	
Determining the Parameters of a Shunting Locomotive Taking into Account the Environmental Component	420
<i>Olha Kletska, Anatoliy Falendysh, Dmitro Ivanchenko, Jan Dizo, Kateryna Kravchenko</i>	
Models of the Optimal Distribution of Fertilizers and Vehicles in Grain Production	426
<i>Abdizhapar Saparbayev, Aiymszhan Makulova, Azamat Eleusov, Ulzhan Meirmanova, Zaure Klyshbayeva</i>	
Perspectives for Usage of Adsorption Semiconductor Sensors Based on Pd/SnO ₂ in Environmental Monitoring of Carbon Monoxide and Methane Emission	432
<i>Lyudmila Oleksenko, George Fedorenko, Igor Matushko, Nelly Maksymovych, Inna Vasylenko</i>	
Technological, Agronomical and Economic Efficiency of New Organic and Organo-Mineral Soil Amendments.....	439
<i>Viktoriia Hetmanenko, Ievgen Skrylnyk, Anatolii Kucher, Angela Kutova, Katerina Artemieva</i>	
Woody Artificial Plantations as a Significant Factor of the Sustainable Development at Mining & Metallurgical Area.....	446
<i>Maxim Kvitko, Vasyl Savosko, Iryna Kozlovskaya, Yuriy Lykholat, Aleksandr Podolyak, Ivan Hrygoruk, Aleksey Karpenko</i>	
Population Structure and Symbiotic Relationships of the Invasive Species <i>Sinanodonta woodiana</i> (Lea, 1834) in Water Bodies of Ukraine	455
<i>Tetiana Yermoshyna, Olesia Pavliuchenko</i>	
Long-Term Assessment, Modeling and Forecast of Salinity Conditions of Reclaimed Mine Dumps of Western Donbass.....	462
<i>Galina Yevgrashkina, Mykola Kharytonov, Iryna Klimkina, Elena Shikula</i>	
Removal of Cr(VI) from Wastewater by Silver-Loaded Natural Clinoptilolite	469
<i>Marinela Panayotova</i>	
The Formation of the Leaf Surface Area and Biomass of the <i>Miscanthus giganteus</i> Plants Depending on the Sewage Sludge Rate	476
<i>Vasyl Lopushniak, Halyna Hrytsuliak, Mykhailo Gumentyk, Mykola Kharytonov, Bazena Barchak, Tomasz Jakubowski</i>	
Forecasting of the Number of Bird Collisions with Turbines in the Territory of Pre-Azov Region Wind Park Using the Route Census Method	483
<i>Volodymyr Yeremieiev</i>	

SUSTAINABLE MATERIALS AND TECHNOLOGIES

Study of Influence of Alkaline Component Type on pH Value and Properties of Alkali Activated Concretes Containing Basalt Rock.....	492
<i>Oleksandr Kovalchuk, Victoriya Zozulynets</i>	
Suitability of Modified Low Carbon Roman Cements for Architectural Restoration	499
<i>Myroslav Sanytsky, Tetiana Kropyvnytska, Roman Kotiv, Mykola Bevz, Stanislav Fic</i>	
Effect of Mineral Additives to a Gypsum Wet Deformation.....	506
<i>Andrii Plugin, Artem Iefimenko, Olga Borziak, Edwin Gevorkyan, Olena Kaliuzhna</i>	
Prevention of Steel Reinforcement Corrosion in Alkali-Activated Slag Cement Concrete Mixed with Seawater	511
<i>Pavlo Krivenko, Igor Rudenko, Oleksandr Konstantynovskiy, Olha Boiko</i>	
Study of the Influence of Magnetized Ferromagnetic Additives on the Processes of Cement Hydration.....	520
<i>Serhiy Sakhno, Lyudmyla Yanova, Olena Pischikova, Yevhen Liulchenko, Tetiana Sergiienko</i>	
Development of Sustainable Compositions and Study of the Properties of Porous Aggregates from the Waste of a Mining and Processing Plants.....	530
<i>Yevhen Liulchenko, Serhiy Sakhno, Tetiana Sergiienko, Maxim Sergiienko</i>	
Efficiency of Application of Fiber Concrete as a Material for Manufacturing Bodies of Centrifugal Pumps.....	537
<i>Kassym Yelemessov, Dilda Nauryzbayeva, Saiyn Bortebayev, Dinara Baskanbayeva, Viktoriya Chubenko</i>	
Cable-Stayed Coverings for Large-Span Public Buildings	543
<i>Radomir Timchenko, Stanislav Popov, Dmitry Krishko, Goodary Rajeshwar, Aleksej Aniskin</i>	
Research Activation Energy in Thermal Modification of Wood.....	552
<i>Yuriy Tsapko, Olga Bondarenko, Oleksandra Horbachova, Serhii Mazurchuk, Nataliya Buyskikh</i>	
Ways to Increase the Production Efficiency of Hardwood Blanks.....	558
<i>Serhii Mazurchuk, Nataliya Marchenko, Yuriy Tsapko, Olga Bondarenko, Nataliya Buyskikh, Tomáš Andor, Viktor Forosz</i>	
Increasing the Production of Gas Condensate by Using Ammonium Carbonate Salts	565
<i>Viktoriia Dmytrenko, Ivan Zezekalo, Yuriy Vynnykov, Nikolay Hristov, Gergana Meracheva</i>	
Influence of the Size of Hematite and Magnetite Ores on the Parameters of the Sintering Process and the Quality of the Sinter.....	573
<i>Olga Babaievska, Vladimir Plotnikov, Mariia Konovalova, Natalia Suslo, Igor Motovilov</i>	

PART 2

Force Index Computation for a Magnetic Separator Based on Permanent Magnet.....	580
<i>Fatima Ezzahra Kassid, Essaadia Azelmad, Lahbib Bousshine, Abdelmajid Berdai</i>	
Plant Secondary Metabolites as Bioactive Substances for Innovative Biotechnologies.....	586
<i>Anastasiia Revutska, Victoriya Belava, Anastasiia Golubenko, Nataliya Taran, Minglei Chen</i>	

Parameter Analysis of Non-Metallic Inclusion Formation in Thermite Alloys.....	594
<i>Ihor Skidin, Oksana Vodennikova, Sergii Vodennikov, Levan Saithareiev, Shamil Telkov</i>	
Spatial Ultrasonic Cleaning Process Control Based on Its Current State Evaluation.....	602
<i>Volodymyr Morkun, Olha Kravchenko</i>	
Developing of X65 Steel Coils Making at Steckel Mill Using Thermo-Mechanical Control Process	609
<i>Oleksandr Kurpe, Volodymyr Kukhar, Eduard Klimov, Serhii Chernenko, Andrii Prysiaznyi</i>	
Optimization of the Combined Explosion Hardening Processes	615
<i>Viktor Shchetynin, Roman Arhat, Vladimir Drahobetskyi, Vyacheslav Puzyr, Dmitriy Maloshtan</i>	
The Assessment of the Process of Drawing a Cylindrical Workpiece Without Pressing with Alternating Strain of the Workpiece Flange	621
<i>Roman Arhat, Viktor Shchetynin, Ruslan Puzyr, Dmitry Savelov, Tetiana Haikova</i>	

SUSTAINABLE MINING

Modelling for Degreasing the Mining Equipment Downtime by Optimizing Blasting Period at Erdenet Surface Mine	627
<i>Khavalbolot Kyelgyenbai, Serhii Pysmennyi, Serhii Chukharev, Batbolor Purev, Ijilmaa Jambaa</i>	
Investigation of Resistance and Air Leakage of Auxiliary Ventilation Ducting in Underground Mine in Quang Ninh.....	634
<i>Phuong Thao Dang, Zinovii Malanchuk, Vitalii Zaiets</i>	
Defining the Information Flows for DLT of a Transport Company in the Mining Industry According to the Criteria for Sustainable Development.....	638
<i>Teodora Hristova, Dimitar Anastasov, Zdravets Evtimov</i>	
Increasing Efficiency of Iron Ore Magnetic Separation by Using Ultrasonic Technologies.....	646
<i>Vladimir Morkun, Natalia Morkun, Vitalii Tron, Vladimir Golik, Arkadii Davidkovich</i>	
Technological Basis of Processing of Serpentinite Copper-Gold Ores in the Kyrgyz Republic	652
<i>Kulzhamal Nogaeva, Yessil Alpiyev, Almaz Kozhonov, Valerii Korniyenko, Yevhenii Malanchuk</i>	
Relation Between Basic Coal Seam Parameters and Their Gas Saturation for Dobrudzha Coal Field, NE Bulgaria.....	659
<i>Nikolay Hristov, Efrosima Zaneva-Dobranova, Gergana Meracheva, Viktoriia Dmytrenko, Yuriy Vynnykov</i>	
Implementation of the Cascade Waste Use Principle by Application of Sewage Sludge on Lands Disturbed by Mining Operations	665
<i>Oleh Skrypnyk, Liliya Uvarova, Leonyd Yakubenko, Nataliya Ilchenko, Sergey Ogorodnikov</i>	
Investigation of Technogenic Deposits of Phosphogypsum Dumps	675
<i>Viktor Moshynskyi, Ruslan Zhomyruk, Oleksandr Vasylchuk, Vasil Semeniuk, Roman Okseniuk, Kanay Rysbekov, Kassym Yelemessov</i>	
The Use of the Construction with a Digital Camera and GPS Receiver While Researching Dangerous Areas	681
<i>Oleksandr Dolgikh, Liubov Dolgikh, Kostiantyn Ielezov, Nikolai Maletskii</i>	

Technological Measures to Enhance Efficiency of Mining Ore from Stopes Applying Self-Propelled Equipment	688
<i>Mykola Stupnik, Vsevolod Kalinichenko, Olena Kalinichenko, Alexey Pochtarev</i>	
On the Issue of Determining the Main Factors of Gas Hazard in Coal Mines of Ukraine	696
<i>Mykhailo Filatiev, Elvira Filatieva, Aleksandr Oleinichenko, Mihaela Toderas, Olga Kuderinova</i>	
Models and Data Quality in Information Systems Applicable in the Mining Industry	704
<i>Yordanka Anastasova, Nikolay Yanev</i>	
Enhancement of the Technology of Mining Steep Ore Bodies Applying the “floating” Crown.....	710
<i>Serhii Pysmennyi, Serhii Chukharev, Kyelgyenbai Khavalbolot, Iryna Bondar, Jambaa Ijilmaa</i>	
Determination of Economically Viable Option of Liquidation the Consequences of External Dump Deformation.....	719
<i>Yevheniy Babets, Oleh Anisimov, Oleksandr Shustov, Vitalina Komirna, Iryna Melnikova</i>	
Optimization of the Drilling-And-blasting Process to Improve Fragmentation by Creating of a Preliminary Stress in a Block	727
<i>Khalidilla Yussupov, Saifimalik Myrzakhmetov, Khairulla Aben, Serhii Nehrii, Tetiana Nehrii</i>	
Application of Membrane Processes in Mining and Mineral Processing.....	733
<i>Marinela Panayotova, Vladko Panayotov</i>	
On the Relationship Between Gas Emission from Undermined Coal-Bearing Stratum and the Intensity of Coal Seam Mining.....	743
<i>Sergei Mineev, Elvira Filatieva, Aleksandr Oleinichenko, Mihaela Toderas</i>	
Determination of the Parameters of Local Reinforced Zones Under the Protection Means	750
<i>Serhii Nehrii, Tetiana Nehrii, Oksana Zolotarova, Khairulla Aben, Khalidilla Yussupov</i>	
Moisture as Assessment Criterion for Coal Rank and Coal Layers Hazardous Characteristics Manifestation.....	757
<i>Vadym Tarasov, Mykola Antoshchenko, Olha Zakharova, Anastasiia Zakharova, Oleg Levadnyi</i>	
Rock Pressure Relief is the Basic Alternative for Sustainable Underground Mining	763
<i>Victor Nazimko, Ludmila Zakharova, Alexey Kusen, Syd Peng</i>	
Innovative Mining Technologies with Complex Geomechanical Characteristics	771
<i>Dimitar Anastasov, Zdravets Eftimov</i>	

INNOVATIVE APPROACHES FOR SOLVING ENVIRONMENTAL ISSUES

Source Term Model of Radioactive Liquid Spills for Actual Decision Support Systems	777
<i>Yurii Kyrylenko, Iryna Kameneva, Oleksandr Popov, Andrii Iatsyshyn, Iryna Matvieieva, Valery Bliznyuk, Norbert Molitor</i>	
Environmentally-Efficient Approaches to Oil and Gas Producing Sites	787
<i>Mykhailo Liakh, Teodoziia Yatsyshyn, Svitlana Gavryliv, Yuriy Gavryliv, Lesia Shkitsa, Katarina Monkova, Peter Pavol Monka, Vasyl-Danylo Liakh</i>	

Quantitative Method for Determining the Solution Error of the Inverse Problem in the Electrometry of Oil and Gas Wells	795
<i>Mykyta Myrontsov, Oleksiy Karpenko, Volodymyr Horbulin</i>	
The Essence and Mechanisms of Environmental Competence Formation in Students of Natural Science Departments	804
<i>Ruslana Romaniuk, Olena Antonova, Oksana Sorochynska, Olga Tsurul, Marina Sidorovich</i>	
Predicting Anomaly Conditions of Energy Equipment Using Neural Networks	818
<i>Anastasia Sverdlova, Artur Zaporozhets</i>	
Ecological Changes in Geological Media and Siverskyi Donets River Basin Under the Condition of Goal Mines Flooding	828
<i>Yevheniia Anpilova, Yevhenii Yakovliev, Rolf Petry, Volodymyr Horbulin</i>	
Detection of Intervals / Layers in Sections of the Wells with Anomalous Areas of Drilling Mud Filtrate Contamination According to the Well Logging (with Negative Test Results of Horizons).....	836
<i>Oleksiy Karpenko, Vasyl Sobol, Mykyta Myrontsov, Ivan Karpenko</i>	
Differences in the Generation of Industrial Waste from Economic Activities in Ukraine and the EU and the Prospects for the Integrated Use of Mineral Raw Materials	843
<i>Victoria Gubina, Victor Zaborovsky, Natalia Mitsiuk, Aboubaker Farag Srat</i>	
Research of the Impact on the Ecology of the State of Cybersecurity of the Critical Infrastructure Objects.....	851
<i>Volodymyr Mokhor, Oleksandr Korchenko, Serhii Honchar, Maxsim Komarov, Alla Onyskova</i>	
Modeling of Electricity Production by Wind Power Stations of Ukraine	857
<i>Volodymyr Podhurenko, Yulii Kutsan, Oleg Getmanets, Volodymyr Terekhov</i>	
Information Technologies in Local Geophysical Process Management Methodology	864
<i>Oleksandr Maevsky, Volodymyr Artemchuk, Yuri Brodsky, Pavlo Topolnytskyi, Chijioko Ikokwu</i>	
The Influence of Environmental Tax Rates on the Levelized Cost of Heat on the Example of Organic and Biofuels Boilers in Ukraine.....	872
<i>Valentyna Stanytsina, Volodymyr Artemchuk, Olga Bogoslavskaya, Iryna Zinovieva, Nataliia Ridei</i>	
Human Factor in Emergency Occurrence at NPP During the Pandemic COVID-19: New Potential Risks and Recommendations to Minimize Them	879
<i>Oleksandr Popov, Anna Iatsyshyn, Norbert Molitor, Andrii Iatsyshyn, Yevhen Romanenko, Iryna Deinega, Petr Sharov, Gabriel Mnayarji</i>	
Modeling the Influence of Factors on the Level of Environmental Safety	894
<i>Serhii Pobihun, Nataliia Havadzyn, Ivanna Melnychuk, Oksana Savko, Valeria Mirela Brezoczki</i>	
Mechanisms for Ensuring the Environmental Safety of Tourist Destinations.....	903
<i>Olena Pobihun, Yaroslava Korobeinykova, Olha Nykodiuk, Andriy Melnyk</i>	
Geomodels of Space Monitoring of Water Bodies	911
<i>Vasyl Trysnyuk, Taras Trysnyuk, Anatolii Nikitin, Anatolii Kurylo, Olga Demydenko</i>	
Modern Means of Assessing the Impact of Emergencies on the Environmental Condition of the Ground Layer of Atmosphere.....	917
<i>Anastasiia Turevych, Svitlana Madzhd, Larysa Cherniak, Anatolii Pavlyuk, Vincent Ojeh</i>	

Effect of Liquid Glass Type on Hygienic Characteristics of Coated Electrodes for Arc Welding of Tin Bronzes	927
<i>Oleg Levchenko, Olga Bezushko, Taras Maidanchuk, Anna Lukianenko, Olga Goncharova, Darko Bajic, Darko Veljic</i>	
The Region as an Object of Projecting of Neo-Spheric Existence in the Depth of Anthroposphere.....	933
<i>Anatoly Samodryn, Lina Rybalko, Olena Lavrentieva, Walery Zukow, Ali Emre Sarilgan</i>	
Potential of Environmental Responsibility and Financial Potential of Innovative Mechanical Engineering Enterprises in Ukraine.....	943
<i>Iuliia Gernego, Liudmyla Petrenko, Mykhailo Dyba</i>	
Landscape Approach to Formation of System of Ecologically Balanced Use of Natural Resources: Legal Framework	952
<i>Volodymyr Yermolenko, Olena Hafurova, Maryna Deineha, Tamara Novak, Julia Sinitsky, Umidjon Ulugov</i>	
Quality of Drinking Water in Rural Areas: Problems of Legal Environment	958
<i>Volodymyr Yermolenko, Olena Hafurova, Maryna Deineha, Tamara Novak, Alena Temnikova, Erdene Naidansuren</i>	
Prospective Directions of State Regulation of “green” Energy Development in the Context of Ukraine’s Energy Safety.....	964
<i>Oleksandr Radchenko, Oksana Radchenko, Oleksiy Kriukov, Valeriia Kovach, Oleksii Mykhalchenko, Rovshan Abbasov, Virginija Jureniene</i>	
Principles of Natural Capital Preservation in the Context of Strategy of State Environmental Safety.....	971
<i>Oleksandr Radchenko, Valeriia Kovach, Oksana Radchenko, Oleksiy Kriukov, Liudmyla Sidorchuk, Petr Sharov, Inna Semenets-Orlova</i>	

WATER MANAGEMENT AND ENVIRONMENTAL ENGINEERING

Optimization of Dose Calculation of Modified Magnetite During Sorption Purification of Water from Copper Ions to Create Environmentally Friendly Technology	977
<i>Inna Trus, Mukola Gomelya, Evhen Chuprinov, Tetiana Pylypenko</i>	
Monitoring the Water Quality of Jiu River in Dolj County.....	984
<i>Florin Faur, Maria Lazar, Izabela-Maria Apostu, Oleg Pinchuk, Serhii Klimov</i>	
Application of Superheated Water as a Soil Remediation Media: a Review.....	995
<i>Reihaneh Mashhadi Ebrahim</i>	
Morphometric Parameters Based Prioritization of a Mid-Himalayan Watershed Using Fuzzy Analytic Hierarchy Process	1003
<i>Mallika Joshi, Pankaj Kumar, Purabi Sarkar</i>	
Surface Water Quality of Small Rivers in the Ukrainian Regions of Right-Bank Polissia	1009
<i>Igor Gopchak, Tetiana Basiuk, Artem Yatsyk, Oksana Yaromenko</i>	
Intensifying Agricultural Crops Production by Means of Thermal Reclamation	1015
<i>Oleg Pinchuk, Serhii Klimov, Ivan Romaniuk, Florin Faur, Maria Lazar, Izabela-Maria Apostu</i>	
Principles of Creating a System of Sustainable Water Use in Ukraine	1021
<i>Nataliia Kovshun, Nataliia Savina, Mamadou Alouma Diallo, Nina Kushnir, Dong Zhiwei, Vitalii Zoshchuk</i>	

Features of Forming the Salt Balance in Rice Fields with Various Parameters and Designs of the Danube Rice Irrigation Systems	1028
<i>Vasyl Turchenyuk, Anatoliy Rokochinskiy, Nataliia Prykhodko, Pavlo Volk, Oleh Meshyk</i>	
Theoretical Research of Friction Factor in Hydraulically Smooth Pipes	1034
<i>Mykola Khlapuk, Olexander Bezusyak, Liubov Volk, Zelu Zhang</i>	
The Dam Slope Stability Under the Transient Condition During an Extreme Flood	1040
<i>Svitlana Velychko, Olena Dupliak</i>	
Sexual Dimorphism in Shell Morphology of Mollusks of the Genus Viviparus – Important Objects of Water Resources of Ukraine	1046
<i>Olena Uvayeva, Tetiana Vakaliuk, Georgiy Shcherbina, Elena Shimkovich</i>	

ECOCHEMISTRY AND GEOGRAPHY EDUCATION FOR SUSTAINABLE DEVELOPMENT

Sorption Characteristics Studies of Eco-Friendly Polymer Composites	1052
<i>Vladimir Lebedev, Tetiana Tykhomyrova, Oleksandr Lytvynenko, Alla Grekova, Svitlana Avina</i>	
Environmental and Economic Assessment of the Possibilities to Increase the Land Preservation Level in Terms of Open-Pit Mining	1058
<i>Yevheniy Babets, Yevheniy Terekhov, Taras Mormul, Iryna Melnikova, Vitalina Komirna</i>	
Distribution of Radionuclides in Modern Sediments of the Rivers Flowing into the Dnieper-Bug Estuary	1065
<i>Tetiana Alohina, Vadym Gudzenko</i>	
Waste Management in Ukraine: Organizational Aspects	1076
<i>Mykola Ishchenko, Alla Iarova, Victoria Adamovska, Kateryna Astafieva, Tetiana Holoborodko, Daria Lapshyna, Yevheniia Holovchenko</i>	
Zebrafish as a Suitable Model for Studying the Mode of Action and Harmfulness of Organophosphate Pesticides	1082
<i>Halina Falfushynska, Oksana Bodnar, Ihab Khatib, Halyna Kovalska, Serhiy Hulyk</i>	
Trade and Economic Relations Between Georgia and the Czech Republic: Challenges in Export and Import of Agri-Food Products	1088
<i>Badri Gechbaia, Eteri Kharaiashvili, Ekaterine Zviadadze, Zurab Mushkudiani, Amiran Tsilosani</i>	
Challenges of Sustainable and Equal Development of Regions in Georgia	1095
<i>Badri Gechbaia, Eteri Kharaiashvili, Zurab Mushkudiani, Ketevan Goletiani, Amiran Tsilosani</i>	
Ecological Analysis of the Flora of the Kremenets Mountains National Nature Park (on the Example of the Mountains Divochi Skeli, Strakhova, Masliatyn, Chercha, Zamkova, Bozha)	1101
<i>Nataliia Lisova, Myroslav Syvyj, Olena Volik</i>	
Geography of Agricultural Exports from Ukraine	1107
<i>Ihor Kholoshyn, Svitlana Mantulenko, Accola Sharon Joyce, Daniel Sherick, Talgat Uvaliev, Victoria Vedmitska</i>	

Use of GIS Technology in Geographical Education	1114
<i>Arman Demeuov, Zhanna Tilekova, Yerkin Tokpanov, Olena Hanchuk, Natalia Panteleeva, Iryna Varfolomyeyeva</i>	
Pedagogical Possibilities of Tourist and Local History Activities	1121
<i>Arman Demeuov, Ordenbek Mazbayev, Gulbanu Aukenova, Ihor Kholoshyn, Iryna Varfolomyeyeva</i>	
Methodological Approaches to the Study of Mineral Resource Potential of Regions.....	1130
<i>Myroslav Syvyj, Ordenbek Mazbayev, Olena Volik, Natalia Panteleeva, Olena Hanchuk</i>	
Geospatial Modeling of the Infrastructure Facility Optimal Location	1139
<i>Olena Pomortseva, Sergiy Kobzan, Oleksii Voronkov, Andrey Yevdokimov</i>	
Bioremediation of Toluene by Bioaugmentation, Biostimulation and Natural Attenuation.....	1145
<i>Cevat Yaman, Ismail Anil, Omer Aga, Ayse B. Yaman, Aleem Qureshi</i>	
Chemistry of Medicinal Plants as an Integral Part of Ecological Education	1151
<i>Tetiana Derkach, Hanna Tarasenko</i>	

Author Index