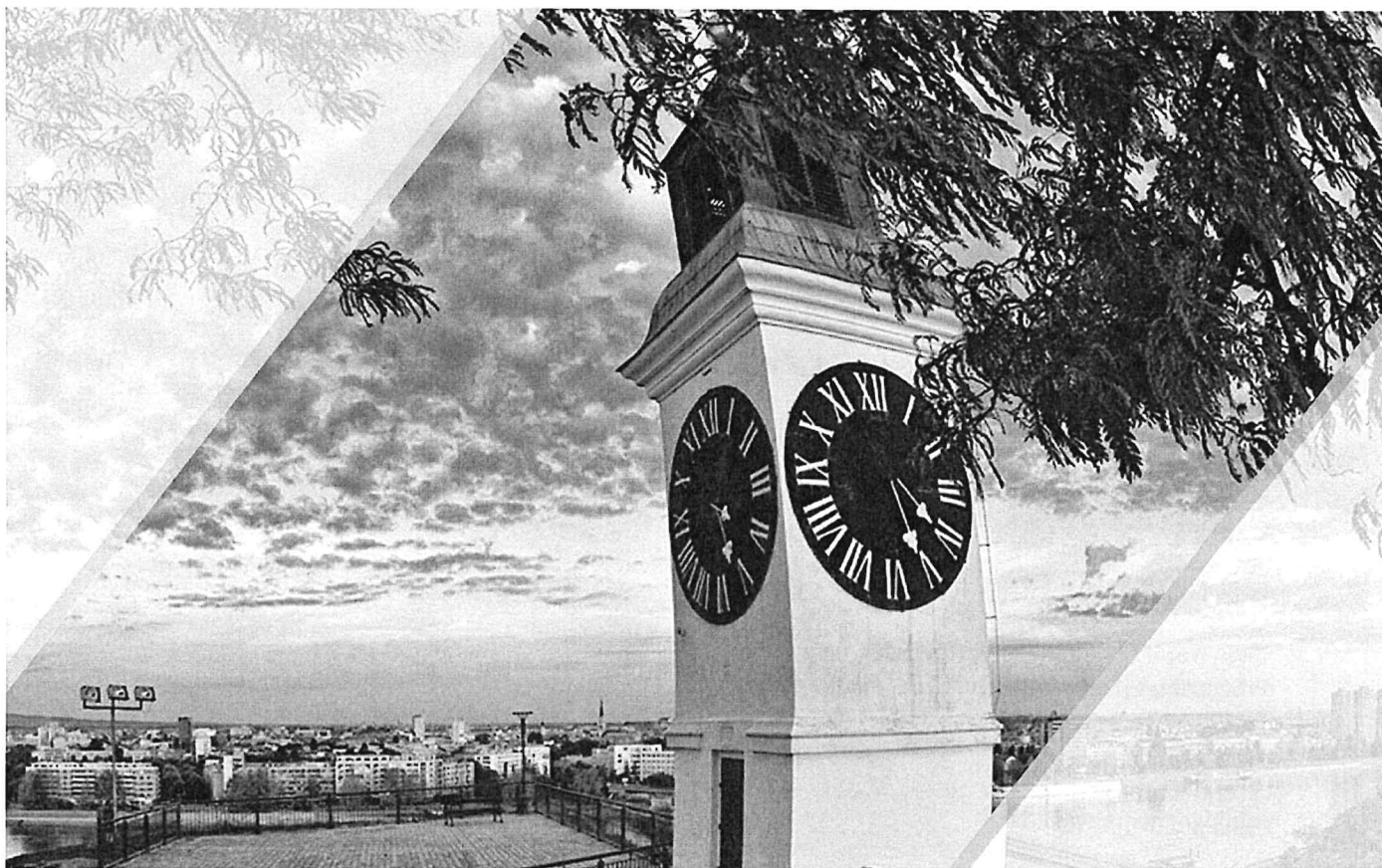




ISWA WORLD CONGRESS 2016



UNITING IDEAS FOR SUCCESSFUL WASTE MANAGEMENT

**September 19 - 21
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FOREWORD

The most important expert conference that International Solid Waste Associations (ISWA) organizes is the annual ISWA World Congress. This is an event that brings together in one place and connects all the parties interested in the global problem of solid waste. Every year, representatives of scientific and expert community, representatives of global corporations from this area and political and state officials actively participate in the World Congress. The ISWA Annual Congress 2016 was organized by Serbian Solid Waste Management Association (SeSWA) in Novi Sad, Serbia, September 19 to September 21, 2016.

The theme of this year's conference is "**UNITING IDEAS FOR SUCCESSFUL WASTE MANAGEMENT**". This is the ideal theme for the ongoing global issues of the waste management or mismanagement. As the world moves toward a more urbanized future, the amount of municipal solid waste (MSW), one of the most important by-products of an urban lifestyle, is growing even faster than the rate of urbanization. Locally and globally, existing solid waste management/mismanagement presents challenges and opportunities.

In one hand, in developing countries, poorly managed waste has an enormous impact on health, local and global environment, and economy. Improperly managed waste (open dumps) usually results in down-stream costs higher than what it would have cost to manage the waste properly in the first place. Moreover, collection efficiency of solid waste is less than 50% in many developing countries, causing spread of malaria, dengue fever, cholera, typhoid, respiratory and skin diseases. In some cases uncollected solid waste causes flooding in many developing urban cities.

On the other hand, *in developed countries, collection is not an issue. The major challenges for waste management in developed countries are: (1) Lack of available space for new landfills, and (2) In some countries with successful recycling program and with waste to energy facilities, are running out of waste to operate their waste to energy facilities.*

Therefore, waste management hierarchy may not be same for all countries and all kinds of solid waste; in other words, **ONE SOLUTION DOES NOT FIT ALL**. Therefore, we need to unite our ideas between developing and developed country needs and provide flexible but robust enough solutions for sustainable waste management.

This year's congress, we have received more than 500 (five hundred) papers for presentations and poster presentation from more than 50 different countries. Reviewing all these papers and posters was a major undertaking and the editors with support of scientific committee spent many hours working on them and finally putting them together as "ISWA 2016 Conference Proceedings".

We would like to thank, Vladimir Mrkajic, (postdoctoral fellow), Tijana Marinkovic (research associate) from University of Novi Sad, Faculty of Technical Sciences, Department of Environmental Engineering for Editorial support and Strahinja Aparac for design and technical issues.

| | |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|
| MANAGEMENT OF PCBs AND LESSONS LEARNED FOR A CIRCULAR ECONOMY | 187 |
| EUROPEAN INFORMAL SECTOR ROUND TABLE INTERNATIONAL SOLID WASTE ASSOCIATION (ISWA)..... | 189 |
| INVISIBLE MARKETS – THE INFORMAL RECYCLING SECTOR IN BEIJING | 190 |
| CAN WE AFFORD TO IGNORE OPPORTUNITY? INFORMAL SECTOR RECYCLING: THE CASE OF SERBIA | 214 |
| THE ROLE OF INFORMAL RECYCLING IN ADVANCING RECYCLING IN S. EASTERN EUROPE: THE CASE OF GREECE | 226 |
| INCREASING RECYCLING RATES BY EMPOWERING THE INFORMAL SECTOR – A PILOT FOR PRISTINA..... | 258 |
| CO-OPERATIVES AS A DEVELOPMENTAL VEHICLE TO SUPPORT JOB CREATION AND SMALL BUSINESS DEVELOPMENT IN THE WASTE AND RECYCLING SECTOR | 261 |
| THE INFORMAL WASTE SECTOR IN THE METROPOLITAN AREA OF PRISTINA, KOSOVO. POTENTIALS AND CHALLENGES FOR THE IMPROVEMENT OF THE SOCIO-ECONOMIC SITUATION OF WASTE PICKERS..... | 263 |
| ADAPTING UNIVERSITY EDUCATION TO CHANGING REQUIREMENTS: A CASE STUDY ON CONSTRUCTION & DEMOLITION WASTE FROM AUSTRIA..... | 264 |
| TRANSFERABILITY OF THE UK RECYCLING APPROACH TO OTHER EU MEMBER STATES..... | 267 |
| WASTE MANAGEMENT EDUCATION THROUGH DIRECT INVOLVEMENT IN THE MEASUREMENT OF IMPACTS | 286 |
| FREE ONLINE SOLID WASTE MANAGEMENT COURSES - A DIGITAL REALITY TO EDUCATE TENS OF THOUSANDS WORLDWIDE | 307 |
| THE CHALLENGES OF WASTE MANAGEMENT EDUCATION FOR CIVIL ENGINEERING IN BRAZIL..... | 308 |
| ISWA'S WORKING GROUP ON ENERGY RECOVERY - TECHNOLOGIES FOR ENERGY RECOVERY OF MUNICIPAL SOLID WASTE..... | 309 |
| A LONG TERM SELECTED AIR POLLUTANTS EVALUATION IN A SUSTAINABLE WTE PLANT. A SUCCESS STORY IN A SMALL SEASIDE CITY | 310 |
| ALTERNATIVE THERMAL TREATMENT FOR MUNICIPAL SOLID WASTE-TO-ENERGY PLANTS!..... | 341 |
| GLOBAL WTER & STATUS QUO OF WTE WORLDWIDE. THE POTENTIAL IN DEVELOPING NATIONS..... | 344 |
| EVALUATION OF ALTERNATIVE FLY ASH MANAGEMENT CONCEPTS: A CASE STUDY FROM THE CITY OF VIENNA | 345 |
| METHANIZATION (HIGH-BTU) PROJECT AT LA FARFANA WASTEWATER TREATMENT PLANT | 356 |
| INCINERATION AS A SUSTAINABLE WASTE MANAGEMENT OPTION IN SOUTHEAST EUROPE | 363 |
| LANDFILL ENGINEERING AND LANDFILL MINING | 378 |
| A LANDFILL GAS MODEL TO ASSIST COUNTRIES IN SOUTHEASTERN EUROPE WITH PLANNING METHANE UTILIZATION PROJECTS..... | 379 |
| APPLICATION OF ARTIFICIAL NEURAL NETWORKS IN LOCATION OF LANDFILL SITES (CASE STUDY: KHALKHAL COUNTY – IRAN) | 386 |
| “GEOM. CIRO FRISOLI & C. S.A.S.”’S PATENTED LANDFILL RETAINING STRUCTURE | 395 |
| MULTI-CRITERIA DECISION ANALYSIS METHODS AS A DECISION SUPPORT TOLLS IN WASTE MANAGEMENT PLANNING – A CASE STUDY OF LANDFILL SITE SELECTION..... | 400 |
| EXPANSION OF AN ACTIVE LANDFILL – A CASE STUDY | 411 |
| THE EFFECTS OF BIODEGRADABLE WASTE DIVERSION ON LANDFILL GAS RECOVERY IN TURKEY | 419 |
| ECONOMIC POTENTIAL ASSESSMENT FOR ENHANCED LANDFILL MINING | 425 |
| IMPROVEMENT OF QUALITY AND SAFETY OF LANDFILL OPERATIONS AND AFTERCARE - A CONTRIBUTION BY NEW LIMS PERMANENT MONITORING SYSTEMS..... | 433 |
| GEOSPATIAL INFORMATION SYSTEMS (GIS) AND BUILDING INFORMATION MODELLING (BIM) IN WASTE MANAGEMENT..... | 443 |
| CERTIFICATION OF WASTE MANAGEMENT COMPANIES, AS A RECOGNITION OF QUALITY, WITH A FOCUS ON AUSTRIA..... | 451 |
| SATELLITE-BASED PLANT SUPERVISION - GEOSPATIAL INFORMATION SYSTEMS (GIS) IN WASTE MANAGEMENT..... | 462 |
| ASSESSMENT OF LFG POTENTIAL FROM NHW LANDFILL: AL-AMERAT LANDFILL CASE-STUDY | 464 |
| HOLISTIC ASSESSMENT OF A LANDFILL MINING PILOT PROJECT IN AUSTRIA: METHODOLOGY AND APPLICATION WMR-15-0708..... | 466 |
| LANDFILL MINING - DEVELOPMENT OF A HOLISTIC ASSESSMENT PROCEDURE..... | 467 |
| LANDFILL LEACHATE..... | 468 |
| LEACHATE TREATMENT WITH RCDT REVERSE OSMOSIS..... | 469 |

CONTENTS

| | |
|-------------------------------------------------------------------------------------------------------------------------------------------------|------------|
| BIOWASTE TREATMENT AND MANAGEMENT | 16 |
| OPTIMIZED PARTIAL FLOW DIGESTION WITH INNOVATIVE PRODUCT GAS UTILIZATION IN BIOWASTE TREATMENT | 17 |
| WASTE TO VALUE ADDED PRODUCT: CONVERSION OF BIOETHANOL FROM BIOMASS | 21 |
| COMPOSTING OF FINE FRACTION AFTER MECHANICAL-BIOLOGICAL TREATMENT OF MUNICIPAL SOLID WASTE | 32 |
| ANALYTICAL PROCEDURES FOR VERIFICATION OF COMPOST QUALITY AND ENVIRONMENTAL ACCEPTANCE | 41 |
| CONSTRUCTION OF A BIO-DIGESTER WITH ECO-BRICKS FOR THE USE OF WASTE OF COFFEE IN THE MUNICIPALITY OF BETULIA ANTIOQUIA | 59 |
| MASS STABILIZATION OF DREDGED SLUDGE AT VIALAND THEME PARK ISTANBUL | 60 |
| TOWARDS SUSTAINABLE COMPOSTING – RESEARCH ACTIVITIES IN ESTONIA | 61 |
| CASE STUDY FOR IMPROVING WASTE MANAGEMENT IN DEVELOPING COUNTRIES - SWIS | 62 |
| CURRENT STATE OF SOLID WASTE MANAGEMENT IN MEXICO | 63 |
| DEVELOPMENT OF SUSTAINABLE WASTE MANAGEMENT IN ETHIOPIA | 75 |
| ENERGY GENERATION POTENTIAL USING BIOCELL FOR ORGANIC WASTE MANAGEMENT: A CASE STUDY IN BANGLADESH | 87 |
| WASTE MANAGEMENT IN DEVELOPING COUNTRIES: THE CASE STUDY OF LEBANON | 97 |
| PERFORMANCE MONITORING AND EFFICIENCY EVALUATION OF A BIOREACTOR LANDFILL IN TEXAS | 114 |
| CIRCULAR ECONOMY AS AN OPPORTUNITY TO IMPROVE WASTE MANAGEMENT - GIZ | 115 |
| TOWARDS A WASTE CRISIS IN EMERGING COUNTRIES: IMPACTS AND SOLUTIONS | 116 |
| STRENGTHENING REGIONAL COOPERATION AND EXTENDED PRODUCER RESPONSIBILITY TO REDUCE MARINE LITTER IN SOUTH-EASTERN EUROPE AND THE CARIBBEAN | 121 |
| IMPLEMENTATION OF SUSTAINABLE WASTE RECYCLING SCHEME IN SERBIA – A CASE STUDY FOR THE CITY OF BELGRADE AND LESSONS LEARNED | 135 |
| STANDARDIZATION PROCESS FOR COMPOST QUALITY IN SERBIA | 150 |
| CHARACTERISATION OF THE CONTENT OF CELLULOSE ITEMS INSIDE FOOD -WASTE FROM SEPARATE COLLECTION | 168 |
| CIRCULAR ECONOMY AND RESOURCE MANAGEMENT – PERSPECTIVE EUROPE | 170 |
| CIRCULAR ECONOMY - THE NEED TO MANAGE & PHASE OUT HAZARDOUS CHEMICALS AND MATERIALS .. | 171 |
| SUSTAINABLE CHEMISTRY - A CONCEPT WITH BENEFICIAL LINKS TO WASTE MANAGEMENT | 172 |
| SUSTAINABLE END OF LIFE SOLUTIONS FOR POP CONTAINING PLASTICS VIA DISSOLVING TECHNIQUE/ ENERGY RECOVERY | 180 |
| MANAGEMENT OF BROMINATED FLAME RETARDED WASTES IN THE UNITED STATES: TOWARDS A MORE CIRCULAR ECONOMY | 182 |
| SOLID WASTE CONTAINING PERSISTENT ORGANIC POLLUTANTS IN SERBIA: FROM PRECAUTIONARY MEASURES TO THE FINAL TREATMENT | 184 |
| WASTE TO ENERGY – KEY WASTE MANAGEMENT PROCESSES FOR CLEAN CYCLES AND SAFE FINAL SINKS TOWARDS A MORE CIRCULAR ECONOMY | 186 |

| | |
|------------------------------------------------------------------------------------------------------------------------------------------|-------------|
| REGULATORY BARRIERS FOR THE CIRCULAR ECONOMY IN EUROPE – AN EMPIRICAL ANALYSIS IN KEY SECTORS | 761 |
| DEVELOPMENT AND PUBLIC ACCEPTANCE OF ECONOMICALLY SUCCESSFUL INTEGRATION OF WASTE-TO-ENERGY IN AUSTRIA | 763 |
| WASTE AND CLIMATE EFFECT: FROM A LINEAR TO A CIRCULAR APPROACH | 765 |
| RECYCLING AND RECOVERY, RESOURCE POTENTIAL OF WASTE | 766 |
| THE POSSIBILITY OF WASTE TONER RECYCLING IN CONSTRUCTION INDUSTRY – EXAMPLE OF CIRCULAR ECONOMY | 767 |
| END-OF-LIFE TEXTILES: A CHALLENGING TYPE OF WASTE WITH A LARGE POTENTIAL..... | 779 |
| URBADVANCED®: USING URBAN METABOLISM TO DESIGN SUSTAINABLE CITIES | 794 |
| THE CONTRIBUTION OF WASTE INCINERATION TO RECYCLING | 815 |
| METAL AS A PERMANENT MATERIAL IN CIRCULAR ECONOMY..... | 822 |
| QUALITY OF TEXTILE WASTE: A CASE STUDY OF RESIDUAL HOUSEHOLD WASTE FROM ODENSE MUNICIPALITY, DENMARK | 834 |
| COAL SLUDGE PROCESSING AND ADDITIVATION FOR FUEL RECOVERY: INDUSTRIAL CASE IN EKO CARBO-JULIA WALBRZYCH | 850 |
| TEXTILE WASTE MANAGEMENT IN PRATO DISTRICT: COLLECTING MODELS AND TECHNOLOGICAL OPTIONS FOR MATERIAL RECOVERY | 860 |
| SUSTAINABLE SOLUTIONS FOR WASTE MANAGEMENT – PRACTICAL CASE OF PORTUGAL (LIPOR) | 871 |
| QUALITATIVE ANALYSIS OF MUNICIPAL SOLID WASTE IN ARMENIA, CROATIA, CYPRUS, F.Y.R.O.M. AND UKRAINE – METHODOLOGY AND RESULTS | 882 |
| A NEW METHOD TO DETERMINE THE BIOMASS CONTENT IN RDF – PRACTICAL APPLICATION AND COMPARISON TO STANDARDIZED METHODS | 913 |
| PROCESSING OF RESIDUES FROM WASTE INCINERATION FOR RESOURCE RECOVERY – RESOURCE POTENTIALS AND PROCESSING ROUTES | 931 |
| RE-USE CENTRES IN FLANDERS: 20 YEARS OF EXPERIENCES | 940 |
| PROCESSING OF MSW INCINERATION BOTTOM ASH FOR RESOURCE RECOVERY – RESOURCE POTENTIALS AND PROCESSING ROUTES | 942 |
| CHEMICALS CYCLES IN SECONDARY PRODUCTION SYSTEMS - A CASE STUDY ON PAPER | 943 |
| ORC - ORGANIC RANKINE CYCLE TECHNOLOGY: A VIABLE OPTION TO TURN WASTE INTO DISTRIBUTED POWER, HEATING, AND COOLING | 944 |
| ASSESSMENT OF COLLECTION SCHEMES FOR PACKAGING WASTE IN EU-28 MEMBER STATES AND CAPITAL CITIES..... | 945 |
| COST ACTION: MINING THE EUROPEAN ANTHROPOSHERE..... | 946 |
| A COMPARISON OF MIXED HOUSEHOLD MUNICIPAL SOLID WASTE COLLECTION AND RECYCLING SYSTEM AND SOURCE SEPARATE COLLECTION OF RECYCLABLES..... | 947 |
| HIGH PACKAGING RECYCLING RESULTS AT LOW COST - FICTION OR REALITY? | 949 |
| SMART CIRCULAR CITIES: MANAGING WASTE FLOWS IN AN INTEGRATED APPROACH WITH WATER AND ENERGY | 951 |
| REMEDIATION STRATEGIES FOR CLOSED LANDFILLS | 952 |
| FRAMEWORK FOR CLASSIFYING AND EVALUATING OLD LANDFILLS IN FLANDERS (PROJECT RECLAF)..... | 953 |
| QUANTIFICATION OF COMPLETION TARGETS | 969 |
| SPANISH SITE EXPERIENCES ON LANDFILL ENHANCED BIOSTABILIZATION: THE LEACHATE ROLE IN ACTIVE MANAGEMENT. | 982 |
| IN-SITE AERATION OF LANDFILLS – A PROMISING METHOD TO REDUCE ENVIRONMENTAL RISKS EMANATING FROM OLD WASTE SITES? | 997 |
| REMEDIATION AND REHABILITATION USING THE IN-SITU STABILISATION METHOD..... | 1007 |
| IDENTIFICATION AND REMEDIATION OF OLD LANDFILL SITES IN AUSTRIA – LESSONS LEARNED AFTER 30 YEARS OF EXPERIENCE | 1015 |
| SUSTAINABLE WASTE MANAGEMENT IN REGIONAL DEVELOPMENT NETWORK SOUTHEAST EUROPE, MIDDLE EAST AND MEDITERRANEAN..... | 1016 |
| CO-COMPOSTING OF SLUDGE WITH ORGANIC SOLID WASTES AND THE PREVENTION OF ODOR BY USING NATURAL ADDITIVES | 1017 |
| GOSPODARENJE OTPADOM U RH (2015. god)..... | 1033 |
| PRESENT STATE OF THERMAL TREATMENT OF MUNICIPAL WASTE AND INDUSTRIAL WASTE IN JAPAN | 1034 |

| | |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|
| COMPRESSIBILITY AND HYDRAULIC CONDUCTIVITY OF MUNICIPAL SOLID WASTE..... | 483 |
| WATER IS THE SUBSTANCE WHICH BY ITS SUITABLE TREATMENT CAN CLOSE THE LOOP OF PLUSSES AND MINUSES OF ANY EAST EUROPEAN MUNICIPAL WASTE MANAGEMENT SYSTEM..... | 494 |
| LEACHATE MANAGEMENT AT NON-HAZARDOUS LANDFILLS IN SERBIA | 503 |
| WEHRLE LEACHATE TREATMENT - 35 YEARS OF EXPERIENCE WORLDWIDE..... | 515 |
| USING ACTUAL LEACHATE QUANTITY TO CALIBRATE ESTIMATED VOLUME GENERATED FROM HELP MODEL PREDICTION | 533 |
| GROUNDWATER CONTAMINATION BENEATH AN UNCONTROLLED LANDFILL RUSINO, REPUBLIC OF MACEDONIA | 535 |
| PROTECTION OF GROUNDWATER BENEATH WASTE CONTAINMENT FACILITIES: POSSIBLE SOLUTION TO THE DIFFUSION OF VOLATILE ORGANIC COMPOUNDS THROUGH COMPOSITE LANDFILL LINERS | 545 |
| LOW COST BIO-WASTE TREATMENT | 547 |
| ON-SITE TREATMENT OF FOOD WASTE AND WASTEWATER GENERATED AT A FRUIT AND VEGETABLE MARKET | 548 |
| A CIRCULAR ECONOMIC APPROACH FOR THE MANAGEMENT OF ORGANIC SOLID WASTE | 564 |
| DECENTRALISED COMPOSTING AS AN ORGANIC WASTE MANAGEMENT. CASE STUDY IN LEINTZ-GATZAGA (GIPUZKOA) | 582 |
| BIOWASTE TO BIOGAS PRODUCTION OF ENERGY AND FERTILISER FROM ORGANIC WASTE | 599 |
| ACTION RESEARCH IN CDM WASTE COMPOSTING PROJECTS: A CASE STUDY FROM UGANDA | 608 |
| IMPLANTATION OF DIFFERENT MODELS FOR SEPARATE COLLECTION AND COMPOSTING OF ORGANIC WASTES IN TOURIST AREAS (SCOW PROJECT) | 611 |
| CONTRIBUTION OF HOME COMPOSTING TO CENTRALIZED BIODEGRADABLE WASTE TREATMENT IN SERBIA | 626 |
| TWELVE YEARS OF QUALITY ASSURANCE SYSTEM ON COMPOST PRODUCTION IN ITALY | 638 |
| TACKLING RISING METHANE EMISSIONS AND WASTE GENERATION IN CHINESE CITIES GLOBAL METHANE INITIATIVE URBAN MUNICIPAL WASTE AND WASTEWATER PROGRAM | 640 |
| EFFECTIVE SOLUTIONS FOR WASTE MINIMIZATION AND ENHANCEMENT OF RECYCLING BY APPLYING RFID PRODUCER IDENTIFICATION AND PAYT CHARGES – TWO ITALIAN AND CATALAN CASES | 642 |
| MANAGEMENT OF MINING WASTE | 643 |
| MINING AND USE OF ABANDONED MINES IN SERVICE OF SUSTAINABLE DEVELOPMENT IN SERBIA | 644 |
| WASTE MANAGEMENT FROM MINERAL PROCESSING OPERATIONS: THE CASE OF PHOSPHATE ROCKS | 656 |
| SILVER RECOVERY FROM ACIDIC THIOUREA SOLUTIONS BY CEMENTATION AND PRECIPITATION TECHNIQUES: AN EXPERIMENTAL INVESTIGATION | 667 |
| EXPERIMENTAL STUDY FOR NON-CYANIDE RECOVERY OF SILVER FROM ZINC CAKE RESIDUE..... | 678 |
| PRINTED PAPER RECYCLING WITH TONER SEPARATION BY DEINKING FLOTATION..... | 690 |
| SELECTIVE RECYCLING OF METALS FROM SPENT HYDRODESULPHURISATION CATALYSTS USING ENVIRONMENTAL-FRIENDLY APPROACHES | 691 |
| MANAGING HEALTHCARE WASTE | 693 |
| LEGAL FRAMEWORK AND NECESSARY WASTE DOCUMENTS IN SERBIA – EXAMPLES OF GOOD PRACTICE..... | 694 |
| HEALTHCARE WASTE MANAGEMENT IN SERBIA- DEVELOPMENT, IMPLEMENTATION AND SYNCHRONIZING WITH EU DIRECTIVES..... | 702 |
| POLICY AND LEGAL FRAMEWORK OF WASTE MANAGEMENT..... | 704 |
| “CONECTAR VERDE”: BRANDING AS A DRIVER FOR PROPER POST-CONSUMER MSW IN COUNTRIES WITHOUT EPR | 705 |
| STRATEGIES APPLIED TO THE CLOSURE OF 30 DUMPING SITES IN PERU | 720 |
| DEVELOPMENT OF THE NATIONAL EXTENDED PRODUCER RESPONSIBILITY REGISTER (NEPRR) FROM THE HELLENIC RECYCLING AGENCY (HRA), GAINED EXPERIENCES AND THE EMERGING CHALLENGES..... | 729 |
| POLICY AND LEGAL FRAMEWORK FOR SUSTAINABLE WASTE MANAGEMENT IN THE UNITED STATES | 748 |
| BIOGAS FROM MSW IN BRAZIL: ADVANCES IN REGULATORY FRAMEWORK AND FIRST PRACTICAL EXPERIENCES | 755 |
| UNLOCKING MEXICO’S ENERGETIC RECOVERY POTENTIAL FROM URBAN WASTE: INSTITUTIONAL AND POLICY CHALLENGES..... | 760 |

| | |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|
| DEVELOPMENT AND CURRENT SITUATION ANALYSIS OF BELGRADE'S MSW LANDFILL "VINČA" | 1182 |
| EURITEH AND THE STATE OF THE ART TECHNOLOGIES USED FOR WASTE MANAGEMENT IN ROMANIA..... | 1194 |
| SOLID WASTE COLLECTION AND DISPOSAL IN THE UNITED STATES: TRENDS, CHALLENGES AND PREDICTIONS | 1196 |
| REUSE NOTEBOOK – COLLECTION, REFURBISHMENT AND DISTRIBUTION SYSTEM (RUN)..... | 1197 |
| BALANCED SCORECARD APPLICATION IN WASTE MANAGEMENT STRATEGIC MUNICIPAL SOLID URBAN ... | 1198 |
| DIGESTION OF BIOWASTE AND BIOLOGICAL FRACTION OF MUNICIPAL SOLID WASTE | 1199 |
| TOWARDS A CONCERTED APPROACH TO PHYSICAL RESOURCE MANAGEMENT..... | 1200 |
| PROGRESS OF CIRCULAR ECONOMY DEVELOPMENT IN CHINA..... | 1202 |
| IDENTIFICATION OF THE WORLD'S 50 BIGGEST DUMPSITES | 1203 |
| FILTRATION PERFORMANCE CHARACTERISTICS OF V-BANK ELECTRET DEPTH FILTER MODULE FOR REMOVAL OF NANOPARTICLES FOR APPLICATION OF NANO-PRODUCT MANUFACTURING INDUSTRIES | 1204 |
| BENCHMARKING OF SOLID WASTE MANAGEMENT IN SOUTH EAST EUROPE | 1205 |
| THE MANAGEMENT OF HYGIENE AND CLEANING PRODUCTS PACKAGING WASTE | 1207 |
| CORN FORAGE TREATMENT BY T. VERSICOLOR IN A TRAY BIOREACTOR..... | 1208 |
| WASTE MANAGEMENT DECISION SUPPORT MODELS AND CASE STUDIES (MFA AND LCA MODELS) | 1209 |
| WASTE AND RESOURCE MANAGEMENT: THE SINK APPROACH OF CANTON ZURICH..... | 1210 |
| QUANTIFYING PLASTIC FLOWS AND PROCESSES IN AUSTRIA | 1226 |
| ENVIRONMENTAL IMPACT OF A CONVENTIONAL LEATHER CHILD'S SHOE COMPARED TO AN ECO-FRIENDLY ONE | 1236 |
| LMDI ANALYSIS OF MUNICIPAL WASTE GENERATION AND MANAGEMENT IN 21 CROATIAN COUNTIES | 1244 |
| DESIGN FOR INCLUSIVITY: PLANNING AND DESIGN FACTORS TO FACILITATE INFORMAL INTEGRATION IN SUSTAINABLE MATERIALS MANAGEMENT | 1263 |
| ASSESSING VALUE CHAIN PERFORMANCE IN A CIRCULAR ECONOMY..... | 1264 |
| A DECISION SUPPORT SYSTEM TO EMPOWER LOCAL AUTHORITIES IN WASTE MANAGEMENT AND FOSTER THE TRANSITION TOWARDS A CIRCULAR ECONOMY | 1266 |
| COMPARATIVE GREENHOUSE GAS EMISSION AND ENERGY ASSESSMENT OF MUNICIPAL WASTE MANAGEMENT SCENARIOS FOR THE CITIES OF BRASILIA AND SAO PAULO, BRAZIL | 1268 |
| ECO-EFFICIENCY ASSESSMENT AND RETROFIT OF FOOD WASTE MANAGEMENT OPTIONS COMBINING DATA ENVELOPMENT ANALYSIS AND LIFE CYCLE ASSESSMENT..... | 1270 |
| GENERAL APPROACHES TO THE CHOICE OF OIL AND GAS DRILLING WASTE MANAGEMENT TECHNOLOGIES | 1271 |
| FROM WASTE TO RESOURCE MANAGEMENT – CLOSING THE LOOP IN WASTE MANAGEMENT SYSTEM | 1272 |
| LIFE CYCLE ASSESSMENT OF FERROUS FOUNDRY PRODUCTS: IMPACT OF SECONDARY SAND RECLAMATION | 1274 |
| SELECTING APPROPRIATE ORGANIC WASTE TREATMENT OPTIONS IN THE PHILIPPINES..... | 1275 |
| EVALUATION OF ENVIRONMENTAL PERFORMANCE OF VALORIZING FOOD WASTE TO BIOGAS FOR DIFFERENT ENERGY USES IN HONG KONG USING BIN-TO-CRADLE LCA | 1276 |
| DEVELOPMENT OF A COMPREHENSIVE DECISION SUPPORT TOOL (FLAMINCO) FOR ENHANCED LANDFILL MANAGEMENT AND MINING (ELFM ²)..... | 1285 |
| WASTE MANAGEMENT IN DEVELOPING COUNTRIES | 1306 |
| WASTE-TO-ENERGY: DEVELOPING A FRAMEWORK FOR DECISION MAKERS..... | 1307 |
| CHOOSING THE MOST SUITABLE URBAN WASTE DISPOSAL SYSTEM WITH ENERGY RECOVERY APPROACH THROUGH LIFE CYCLE ASSESSMENT | 1320 |
| GEOPHYSICAL INVESTIGATIONS AT MUNICIPAL SOLID WASTE LANDFILL JAKUŠEVAC | 1336 |
| REVIEW AND OUTLOOK OF MUNICIPAL SOLID WASTE MANAGEMENT IN CHINA | 1347 |
| DEMOLITION WASTE IN DEVELOPING COUNTRIES AND THE RELATIONSHIP WITH THE CARBON FOOTPRINT AND ENERGY EFFICIENCY | 1355 |
| QUANTITATIVE OPTION ANALYSIS FOR IMPLEMENTATION AND MANAGEMENT OF LANDFILLS..... | 1371 |
| ANALYSIS OF THE SOLID WASTE MANAGEMENT MARKET IN THE MIDDLE EAST – A METHODOLOGICAL APPROACH..... | 1372 |
| WASTE MANAGEMENT IN CIRCULAR ECONOMY TIME..... | 1373 |

PETROCHEMICAL SLUDGE TREATMENT: OPTIMIZATION OF THE THERMAL DESORPTION PROCESS TO OPTIMIZE THE TREATMENT COST AND MINIMIZE ENVIRONMENTAL IMPACT 1042

CONTRIBUTION TO UNDERSTANDING THE CHLORINE TRANSFORMATION IN CEMENT PRODUCTION PROCESS 1048

ENERGY RECOVERY OF SOLID RECOVERED FUELS (SRF) IN THE INTERNATIONAL CEMENT INDUSTRY..... 1049

WASTE COLLECTION SYSTEMS 1050

SEPARATE COLLECTION OF RECYCLABLES IN HELSINKI FINLAND..... 1051

SEPARATE COLLECTION IN EMERGING COUNTRIES: QUANTITATIVE AND QUALITATIVE DATA OBTAINED FROM PILOT PROJECTS FOR SEPARATE COLLECTION OF HOUSEHOLD WASTE IN SANTIAGO DE CHILE – DIFFICULTIES, LESSONS LEARNED AND RECOMMENDATIONS 1058

URBAN WASTE MANAGEMENT SYSTEMS..... 1074

METHODOLOGY FOR WASTE COLLECTION IN RURAL AREAS: EXPERIENCES FROM PROJECT "SOLID WASTE MANAGEMENT IN CROSS-BORDER RURAL AND COASTAL AREAS OF SOUTH EASTERN EUROPEAN REGION" 1088

STORAGE OF RESIDUAL WASTE BEFORE COLLECTION 1090

MULTI-MATERIAL BINS – A NEW APPROACH FOR EXTENDED RECYCLING OF HOUSEHOLD WASTE 1092

BASIC INFORMATION ON INFORMAL WASTE COLLECTION FOR MULTI-STAKEHOLDER COOPERATION IN SERBIA 1099

WASTE MANAGEMENT AND RESEARCH SPECIAL ISSUE (WM & R) 1101

TOWARDS MORE SUSTAINABLE MANAGEMENT OF EUROPEAN FOOD WASTE: METHODOLOGICAL APPROACH AND NUMERICAL APPLICATION..... 1102

SUSTAINABILITY ASSESSMENT AND COMPARISON OF WASTE MANAGEMENT SYSTEMS: THE CITY OF SOFIA AND NIŠ CASE STUDIES 1103

RESULTS OF FIBRE AND TONER FLOTATION DEPENDING ON OLEIC ACID DOSAGE 1104

FINANCIAL IMPLICATIONS OF COMPLIANCE WITH EU WASTE MANAGEMENT GOALS: FEASIBILITY AND CONSEQUENCES IN TRANSITION COUNTRY 1105

MINI-REVIEW OF THE MECHANICAL PARAMETERS OF MUNICIPAL SOLID WASTE: PRE-TREATED VS. POST-TREATED WASTE..... 1106

FROM COLLISION TO COLLABORATION: FACILITATING INCLUSIVE RE-USE AND RECYCLING IN THE EUROPEAN UNION AND ACCESSION COUNTRIES..... 1107

FROM COLLISION TO COLLABORATION WASTE PYROLYSIS..... 1108

WASTE FLOW ANALYSIS AND LCA OF INTEGRATED WASTE MANAGEMENT SYSTEMS AS PLANNING TOOLS: APPLICATION TO OPTIMIZE THE SYSTEM OF THE CITY OF BOLOGNA 1109

RESOURCE RECOVERY FROM WASTE BY ROMA IN THE BALKANS: A CASE STUDY FROM ZAVIDOVICI (BIH) . 1111

SEROPREVALENCE OF HEPATITIS B AND C AMONG DOMESTIC AND HEALTHCARE WASTE HANDLERS IN BELO HORIZONTE, BRAZIL..... 1112

WASTE MANAGEMENT CASE STUDIES 1113

ECONOMIC AND ENVIRONMENTAL BENEFITS OF LANDFILL GAS UTILIZATION IN OMAN 1114

SUSTAINABLE CONSTRUCTION AND DEMOLITION WASTE MANAGEMENT IN BUENOS AIRES CITY, ARGENTINA 1124

HOAX BUSTING CONCERNING WASTE-TO-ENERGY PLANTS FOR EMERGING COUNTRIES! 1138

THE DEVELOPMENT OF MODERN WASTE MANAGEMENT IN A STAGE MODEL..... 1151

INTELLIGENT DISASSEMBLY OF COMPONENTS FROM PRINTED CIRCUIT BOARDS TO ENABLE RE-USE AND MORE EFFICIENT RECOVERY OF CRITICAL METALS..... 1153

TERMS OF REFERENCE FOR THE ISWA GRANT PROJECT— ADDRESSING BARRIERS FOR THE INTRODUCTION OF CIRCULAR ECONOMY AND SUSTAINABLE RESOURCE MANAGEMENT (FORMER BUSINESS MODELS FOR THE CIRCULAR ECONOMY) 1167

LANDFILL MINING CAUSED BY FLOOD PROTECTION: DISMANTLING AND REMOVAL OF A FORMER DUMPSITE 1172

AGRICULTURE PRODUCE SURPLUS MANAGEMENT – REDUCTION OF WASTE, MEANS TO SUSTAINABILITY AND FOOD SECURITY 1176

INTEGRATIVE MODEL OF POLITICAL AND INSTITUTIONAL COMPROMISE FOR THE EFFECTIVE IMPLEMENTATION OF THE GIRSU PROGRAMS (COMPREHENSIVE MANAGEMENT OF URBAN SOLID WASTE) 1178

MOVING FROM CURRENT SOLID WASTE MANAGEMENT PRACTICES IN THE WESTERN BALKANS TO EU STANDARDS: ROADMAPS FROM A EUROPEAN COMMISSION STUDY 1180

| | |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|
| TWO-STEP BIOLEACHING OF COPPER AND GOLD FROM DISCARDED PRINTED CIRCUIT BOARDS (PCB)..... | 1515 |
| MUNICIPAL SOLID WASTE CHARACTERISTICS AND SUITABILITY FOR TREATMENTS: CASE STUDY IN PHNOM PENH CITY, CAMBODIA..... | 1517 |
| SIMPLIFIED EQUILIBRIUM MODEL FOR WASTE AND REFUSE DERIVED FUEL GASIFICATION | 1530 |
| COMPETITION AMONG PRODUCER RESPONSIBILITY ORGANISATIONS AND ROLE OF MUNICIPALITIES – CASE STUDY OF EXTENDED PRODUCER RESPONSIBILITY SYSTEMS FOR HOUSEHOLD PACKAGING | 1545 |
| SIMULATION OF LANDFILL GASES DISPERSION INTO ATMOSPHERE | 1560 |
| HISTORY OF USING ASBESTOS – SPECIAL EMPHASIS ON SERBIA | 1569 |
| EVALUATION OF KEY DRIVER CATEGORIES INFLUENCING SUSTAINABLE WASTE MANAGEMENT DEVELOPMENT WITH ANALYTIC HIERARCHY PROCESS (AHP): APPLICATION TO SOUTH EAST EUROPE (SEE) COUNTRIES..... | 1582 |
| DIFFERENT APPROACHES FOR MODELLING RECYCLING IN LCA: EXAMPLE WITH ALUMINIUM | 1583 |
| CIRCULAR ECONOMY ACTIONS: LIFE CYCLE ASSESSMENT OF PLASTIC PACKAGING WASTE..... | 1591 |
| USE OF OPTICAL FIBRE SENSOR FOR MONITORING OF LEACHATE AND GROUNDWATER SAMPLES ON MSW LANDFILL | 1592 |
| LEVERAGING TECHNOLOGY IN SOLVING WASTE MISMANAGEMENT THROUGH DEVELOPING A HUMAN-CENTERED MOBILE APPLICATION..... | 1599 |
| THE APPLICATION OF THE METHODOLOGY FOR DETERMINATION OF THE MSW QUANTITY AND COMPOSITION IN SOUTH EASTERN EUROPEAN COUNTRIES..... | 1600 |
| GRAVIMETRIC CHARACTERIZATION OF MUNICIPAL SOLID WASTE IN THE FORMER DUMP OF THE MUNICIPALITY OF MAIRINQUE, SÃO PAULO | 1601 |
| CHARACTERISTICS OF THE MORTARS OBTAINED BY RADIOACTIVE RECYCLED SAND..... | 1602 |
| CO-PROCESSING – THE OPTIMUM WAY OF RECOVERING ENERGY AND MATERIAL FROM WASTE..... | 1604 |
| FEASIBILITY OF UTILIZING RECYCLED GLASS AS A CONCRETE AGGREGATE | 1618 |
| ENVIRONMENTAL IMPACT OF HYGIENE AND CLEANING PRODUCTS PACKAGING WASTE..... | 1619 |
| CENTAR ZA GOSPODARENJE OTPADOM - KAŠTIJUN..... | 1620 |
| OPTIMIZATION OF THE MONITORING OF LANDFILL GAS AND LEACHATE IN CLOSED METHANOGENIC LANDFILLS..... | 1621 |
| WASTE COMPOSITION MONITORING AND REPORTING IN MACEDONIA | 1622 |
| POSSIBILITIES FOR LOW-COST TREATMENT OF SLUDGE REMAINED AFTER DYE DEGRADATION - BY USING ZEOLITE AND LIME | 1623 |
| THERMAL TREATMENT OF MUNICIPAL SOLID WASTE INCINERATION FLY ASH | 1637 |
| VOC IN MUNICIPAL WASTE LANDFILL..... | 1651 |
| WASTE AS THE CROSSCUTTING ISSUE OF SDGs | 1658 |
| REMEDIATION OF SOIL CONTAMINATED WITH METALLIC MERCURY, USING AMALGAMATION TECHNIQUES, ON A LABORATORY SCALE | 1670 |
| ENVIRONMENTAL EVALUATION OF SAREIN URBAN LANDFILL SITE USING OLECKNO, BRITISH COLUMBIA AND THE IRAN'S EPA INDEXES | 1671 |
| WASTE MANAGEMENT SYSTEM IN HUNGARY – THE ROLE OF THE NATIONAL WASTE MANAGEMENT DIRECTORATE | 1686 |
| THE CONCEPT OF END-OF-WASTE CRITERIA OF THE EU WASTE FRAMEWORK DIRECTIVE: STATUS AND DEVELOPMENTS..... | 1689 |
| THE IMPLEMENTATION OF EU MINING WASTE DIRECTIVE 2006/21/EC IN THE EU-28..... | 1690 |
| ANALYSING THE WASTE MANAGEMENT PRIORITIES FOR THE CITY OF CLUJ- NAPOCA, ROMANIA, USING THE WASTE-AWARE BENCHMARK INDICATORS | 1692 |
| WEEE WITH INTEGRATED ACCUMULATORS: NEW CHALLENGE FOR WASTE MANAGEMENT | 1708 |
| FEATURES OF MUNICIPAL WASTE MANAGEMENT IN SMALL SETTLEMENTS IN THE RUSSIAN NORTH | 1709 |
| CALCULATING THE COSTS OF WASTE COLLECTION: A METHODOLOGICAL PROPOSAL | 1710 |
| ASSESSING THE INFORMAL DIVERSION OF ALUMINIUM BEVERAGE CANS IN SELECTED EASTERN EUROPEAN CITIES..... | 1728 |
| FIRE RETARDANT EFFICIENCY OF WASTE MAGNESIA POWDER IN CELLULOSE INSULATION..... | 1740 |
| NUTRIENTS RECOVERY FROM DEHYDRATED FOOD WASTE AND ITS POTENTIAL AS A SOIL ORGANIC AMENDMENT | 1741 |
| REGULATING E-WASTE MANAGEMENT: THE EUROPEAN EXPERIENCE AS A GUIDELINE TO BRAZIL? | 1742 |
| RESOURCE RECOVERY FROM MUNICIPAL SOLID WASTE MANAGEMENT IN NIGERIA | 1753 |

JABALPUR – THE FIRST ENERGY-FROM-WASTE PLANT IN ONE OF THE MAJOR CITIES OF THE MADHYA PRADESH STATE IN INDIA 1374

ENVIRONMENTAL AND SOCIAL APPRAISAL AND DUE DILIGENCE OF SOLID WASTE MANAGEMENT PROJECTS IN TRANSITION COUNTRIES..... 1376

MUNICIPAL SOLID WASTE TRACEABILITY IN THE LIGHT OF CIRCULAR ECONOMY 1377

ENERGY VS GREENHOUSE GASES EMISSION FROM LANDFILLS IN SERBIA..... 1379

MANAGING WASTE IN INDIAN MEGACITIES – EXAMPLES OF ALTERNATIVES TO TRADITIONAL WASTE MANAGEMENT PRACTICES 1380

ASSESSMENT OF ECONOMIC INSTRUMENTS FOR COUNTRIES WITH LOW MUNICIPAL WASTE MANAGEMENT PERFORMANCE – AN APPROACH BASED ON THE ANALYTIC HIERARCHY PROCESS 1382

WHAT IS COMING ABOUT COLOMBIA’S WASTE MANAGEMENT?..... 1383

WASTE MANAGEMENT IN DEVELOPING AND TRANSITION COUNTRIES..... 1385

MUNICIPAL WASTE MANAGEMENT IN EMERGENCIES: LESSONS LEARNED FROM SYRIA AND YEMEN 1387

ECONOMIC ASPECTS OF WTE PLANTS IN DEVELOPING AND TRANSITION COUNTRIES: THE BRAZILIAN PERSPECTIVE 1388

REGIONAL MODEL FOR PHARMACEUTICAL WASTE MANAGEMENT BASED ON THE ATC CLASSIFICATION.. 1389

BANANA PLANTATIONS AND THEIR PLASTICS 1391

THE POZNAN PUBLIC-PRIVATE PARTNERSHIP: AN EXAMPLE OF STRUCTURING AND FINANCING AN ENERGY-FROM-WASTE PROJECT IN CEE COUNTRIES 1393

THE PERSPECTIVE OF WTE DEVELOPMENT IN UKRAINE 1395

FISHING IN THE SEWAGE: FISHERY MODELS AND SANITATION IN BRAZIL..... 1397

A CREATIVE SOLUTION TO E-WASTE MANAGEMENT IN DEVELOPING COUNTRIES 1398

EPR MODEL FOR AZERBAIJAN 1399

WASTE MANAGEMENT IN EMERGING COUNTRIES: INTEGRATED WASTE RECOVERY TO INCREASE VALUE CREATION, FOSTER SOCIAL INCLUSION AND PROTECT THE ENVIRONMENT. 1414

WEE, HAZARDOUS AND SPECIAL WASTE STREAM MANAGEMENT 1421

SUPPORT FOR E-WASTE RECYCLERS..... 1422

CRITICAL RAW MATERIALS CLOSED LOOP RECOVERY..... 1430

SELECTIVE CRUSHING FOR RECYCLING WASTE TONER CARTRIDGE..... 1444

CONSTRUCTION AND DEMOLITION WASTE MANAGEMENT -MINIMIZATION AND REUSE 1453

INFORMAL RECYCLING OF E-WASTE IN IDNHA (WEST BANK - PALESTINIAN TERRITORY): AN ENVIRONMENTAL, ECONOMIC AND SOCIAL ANALYSIS OF A CASE STUDY 1466

CRITICAL MATERIALS AND CIRCULAR ECONOMY – WHAT ARE THE CRITICAL STAGES FOR THE SUSTAINABLE VALUE CHAIN OF WEEE 1476

POSTERS 1477

REGISTERING AND BENCHMARKING INCLUSIVE RECYCLING USING THE MARCOLOMBIA SYSTEM: REAL DATA ON THE PERFORMANCE OF ORGANISED INFORMAL RECYCLING..... 1478

THE REGIONAL „PIGGYBACK” LANDFILL AND SUSTAINABLE WASTE MANAGEMENT IN THE CITY OF SZEGED – HUNGARY 1479

A PREDICTIVE TRANSPORT MODEL FOR ACTIVE LANDFILLS IN LAGOS..... 1481

A CLUSTER-BASED OPTIMAL MODEL FOR SOLID WASTE COLLECTION IN URBAN RESIDENTIAL AREAS 1482

SETTING UP MUNICIPAL LOCAL ACTION PLANS FOR WASTE MANAGEMENT INVOLVING THE USE OF ICT TOOLS 1483

CLOSING THE LOOP IN WASTE TONER RECYCLING PROCESS 1484

COMPOSTING OF FINE FRACTION AFTER MECHANICAL - BIOLOGICAL TREATMENT OF MUNICIPAL SOLID WASTE 1485

EFFECTIVENESS OF METAL SEPARATION IN WEEE MECHANICAL TREATMENTS..... 1486

PROPOSED MODEL FOR MANAGEMENT OF HAZARDOUS HOUSEHOLD WASTE – THE SECOND STEP 1487

IMPROVING SOLID WASTE REDUCTION PROGRAMS BY PREDICTING WASTE PREVENTION BEHAVIOUR 1496

SEEKING THE THREE PILLARS OF SUSTAINABILITY: LIFE CYCLE SUSTAINABILITY ASSESSMENT AS DECISION SUPPORT TOOL FOR CONCRETE RECYCLING SYSTEM 1497

COMBINING GIS, MULTI-CRITERIA EVALUATION AND MONETARY BASED TECHNIQUES IN SELECTION OF MUNICIPAL SOLID WASTE LANDFILLS..... 1499

DETERMINATION OF POLLUTANT PARAMETERS IN SANITARY LANDFILL LEACHATE AND SURROUNDING GROUNDWATER

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Abstract

Potential significant environmental impact of landfill leachate migration is pollution of soil, groundwater and surface waters. Hence leachate analysis and monitoring of groundwater quality are important indicators of potentially altered environmental quality. The main objective of the study was determination whether the sanitary landfill in Serbia has a measurable impact on groundwater and soil quality. We presented physico-chemical analysis results for groundwater (four facilities/ piezometers P1, P2, P3, P4) and wastewater samples (leachate collection pool and settling tank). All ground water samples had pH in range 7.1-8.3, chemical oxygen demand (COD) 39-108 mg O₂/l, total organic carbon concentrations (TOC) 4.9-21.2 mg C/l. Metals, whose concentrations are statutory in R. Serbia in terms of remediation value and values that may indicate a significant contamination were quantified. In groundwater samples, concentrations of examined metals generally were below detection limit. For P2 and P3 piezometers, As and Cr concentrations were above the regulatory limit (>60 µg/l and >30 µg/l, respectively). Obtained results show that Ba²⁺ was the most abundant metal present in all groundwater samples (7.5-157 µg/l), although in concentration range below regulatory limits. Waste water samples pH was in range 7.2-8.9, COD 168-5563 mg O₂/l. TOC concentration was in range of 13 to over 1000 mg C/l. In waste water samples, only Cu, Cr and As concentrations were above regulatory limits. In leachate collection pool Cu concentration in two from six samples is above regulatory limit (>75 µg/l), as well as Cr concentration in all six samples (>30 µg/l). As concentration in leachate collection pool in five of six samples was above regulatory limit (>60 µg/l). In waste water samples from settling tank As concentration in one of four samples was above regulatory limit. The obtained results indicate good water quality from piezometers that surround sanitary municipal landfill and suggest the absence of high risks for contamination of soil, surface and ground water.

Keywords: Sanitary landfill, leachate composition, groundwater

ADAPTABILITY OF BIO-DRYING TECHNOLOGY FOR REDUCING LANDFILL LOAD AND INCREASING SRF
PRODUCTION QUANTITY AS ENERGY RECOVERY IN SOUTH KOREA 1754
WASTE ELECTRIC AND ELECTRONIC EQUIPMENT IN GREECE: AN OVERVIEW AND THE IMPACT OF THE ECONOMIC CRISIS 1755
A FEASIBILITY STUDY INTO THE BIOPROCESSING OF COFFEE RESIDUES 1771
ENERGY RECOVERY FROM COMPOST VS. ANAEROBIC DIGESTION. 1772
THE ENERGY POTENTIAL OF BULKY WASTE GENERATED IN DAEJON, KOREA 1773
TREATMENT OF A MUD PIT BY BIOREMEDIATION 1774
THE BAUMGARTE EFW CONCEPT; THE EFFICIENT THERMAL TREATMENT PROCESS OF WASTE MATERIALS
..... 1775
PRIMARY WASTE COLLECTION MODELS AND INTEGRATION OF THE INFORMAL SECTOR 1776
FOOD WASTE RECOVERY WITH TAKAKURA PORTABLE COMPOST BOXES IN OFFICES AND WORKING PLACES
..... 1777
FATE OF ENDOGENOUS HEAVY METALS RELEASED FROM SUBSTRATE DURING ANAEROBIC DEGRADATION
..... 1784
ESTABLISHMENT MUNICIPAL WASTE MANAGEMENT SYSTEM IN PANCEVO 1786
IMPACT ASSESSMENT OF SANITARY LANDFILL ON SURROUNDING SURFACE WATER AND GROUND WATER
QUALITY 1787
DIFFUSION LEACHING TEST FOR ASSESSING THE RESISTANCE OF EAFD-FLY ASH/CLAY BASED GEOPOLYMER TO
ACID ATTACK 1801
REVIEW ON SUSTAINABLE INNOVATIVE SEPARATION TECHNIQUES FOR ENHANCED LANDFILL MINING (ELFM)
..... 1802
ASSESSMENT OF LEACHATES GENERATION ON SPECIFIC SANITARY LANDFILLS IN REPUBLIC OF SERBIA..... 1803
PROMOTION OF ENVIRONMENTAL BENEFITS BY THE INFORMAL WEEE RECYCLING IN BRAZIL: A REVIEW
BASED ON A CASE STUDY IN UBERABA, BRAZIL 1820
MICROBIOLOGICAL DIAGNOSIS OF SAFETY OF REMEDIATED LANDFILLS 1832
RIGHT CHOICE OF BIODEGRADABLE WASTE TREATMENT IN RESPONSE TO EU LANDFILL DIRECTIVE..... 1834
NOVEL TiO₂ COMBINING SPHERICAL ACTIVATED CARBON AND ITS VISIBLE LIGHT RESPONSIVE
PHOTOCATALYSIS DECOLORIZATION OF COMMERCIAL TEXBRITE DYES 1835
CATHODE RAY TUBE RECYCLING..... 1836
MFA AS A TOOL FOR EXPLORATION AND EVALUATION OF LANDFILL MINING - CASE STUDY OF NOVI SAD . 1845
EVOLUTION OF ANAEROBIC DIGESTION OF FOOD WASTE FROM MSW IN THE USA 1846
THE ROLE OF ENVIRONMENTAL LABELS AND CLAIMS TYPE II IN CIRCULAR ECONOMY DEVELOPMENT: THE STUDY OF REPUBLIC OF
SERBIA 1847
INVESTIGATION ON CHARACTERISTICS OF REGENERATED BLEACHING SOIL FROM USED MOTOR OIL REFINERY
PLANT 1848
APPLICATION OF STATISTICAL METHODS IN CREATING A MONITORING PROGRAMS OF GROUNDWATER AND
SURFACE WATER QUALITY AT MUNICIPAL SOLID WASTE LANDFILLS 1857
GC-MS SCREENING ANALYSES OF ORGANIC POLLUTANTS IN LANDFILL LEACHATE..... 1869
DETERMINATION OF POLLUTANT PARAMETERS IN SANITARY LANDFILL LEACHATE AND SURROUNDING
GROUNDWATER 1884
WASTE TREATMENT OPTIONS FOR THE CITY OF BELGRADE IN LINE WITH THE LOCAL WASTE MANAGEMENT
PLAN AS WELL AS NATIONAL WASTE MANAGEMENT STRATEGY IN SERBIA..... 1885
TEXTILE WASTE MANAGEMENT IN SERBIA, STATUS, PERSPECTIVES AND CHALLENGES 1886
WASTE GENERATION AND TREATMENT IN BREWING INDUSTRY..... 1887
PLASTIC PACKAGING WASTE RECYCLING IN SERBIA: TRENDS AND TECHNOLOGIES, SOCIAL AND ECONOMIC
IMPACT 1893
THE SOCIAL INDICATORS AS A BASIS FOR DEVELOPMENT OF HOUSEHOLDS HAZARDOUS WASTE
MANAGEMENT MODEL IN SERBIA..... 1894
COAL ASH MODIFICATION BY LIME AND CEMENT FOR REMOVAL OF Pb²⁺ AND Zn²⁺-IONS FROM AQUEOUS
SOLUTION 1903
GHG EMISSIONS OF BIOGAS PRODUCTION AND UTILIZATION – EVALUATION ACCORDING TO RENEWABLE
ENERGY DIRECTIVE 1904
TWO BIN MSW COLLECTION SYSTEM – OPPORTUNITIES AND BARRIERS 1905
COMPARISON OF FUEL PROPERTIES OF CROP RESIDUES AND MUNICIPAL SOLID WASTE FOR ENERGY
GENERATION 1906