

**18-20  
MAY 2021**

**ONLINE  
CONFERENCE**

Conference in English Language

**WASTE-TO-RESOURCES 2021**

# **9 INTERNATIONAL SYMPOSIUM MBT, MRF & RECYCLING**

**RESOURCES AND ENERGY FROM WASTE  
CONFERENCE, SEMINAR AND EXHIBITION**

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# WASTE-TO-RESOURCES 2021

## CONFERENCE AND EXHIBITION



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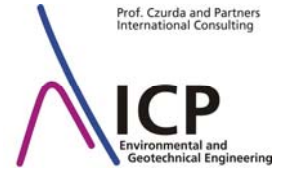
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WASTE MANAGEMENT WORLD®

# WASTE-TO-RESOURCES 2021

WEDNESDAY, 12<sup>TH</sup> OF MAY 2021



## INTRODUCTORY SEMINAR TO MECHANICAL-BIOLOGICAL TREATMENT

**LIVER:** 09.30 – 18:00 CET. Presenters: Dr. Matthias Kuehle-Weidemeier, Dr. Ludwig Streff

**ON DEMAND:** Recorded Stream 13th of May 0:00-24:00 CET

### SEMINAR TOPICS:

Selection of appropriate waste treatment technologies

Introduction, what is MBT, targets

MBT technologies and examples

- Mechanical treatment

- Biological treatment

  - Aerobic technologies

    - MBT prior to landfill

    - Biological drying for refuse derived fuel (RDF) production

  - Combined anaerobic-aerobic technologies

    - Partial flow dry digestion

    - Full flow dry digestion

    - Partial flow wet digestion

    - Full flow wet digestion

    - Percolation plants

- MBT related technologies

  - Wet mechanic separation technology

  - Mechanical-physical stabilisation

Quality supervision of the major solid MBT output fractions and MBT process control

- Taking representative samples, analytics, which parameters make sense?

  - Landfill material

  - RDF

Control of Gaseous emissions

- Emitted substances, variation of emissions during the process

- Encapsulation

- Air management

- Biofilter

- Regenerative thermal oxidation (RTO)

Practical experience with MBT in Germany

- History and legal background

- Results of an evaluation of all German MBTs in 2007

- Current situation

Landfilling of MBT output

Is agricultural application of MBT output a good solution?

MBT compared to other technologies

- Incineration

- Bioreactor landfill

Costs of MBT

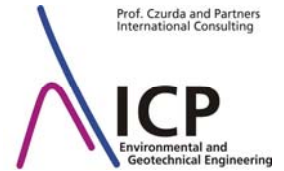
Adoption of MBT to the local situation





# WASTE-TO-RESOURCES 2021

TUESDAY, 18<sup>TH</sup> OF MAY 2021 – HALL 1



## 09:00 – 10:15 BLOCK 1

### WASTE MANAGEMENT AND ZERO WASTE STRATEGIES

1. Transitioning to a Zero Waste Society. *Peter S. Lobin, Seventh Generation Advisors, Santa Monica, United States*
2. Enhancing Waste Reduction, Reuse and Recycling by Behavior Change. *Y. Uttam Ramniklal, ADNOC Refining, Abu Dhabi, UAE*
3. Zero Plastic Waste Cities – Sustainable Municipal Waste Management Through Social Business. *Christina Jäger, Yunus Environment Hub GmbH, Wiesbaden, Germany*

## 10.45 – 12:00 BLOCK 2

4. Putting Zero Waste on the Map in the UK & Island of Ireland. *Jim Keys, Zero Waste North West, Derry, Northern Ireland*

### PRACTICAL EXPERIENCE AND NEW FACILITY CONCEPTS

5. Paris XVII Material-from-Waste Facility in Operation - Two Years After 2019 Presentation in WtR Hanover, the Operation Experience of Paris XVII Sorting & Recycling Facility, a Material-from-Waste Plant, by its Supplier and Operator. *M. Christophe Cord'homme, CNIM Group, Paris, France*

### PROCESSING AND RECOVERY OF ORGANIC WASTE FRACTIONS

6. Biogas From OFMSW in Mexico by Using BEKON Dry-Fermentation. *Dr.-Ing. Rolf Liebeneiner, BEKON GmbH, Germany*

## 13.30 – 14.45 BLOCK 3

7. Practical Implementation of Biological-oxidative Desulfurization of Biogas. *Dipl.-Ing. Alejandra Lenis, Research Institute for Water and Waste Management at RWTH Aachen University (FiW) e. V.*
8. Results for the Combined Biological Treatment of Landfill Leachate and Certain Process Waters from Anaerobic Digestion or Composting. *Astrid Rehorek, Metabolon Institute, Cologne University of Applied Sciences, Germany*

### MINERAL AND CONSTRUCTION WASTE

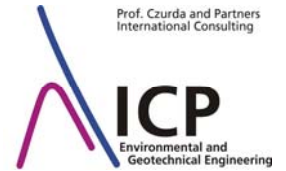
9. Management of Mineral Extraction Residues: Best Practices in Lombardy Region (Italy). *Alessandra Diotti, Alberto Clerici, Giovanni Plizzari, Sabrina Sorlini, Department of Civil Engineering, Architecture, Land, Environment and Mathematics, University of Brescia, Italy*

## 15.15 – 16:30 BLOCK 4

10. Building Material Management: System Change in Minnesota (USA) and Beyond. *Melissa Wenzel, Minnesota Pollution Control Agency, United States*
11. The Effect of Granular Correction of Dredged Sediments by Other Wastes on the Mechanical and Environmental Properties of Established Mixtures. *Zeinab Mkahal, Laboratory of Civil Engineering and Geo-Environmental, IMT-Lille-Douai, France*
12. Remediation of Dredged Sediments by Electrokinetic Process Prior to Their Beneficial Reuse. *Mathilde Betremieux, Laboratory of Civil Engineering and Geo-Environmental, IMT-Lille-Douai, France*

# WASTE-TO-RESOURCES 2021

TUESDAY, 18<sup>TH</sup> OF MAY 2021 – HALL 2



## 09:00 – 10:15 BLOCK 5

### WASTE MANAGEMENT IN ASIA

13. The Potentials of Waste-To-Energy Systems for Circular Economy: Quantitative Case Studies of Global Megacities. *Ph.D. Masahiko Haraguchi, Research Institute for Humanity and Nature, Kyoto, Japan*
14. Estimation of Resource Recovery Potential from Municipal Solid Waste (MSW) in Municipalities of Nepal. *Dhundi Raj Pathak, Engineering Study & Research Centre, Nepal, Center of Research for Environment Energy and Water (CREEW), Tribhuvan University, Kathmandu, Nepal*
15. Indonesia Waste Bank Transition and Transformational System: A Pathway of Circular Economy Development. *Ade Brian Mustafa, Masahiko Haraguchi, School of Environmental Science and Engineering, Shanghai Jiao Tong University, Shanghai, China*

## 10:45 – 12:00 BLOCK 6

16. Recycling Improvement as Part of PT. PPLi Landfill Survival Program. *Lely Fitriyani, PT. Prasadha Pamunah Limbah Industri, Nambo, Jawa Barat. Indonesia*
17. A Technical, Economical, and Environmental Comparison of Composting and Anaerobic Digestion of Organic Waste Fraction of Municipal Solid Waste in Sri Lanka. *W.A.M.A.N. Illankoon, S. Sorlini, Civil, Environmental, International Cooperation, and Mathematical Engineering, University of Brescia, Italy*
18. Separate Collection and Recycling of Waste as an Approach to Combat Marine Litter - WWF Pilot Project in the Mekong Delta, Vietnam. *Dr.-Ing. Wolfgang Pfaff-Simoneit, WPS Consult UG (limited liability), Darmstadt, Germany*

## 13:30 – 14:45 BLOCK 7

### WASTE MANAGEMENT IN EMERGING AND DEVELOPING COUNTRIES

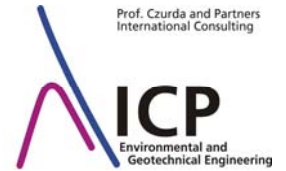
19. Solid Waste Management Decision Making for Developing Countries Through Life Cycle Assessment Tool: A State-of-the-Art Review. *Ketan V. Shah, Melanie L. Sattler, University of Texas at Arlington, USA*
20. Transitions in the Global South: Learning from the Failed Waste to Energy Initiative in Addis Ababa, Ethiopia. *Mathias N Bimir, Hong Kong University of Science and Technology, Hong Kong*
21. Plastic Waste in Kinshasa, DR Congo, as a Source of RDF. *J.M. Vaz<sup>1</sup>, A. Branha<sup>2</sup>, <sup>1</sup>Ecogestus, Lda., Figueira da Foz, Portugal, <sup>2</sup>CERNAS, Polytechnic Institute of Coimbra, Portugal*

## 15:15 – 16:05 BLOCK 8

22. Results from Large Scale MSW to RDF in Developing Countries – How Proper Waste Management Helps to Achieve the Intended Nationally Determined Contributions (INDCs) of Developing Countries. *Jan Gressmann, Eggersmann Anlagenbau Concept GmbH, Germany*
23. 10 years of National Waste Policy in Brazil: The Legacy of Technological and Market Approach. *Christiane Dias Pereira, Technische Universität Braunschweig, Germany*

# WASTE-TO-RESOURCES 2021

WEDNESDAY, 19<sup>TH</sup> OF MAY 2021 – HALL 1



## 09:00 – 10:15 BLOCK 9

### CONCEPTS AND DATA ON WASTE MANAGEMENT

24. New "Green Deal" - Potential for a Sustainable and Pollutant-Free Circular Economy? *Dr Beate Kummer, Kummer umwelt:kommunikation GmbH, Rheinbreitbach, Germany*
25. Less Waste, Less Landfilling, More Recycling. *Peter Hoffmeyer, Chairman of the Supervisory Board, Nehlsen AG, Bremen, Germany*
26. More Recycling and More Economical Recycling by Optimising Collection. *Dr. Clemens Pues, PreZero Germany KG, Porta Westfalica, Germany*

## 10:45 – 12:00 BLOCK 10

27. Material Flow Analysis of Materials for Reuse and Recycling in the Greater Dresden Area. *M. Sc. André Rückert, Institute for Waste and Recycling Management, TU-Dresden, Germany*
28. Zero Waste Cardboard Technology to Support Product Stewardship. *PhD Aharon Arakel, Pact Renewables Pty Ltd, Sydney, Australia*
29. Distributor Take-Back of Waste Electrical and Electronic Equipment - A Successful Model? *Dr Ralf Brüning, Dr Brüning Engineering UG (limited liability), Brake, Germany*

## 13:30 – 14:45 BLOCK 11

30. Remote Signature Simplifies the Electronic Waste Records Procedure eANV. *Alexander Marschall, Axians eWaste GmbH, Ulm, Germany*

### WASTE TECHNOLOGY

31. Contribution of Biological Residual and Waste Materials to the Bioeconomy - Presentation of a New Approach for the Treatment of Biological Residual and Waste Materials to Produce Bio-Based Materials. *Kyra Atessa Vogt, M.Eng. (Prof. Dr.-Ing. Iris Steinberg), Department of Civil and Environmental Engineering, University of Applied Sciences Darmstadt, Germany*
32. Alternative Fuels and How to Fail. *Dr. Hubert Baier, WhiteLabel-TandemProjects UG, Münster, Germany*

## 15.15 – 16:30 BLOCK 12

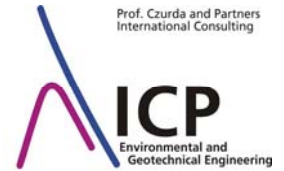
33. Organic Waste for the Production of Hard Carbons for Batteries - A Life Cycle Assessment Perspective. *Marcel Weil, Claudia R. Tomasini, Institute for Technology Assessment and Systems Analysis, Karlsruhe Institute of Technology, Karlsruhe, Germany*

### CIRCULAR ECONOMY DURING THE CORONA CRISIS

34. Waste Management Challenges in Romania During the COVID-19 Pandemic. *Florin-Constantin Mihai, Environmental Research Center "CERNESIM", University of Iasi, Romania*
35. Using Computer Vision to Strengthen Resilience of Waste Sorting Infrastructure During the Pandemic. *Victor Dewulf, Recycleye, London, England*

# WASTE-TO-RESOURCES 2021

WEDNESDAY, 19<sup>TH</sup> OF MAY 2021 – HALL 2



## 09:00 – 10:15 BLOCK 13

### WASTE MANAGEMENT IN WESTERN ASIA, MIDDLE EAST, BLACK SEA AND MEDITERRANEAN COUNTRIES

36. Households' Willingness to Pay for a Local Recycling Program: A Case Study from Lebanon. *Mary Abed Al Ahad<sup>1,2</sup>, PhD; Ali Chalak<sup>1</sup>, PhD; Souha Fares<sup>1</sup>, PhD; Rima R. Habib<sup>1</sup>, PhD* <sup>1</sup>American University of Beirut, Lebanon, <sup>2</sup>University of St Andrews, St Andrews, Fife, Scotland, United Kingdom
37. Sustainability Challenges in Solid Waste Management Services in Gaza Strip: Rafah City Case Study. *Samir Alnahhal, Samir Afifi, Institute of Water and Environment, Al Azhar University, Environment and Earth Science, Faculty of Science, Islamic University of Gaza, Gaza, Palestine*
38. Waste Prevention and Recycling Strategy for Tbilisi City, Georgia. *Virginie Herbst, Dr. Ludwig Streff, ICP Ingenieurgesellschaft Prof. Czurda & Partner mbH, Karlsruhe, Germany*

## 10:45 – 12:00 BLOCK 14

39. New Orientation of the Waste Management Strategy in Durban, South Africa as Contribution to the City's Ambition to Achieve Carbon Neutrality. *Dr.-Ing. Wolfgang Pfaff-Simoneit, WPS Consult UG (limited liability), Darmstadt, Germany*

40. Plastic Wastes as a Resource: Lebanese Experience. *Arwa A. ElZein, laceco, Beirut, Lebanon*

### SLAG RECOVERY (RECOVERY OF INCINERATOR BOTTOM ASH)

41. Grate-for-Riddlings - Improved Fine Slag Processing and Impact on the CO<sub>2</sub> Footprint of Waste Incineration. *Ivo Budde, Hitachi Zosen Inova AG, Zurich, Switzerland*

## 13:30 – 14:45 BLOCK 15

42. Technical Assessment of a Bottom Ash Treatment Plant - A Case Study. *K. Johnen, A. Feil, RWTH Aachen University, Department of Anthropogenic Material Cycles, Aachen, Germany*

43. Process Development to Improve Volumetric Stability of BOF Slag. *Mukund Manish, JSW Steel Limited, Karnataka, India*

### GEOMECHANICAL PROPERTIES OF MBT-OUTPUT

44. Settlement Characteristics of Saturated Mechanical Biological Treated Waste from Croatia. *Nikola Kaniški, Faculty of Geotechnical Engineering, University of Zagreb, Croatia*

## 15.15 – 16:30 BLOCK 16

45. Maximum and Minimum Void Ratio Characteristics of MBT Waste. *Nikola Hrnčić, Faculty of Geotechnical Engineering, University of Zagreb, Croatia*

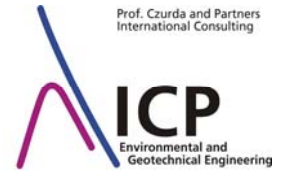
### WASTE MANAGEMENT AND RECOVERY FOR SELECTED TYPES OF WASTE

46. Innovative Concepts for Medical Waste Treatment - Case study: Decentralized Solutions in Cape Verde - Circularity in Medical Waste - Energy Recovery Approaches. *Aurora Rios Islas, BlackForest Solutions GmbH, Berlin, Germany*

47. Tools for the Development of an Optimal Management System for Agriculture Empty Containers. Case Study: Southwest of Buenos Aires Province, Argentina. *Antonela Elisa Sorichetti, Provincial Southwestern University, Buenos Aires, Argentina*

# WASTE-TO-RESOURCES 2021

THURSDAY, 20<sup>TH</sup> OF MAY 2021 – HALL 1



## 09:00 – 10:15 BLOCK 17

### PLASTIC WASTE

- 48.A Comparison of the Quality of Mechanically Recycled Plastics Made From Separately Collected and Mechanically Recovered Plastic Packaging Waste. *Dr. E.U. Thoden van Velzen, Wageningen Food & Biobased Research, The Netherlands*
- 49.Sorting of Film Mixtures to Increase the Recycling Rate. *Maria Schäfer (Peter Clemenz, Heinz Schnettler), Zittau/Görlitz University of Applied Sciences - Institute for Process Development, Peat and Natural Products Research (iTN), Germany.*
- 50.Conditioning of Plastic Fractions by Means of NIR Sorting to Reduce the Share of Thermal Recycling. *Anett Kupka Zittau/Görlitz University of Applied Sciences - Institute for Process Development, Peat and Natural Product Research (iTN), Germany*

## 10:45 – 12:00 BLOCK 18

51. Opportunities and Risks from the Amendment of the KrWG for Plastics in Earthworks and Civil Engineering. *L. Vollmert, H. Ehrenberg, M. Tazl, NAUE GmbH & Co. KG, Espelkamp-Fiestel, Germany*

### LIQUEFACTION AND CHEMICAL RECYCLING

52. Chemical recycling - 30 years of Research and Development - Status Today. *Reinhard Schu, Kirsten Schu, ume urban mining engineers, Göttingen, Germany*
53. Production of Liquid Raw Materials With the CARBOLIQ Process - First Experiences. *Dr Nicole Karpensky, Recenso GmbH, Remscheid, Germany*

## 13:30 – 14:45 BLOCK 19

54. System Integration of Methanol Synthesis From Combustion Exhaust Gases and Hydrogen in an Existing Waste Incineration Plant Using the Example of the Waste Incineration Plant in Bonn. *Carl Fritsch, Dr. Kristoffer Ooms, Alejandra Lenis, Research Institute for Water and Waste Management, RWTH, Aachen, Germany*

### HYDROGEN ECONOMY

55. Hydrogen From Waste. *Robert Bock, Plagazi AB, Bastad, Sweden. Bock Handelsvertretung GmbH, Oberndorf, Germany.*
56. Biomass Conversion and Hydrogen Production. *A. Kuhles, H. Kohler, GRENOL GmbH, Ratingen, Germany.*

## 15:15 – 16:30 BLOCK 20

57. Hydrogen From Biogenic Sources With Negative CO<sub>2</sub> Balance for Fuel Cell Waste Collection Vehicles. *Dr Jens Hanke, Graforce GmbH, Berlin, Germany*
58. Hydrogen Harvest Cycle - Waste Recycling by Removing Organic and Inorganic Pollutants From the Waste by Wet Mechanical Separation. *Reinhard Schu, Kirsten Schu, ume urban mining engineers, Göttingen, Germany*

### FIRE PROTECTION IN WASTE TREATMENT AND RECYCLING PLANTS

59. Why is Targeted Extinguishing Control the Better Solution? Prerequisites for Targeted Extinguishing Control Via Infrared Systems and the Technical Implementation in Practice. *Mark Müller, Orglmeister Infrarot-Systeme GmbH & Co.KG, Walluf, Germany*



# WASTE-TO-RESOURCES 2021

THURSDAY, 20<sup>TH</sup> OF MAY 2021 – HALL 2



## 09:00 – 10:15 BLOCK 21

### RECOVERY OF METALS

60. Sorting of Secondary Metals With LIBS. *Dr. Christian Bohling, Dr. Madlen Chao, SECOPTA analytics GmbH, Teltow, Germany*
61. Thermal Metal Recovery From Tertiary Waste. *Helmut Lugmayr, Kurt Bernegger, Christian Mlinar, Bernegger GmbH, Molln, Austria*
62. Spent Automotive Converters as a Secondary Resource of Platinum Group Metals. *Martyna Rzelewska-Piekut, P. Krawczyk, Z. Wiecka, M. Regel-Rosocka, Poznan University of Technology, Poznan, Poland*

## 10:45 – 12:00 BLOCK 22

63. Hydrometallurgical Recovery of Metal Ions from Spent Catalytic Converters. *Zuzanna Wiecka, Ewelina Łopińska, Martyna Rzelewska-Piekut, Magdalena Regel-Rosocka, Poznan University of Technology, Poznan, Poland*

### SEPARATION AND PROCESSING OF WASTE FRACTIONS

64. TURBOSEPARATOR - Machine for Unpacking (Cardboard/PET/Foils/Plastic/Preserves, Etc.). *Ferdinand Schmalholz, Umwelt Elektronik GmbH & Co. KG, Geislingen, Germany*
65. Separation of Debris and Bulk Materials in Free Fall. *Markus Eck, OptoSort GmbH, Austria, IAB Weimar, Germany*

## 13:30 – 14:45 BLOCK 23

### WET AND STEAM BASED PROCESSING

66. Clean Compost Out of Mixed Solid Waste. *Bruno Mattheeuws, Organic Waste Systems, Gent, Belgium*
67. No Fear of Water! Residual Waste From Separate Collection and Rejects From the Paper Industry: Recycling Instead of Expensive Disposal. *Dr. Matthias Kühle-Weidemeier, ICP Ingenieurgesellschaft, Karlsruhe, Germany*
68. Energy From Mixed Waste Without Separation and Sorting and Without Residual Waste. *Dipl.-Ing. Frank Riedel, Inter Engineering, Villingen, Germany*

## 15:15 – 17:00 BLOCK 24

### PYROLYSIS, PLASMA, GASIFICATION

69. Assessing Pyrolysis for the Recovery of the Composted Organic Fraction of the Municipal Solid Waste (OFMSW). *Jessica Graça BSc. MSc. PhD., Chemical Sciences Department, Dublin City University, Ireland*
70. Plastic Waste Pyrolysis. *Dr. Rinku Verma University of Agricultural sciences, GKVK, Bangalore, India*
71. Comparison of Three Gasification and Seven Biogas Plants for Energy Production from Organic Waste. *Osman Turkmen, TRL Group, London / Istanbul*
72. Perspectives on Waste to Energy Conversion by Microwave Plasma Gasification. *Prof. Dr. Melda Carpinlioğlu, Mechanical Engineering Department, University of Gaziantep, Turkey*

# WASTE-TO-RESOURCES 2021



## REGISTRATION:

Registration is done online at [www.waste-to-resources.eu](http://www.waste-to-resources.eu) or register directly by using the following link:

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Registration fees	€ net
MBT-Introductory Seminar – 12 May 2021	270,00
Congress card, regular, 3-day-ticket from 18 – 20 May 2021	450,00
Day ticket - Tuesday 18 May 2021	200,00
Day ticket - Wednesday 19 May 2021	200,00
Day ticket - Thursday 20 May 2021	200,00
Congress card, special price, 3-day-ticket 18 – 20 May 2021 Only for participants from: Africa, Asia, Latin America. Except: Japan, Korea, Russia, Singapore, Saudi Arabia, UAE, Kathar, Israel	350,00
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<b>Exhibition-booths (registration for exhibitors):</b>	
Exhibition fee incl. 1 attendant: (support persons have full conference access)	1650,00
Exhibition fee incl. 2 attendants: (attendants have full conference access)	2050,00
Exhibition fee incl. 3 attendants: (attendants have full conference access)	2400,00
Exhibition fee incl. 4 attendants: (attendants have full conference access)	2700,00

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