

The Thirtieth International Conference on Solid Waste Technology and Management

Philadelphia, PA, USA
March 15 – March 18, 2015

AGENDA

(updated March 5, 2015)

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- Dr. Joseph Akunna, University of Abertay Dundee, UK
- Ofira Ayalon, University of Haifa and Samuel Neaman Institute, Technion, Israel
- Giuseppe Bonifazi, Sapienza – Università di Roma, Italy
- Maria Cristina Borba Braga, Parana Federal University, Brazil
- Shoou-Yuh Chang, North Carolina A&T State University, USA
- Toru Furuichi, Hokkaido University, Japan
- Dr.(Mrs.) Kasturi Gadgil, I.I.T., Delhi (retired), India
- Ruby Mejía de Gutiérrez, Universidad del Valle (Cali), Colombia
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- Maria Liubarskaia, Saint-Petersburg State University of Economics, Baltic Academy for Tourism and Entrepreneurship, Russia
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- Ilan Nissim, Ministry of National Infrastructures, Energy and Water Resources, Israel
- Sara Ojeda-Benitez, Institute of Engineering, Autonomous University of Baja California, México
- Dr. Chukwu Onu, Southern University and A & M College, USA
- Professor Paul Phillips, University of Northampton, UK
- Dr. Eva Pongrácz, University of Oulu, Finland
- Prof. Krishna Reddy, University of Illinois at Chicago, USA
- Dr. Jerry E. Uhuo, National Assembly Abuja, Nigeria
- Anita Závodská, Barry University, USA

CONFERENCE SUMMARY

SUNDAY, MARCH 15, 2015

- Pre-Conference Tour of Philadelphia
- Professional Education Short Course 1
- Opening Reception

MONDAY, MARCH 16, 2015

Opening Plenary

Oral Presentations

- 1A Generation and Composition 1
- 1B Landfill 1
- 1C Organic Wastes
- 1D Policy

- 2A Recycling 1
- 2B Environmental Impacts
- 2C Energy Recovery 1
- 2D Waste Utilization in Construction 1

- 3A Economics
- 3B Hazardous Wastes
- 3C Landfill 2
- 3D Recycling Technologies

- 4A Case Studies 1
- 4B Geotechnical and Mining Advances
- 4C Industrial Wastes 1
- 4D Education and Analysis
- 4E Collection and Transport

Poster Session 1

TUESDAY, MARCH 17, 2015

Oral Presentations

- 5A Construction and Demolition Wastes
- 5B Energy Recovery 2
- 5C Generation and Composition 2
- 5D Biological Treatment

- 6A Agricultural Wastes
- 6B Medical Wastes
- 6C Waste Utilization in Construction 2
- 6D Environmental and Health Impacts

Poster Session 2

Professional Education Short Course 2, Part A

Oral Presentations

- 7A Case Studies 2
- 7B Ash
- 7C Waste Utilization in Construction 3
- 7D Industrial Wastes 2
- 7E Innovative Technologies

- 8A Case Studies 3
- 8B Recycling 2

Closing Reception

WEDNESDAY, MARCH 18, 2015

- Technical Field Trips
- Professional Education Short Course 2, Part B

DETAILED AGENDA

SUNDAY, MARCH 15

12:00 p.m. - 6:00 p.m.

Conference check-in and registration

1:00 p.m. - 5:00 p.m.

Guided Tour of Philadelphia: The tour will include the Liberty Bell, Independence Hall and the Betsy Ross house along with a bus tour of the city.
(additional fee)

1:00 p.m. - 5:00 p.m.

Professional Education Short Course 1: Resource Recovery- Material and Energy Utilization: The Swedish Experience as Example.

The course describes how society, higher education, researchers and government work together in Sweden to reach a sustainable future.

Introduction: Presentation of Swedish Centre for Resource Recovery, University of Borås; The importance of cooperation between University, Industry, Municipality and the City of Borås, common goals and development plans.

Part 1: Source separation and waste collection solutions from households and industry; Material recovery back to production industry to save energy and natural resources; Tools such as taxes, producer responsibility and refunding systems to promote material collection and purer incoming material stream; Examples of materials that are recovered to an extent of over 90% in Sweden, such as aluminum, glass, paper and PET; Waste to Energy, the final treatment of the combustible solid waste not suitable for material recovery.

Part 2: Organic waste from households, food industry, agriculture etc. - perfect sources for energy production; Potential and collection solutions; The Biogas process, development, and benefits.

Part 3: Waste Recovery in Borås- International partnerships.

Instructors:

Dr. Ilona Sárvári Horváth and Dr Anita Pettersson, University of Borås, The Swedish Centre for Resource Recovery, **Sweden.**

Professional Development Hours will be awarded to participants.
(additional fee)

5:00 p.m. - 6:00 p.m.

Welcome Reception

MONDAY, MARCH 16

8:00 a.m. - 5:30 p.m.

Conference check-in and registration

8:00 a.m. – 9:00 a.m.

Coffee

9:00 a.m. – 9:30 a.m.

Opening Plenary

Carbon Impacts of Waste Management

Research Needs for Carbon Footprint in Recycling Scenarios, *Lakshmi Raghupathy*, TERI University, **INDIA**

Sustainable SWM in Developing Countries Focusing on Two Faster Growing Economies, India And China, *Sadhan Kumar Ghosh*, Professor, Department of Mechanical Engineering, Jadavpur University, and President, International Society of Waste Management, Air and Water (ISWMAW), Kolkata, **India**

9:30 a.m. – 10:55 a.m.

Sessions 1

SESSION 1A

Generation and Composition 1

Mathematical Modeling for Predicting Generation of New York City Municipal Solid Waste (NYCMSW), *Masato Nakamura*, New York City College of Technology (City Tech), *Sharon Jones*, New York City College of Technology (City Tech), **USA**

Characterization of Municipal Solid Waste (MSW) Generated at the University of Ibadan, Ibadan, Nigeria, *Samuel Ihuoma*, Imo State Polytechnic, Umuagwo, Nigeria, *Damilola Omoyeni, Isaac Bamgboye*, **Nigeria**

Predicting the Accuracy of Curbside Waste Composition Studies, *Bruce Wilson*, University of New Brunswick, **Canada**

Waste Generation Rate from Household and Relevant Factors in Okayama City, Japan, *Yasuhiro Matsui*, Okayama University, *Le Hung Cao*, Vietnam Environment Administration, **Japan**

Determination of Factors Influencing Waste Generation and Composition at Institutions of Higher Education, *Lauren Crawford*, Widener University, *Derek Garbarino*, Widener University, *Terry Simpson*, Widener University, *Eric Smith*, Widener University, *Sean Turley*, Widener University, *Ronald L. Mersky*, Widener University, **USA**

SESSION 1B

Landfill 1

Unsaturated Behaviour of Waste Wood Ash Treated Lateritic Soil, *Kolawole Osinubi*, Ahmadu Bello University, *Johnson Oluremi*, *Ladoke Akintola University of Technology*, *Adrian Eberemu*, Ahmadu Bello University, **Nigeria**

Model of a Secure Landfill Using Abandoned Mine Pit; Technical and Economic Imperatives in Poor Developing Nations, *Michael A. Nwachukwu*, Federal University Of Technology Owerri, Nigeria, *Ijeoma M. Nwachukwu*, *Federal University Of Technology Owerri*, Nigeria, **Nigeria**

Landfill Final Cover and Management of Leachate Seeps below Final Cover, *Ali Khatami*, SCS Engineers, **USA**

A Review and Understanding of Existing Models to Predict Gas Production for Municipal Solid Waste (MSW) Landfills and Refined Method to Predict MSW Landfill Gas Production, *Vatsal Shah*, NJIT, *Hatch Mott MacDonald*, *Dorairaja Raghu*, NJIT, *Joseph Lifrieri*, Warren Pro Services, **USA**

Desiccation Induced Volumetric Shrinkage of Compacted Metakaolin Treated Black Cotton Soil for Use as Hydraulic Barrier System, *George Moses*, Nigerian Defense Academy, *Kolawole Osinubi*, Ahmadu Bello University, **Nigeria**

Integrated Numerical Methods for Remediation of 1,4-Dioxane-contaminated Groundwater at Kuwana Illegal Dumping Site in Japan, *Kazuei Ishi*, Hokkaido University, *Toru Furuichi*, Hokkaido University, *Yuto Okajim*, Hokkaido University, **Japan**

SESSION 1C

Organic Wastes

A Novel Approach to Food Waste To Energy Modeling in the US, *Matthew Franchetti*, University of Toledo, Toledo, OH 43606, **USA**

Brazilian Research in MSW Biogas: How Large Is It and How Far Has It Gone?, *Ruy Quadros*, Innovarelab, Unicamp, *Glícia Vieira dos Santos*, UFES, *André Neiva Tavares*, Innovarela, Dr. *Sergio Valdir Bajay*, **Brazil**

Options for Extracting Value from Municipal Organics, *Norma McDonald*, Organic Waste Systems, Inc., *Luc DeBaere*, *Organic Waste Systems, Inc.*, **USA**

A Comparative Studies on Composts Quality Phenomena in Municipal Soild Waste Compost to Agricultural Compost, *Shiddappa Lagamappa Belagali*, DOS in Environmetal Science, University of Mysore, *D C Shyamala*, *DOS in Environmental Science*, *University of Mysore*, **India**

Sustainable Bio-Waste Management in Finland through Cascade Use of Biomass, *Sari Piippo*, University of Oulu, *Eva Pongrácz*, University of Oulu, **Finland**

SESSION 1D

Policy

Industrial and Energy Policies for Biogas-Based Electricity from Municipal Solid Waste in Brazil, *Ruy Quadros*, Innovarelab, Unicamp, *André Neiva Tavares*, Innovarelab, *Glícia Vieira dos Santos*, UFES, *Dr. Sergio Valdir Bajay*, **Brazil**

Managing Solid Waste through Public/Private Partnership - A Way Out of Environmental Nuisance in Nigeria, *Olanrewaju Oladokun Adejo*, Olabisi Onabanjo University, Ago Iwoye, **Nigeria**

Reduction of Green House Gas Emission Associated with Effective Waste Mangement: Case of South Korea, *Yong-Chil Seo*, Yonsei University, *Jang-Soo Lee*, Yonsei University, *Won-Seok Yang*, Yonsei University, *Tai Gyu Lee*, **Republic of Korea**

Evolution of Waste Management Policies in India, *Lakshmi Raghupathy*, TERI University, **INDIA**

Kuwait Municipality Future Strategy for Utilization of Municipal Solid Waste, *Yousef Monawer*, Kuwait Municipality, *Mohammad Al-Sarawi*, Kuwait University, **Kuwait**

Call Your Solid Waste Authority: Project A.L.E.R.T (Assistance Lowering Environmental Rural Toxins) in West Virginia, *Barbara MacLennan*, West Virginia University, *Bridget Benson*, Marion County Solid Waste Authority, *Terry Ryan*, West Virginia University, *Bobbi Benson*, Marion County SWA; *Gabby Lively*, Marion County SWA; *Laura J. Stiller*, Reclaim Co., **United States**

10:55 a.m. - 11:15 a.m.

Break

11:15 a.m. – 1:10 p.m.

Sessions 2

SESSION 2A

Recycling 1

Workplace Waste Recycling Attitudes and Behaviour: A Meta-Analytic Review, *Adekunle Oke*, Robert Gordon University, **Scotland, UK**

Fractal Spatial Analysis: The Montreal Case Study, *Pierre-Alexandre Guillemette*, ÉTS, *Mathias*

Glaus, ÉTS, Robert Hausler, ÉTS, Canada

Sustainable Development and Recycling Systems in the Structural Industry in Kuwait, *Shaikha AlSanad, Kuwait Institute for Scientific Research, Ali Abdul-jaleel, Kuwait Institute for Scientific Research, Kuwait*

3Es Concept for Recycling Technologies, *Lakshmi Raghupathy, TERI University, INDIA*

SESSION 2B ***Environmental Impacts***

Effects Of Solid Waste Disposal On Human Being In The Landfill Sites Surrounding Agra City, *Sohail Ayub, Department of Civil Engineering . Z.H College of Engg. & Tech. AMU Aligarh, India*

Environmental Assessment of Flotation Deinking Processes, *Audrey Tanguy, Ecole des Mines de St-Etienne, Jonathan Villot, Ecole des Mines de St-Etienne, Valérie Laforest, Ecole des Mines de St-Etienne, France*

Air Pollution, *Raju Shrestha, Kathmandu Metropolitan City Office, Nepal*

Urbanization and Environment, *Prakash Khadka, Kathmandu Metropolitan City Office, Nepal*

Lack of Community Participation in Management of Garbage: Its Impacts on River Water, and Introduction of Rain Water Harvesting as an Alternative to Pipe Borne Water in Lautoka, Fiji Islands, *Ajantha Perera, Fiji National University, Fiji Islands*

Environmental Problems Associated with Solid Waste Disposal Practices, *Samali Marasinghe, Rajarata University of Sri Lanka, Sri Lanka*

Simultaneous Treatment for Utilization of Carbon Dioxide and Industrial Waste, *Min-Gu Lee, Yonsei university, Dongwoo Kang, Yonsei university, Hoyong Jo, Yonsei university, Yoonyoung Lee, Jinwon Park, South Korea*

SESSION 2C ***Energy Recovery 1***

The Potential for Waste-to-Energy at the US Naval Academy: A Case Study, *Patrick Caton, US Naval Academy, Joshua Schmidt, US Naval Academy, Christopher Adsit, US Naval Academy, Christopher Chase, Eric Bermudez, Timothy Kerner, USA*

Simultaneous Removal of PCDD/Fs and NOx from the Flue Gas of a Municipal Solid Waste Incinerator with a Pilot Plant, *Xiaolong Liu, Institute of Process Engineering, Chinese Academy*

of Sciences, *Jian Wang*, Institute of Process Engineering, Chinese Academy of Sciences, *Xue Wang*, Institute of Process Engineering, Chinese Academy of Sciences, *Tingyu Zhu*, **China**

Experimental Investigation of Ash Deposits on Convection Heating Surfaces of a CFB Municipal Solid Waste Incinerator, *Zhi Tang*, Key Laboratory of Energy Thermal Conversion and Control of Ministry of Education, School of Energy & Environment, Southeast University, *Xiaoping Chen*, Key Laboratory of Energy Thermal Conversion and Control of Ministry of Education, School of Energy & Environment, Southeast University, *Carlos E. Romero*, Energy Research Center, Lehigh University, *Zhonglin Zhang*, Key Laboratory of Energy Thermal Conversion and Control of Ministry of Education, School of Energy & Environment, Southeast University, *Wenguo Xiang*, Key Laboratory of Energy Thermal Conversion and Control of Ministry of Education, School of Energy & Environment, Southeast University, **China**

Pyrolysis Characteristics and Kinetics of Algal Biomass Using TGA/ DTA Analysis, *Jaya Prakash Dogle*, Osmania University, *Radha Kumari M*, CSIR-Indian Institute of Chemical Technology, *Satyavathi B*, CSIR-Indian Institute of Chemical Technology, **India**

Reactive Extraction of Microalgae for Biodiesel Production; an Optimization Study, *Hassan El Shimi*, Cairo University, *Nahed Attia*, National Research Center, *Shakinaz El Sheltawy*, Cairo University, *Guzine El Diwani*, **Egypt**

Overview of the Process Parameters and Product Characterisation of Co-Gasification of Coal and Plastics, *Monojit Chowdhury*, Chemical Engineering Department, Jadavpur University, *Monotosh Chowdhury*, Department of Energy Management, Indian Institute Of Social Welfare and Business Management, **India**

Performance Assessment of a Pilot Scale Water Scrubbing Based Packed Bed Absorption System for Biogas Upgradation at IIT Delhi, *Rimika Kapoor*, Indian Institute of Technology *Virendra Kumar Vijay*, Indian Institute of Technology, Subarao PMV, Indian Institute of Technology, **India**

Potential, Prospects and Perspectives of Upgraded Bottled Biogas for Transport and Cooking Applications in India, *Rimika Kapoor*, Indian Institute of Technology, *Virendra Kumar Vijay*, Indian Institute of Technology, Subarao PMV, Indian Institute of Technology, **India**

SESSION 2D

Waste Utilization in Construction 1

Strength Properties and Sulfate Resistance of Self-Compacting Concrete Incorporating Metakaolin, *Anhad Singh Gill*, Thapar University, *Rafat Siddique*, Thapar University, **India**

Experimental Study of a Clayey Soil with the Insertion of Crushed PET as a Reinforcement Material, *Nathalia dos Santos Lopes Louzada*, PUC-Rio, *Ingrid Milena Reyes Martínez*, PUC-Rio, *Michéle Dal Toé Casagrande*, PUC-Rio, *Lucas Mendes Repsold*, **Brazil**

Solid Waste (Ceramic Tiles) As A Replacement For Concrete Aggregate, *Shakeel Ahmad*, AMU Aligarh, *Rehan Ahmad Khan*, Department of Civil Engineering AMU Aligarh UP India, *Md Daniyal*, AMU Aligarh, **India**

Reuse Of Waste From The Ceramics Industry Rejects As Recycled Aggregates For The Manufacture Of Prestressed Concrete Elements, *Fernando L. Gayarre*, University of Oviedo, *Pedro J. Fernández Arias*, University of Oviedo, *Carlos Lopez-Colina*, University of Oviedo, *Dr. Miguel A. Serrano Lopez*, **Spain**

Cement Mortars with Textile Sludge and Wood Ash, *Ana Cecilia Vieira da Nóbrega*, Federal University of Pernambuco, *Wilma de Albuquerque Leloup*, Federal University of Pernambuco, *Érika Pinto Marinho*, Federal University of Pernambuco, *Antonio Eduardo Martinelli*, *Dulce Maria de Araújo Melo*, *Maria das Vitórias Vieira Almeida de Sá*, **Brazil**

Utilization of Copper Slag in Concrete Manufacturing, *Ravinder Kaur Sandhu*, Thapar University, **India**

Microscopy Analysis of Fired Bricks Containing Solid Wastes Generated from Energy-related Processes, *Lu-Ming Chen*, University of Illinois at Urbana-Champaign, *Mei-In Melissa Chou*, Illinois State Geological Survey, **USA**

1:10 p.m. - 2:00 p.m.

Awards Luncheon

Presentation of the Russell Ackoff Award, Roy F. Weston Award, Iraj Zandi Award and Student Paper Award

2:00 p.m. – 3:55 p.m.

Sessions 3

SESSION 3A

Economics

Results-Based Financing for Municipal Solid Waste, *Farouk Mollah Banna*, The World Bank Group, *Marcus Lee*, The World Bank Group, *Renee Yuet-Yee Ho*, The World Bank Group, *Perinaz Bhada-Tata*, *Yara Salem*, *Silpa Kaza*, **USA**

Linkage Model between Sustainable Consumption and Household Waste Management System, *NiLuh Widyaningsih*, University of Indonesia, **Indonesia**

Insight into Economies of Scale for Waste Packaging Sorting Plants, *Ciprian Cimpan*, University of Southern Denmark, *Anja Maul*, RWTH Aachen University, *Henrik Wenzel*, University of Southern Denmark, *Prof. Thomas Pretz*, **Denmark**

Economics of Solid Waste Management with Special Reference to India, *Maj. Dr M. Venkatramanan*, Dwaraka Doss Goverdhan Doss Vaishnav College, *Duraisamy Ramesh*, College, *Subbramanian Narayanan*, *D. G. Vaishnav College*, **India**

SESSION 3B

Hazardous Wastes

Synthesis of Graphene Oxide and Its Application for Efficient Removal of Fluoride from Water, *Syed Hadi Hasan*, Department of Chemistry, *Sweta Mohan*, Department of Chemistry, *Devendra Kumar Singh*, Department of Chemistry, *Vijay Kumar*, **India**

Desorption Kinetics of Polycyclic Aromatic Hydrocarbons (PAHs) From Contaminated Soil and the Effect of Biosurfactant Supplementation on the Rapidly Desorbing Fractions, *Fisseha Andualem Bezza*, University of Pretoria, *Evans M. Nkhalambayausi Chirwa*, University of Pretoria, **South Africa**

Biosurfactant Assisted Bioremediation of polycyclic aromatic hydrocarbons (PAHs) in Liquid Culture System and Substrate Interactivity Factors, *Fisseha Andualem Bezza*, University of Pretoria, *Evans M. Nkhalambayausi Chirwa*, University of Pretoria, **South Africa**

Lab Waste Management in Egypt, *Walaa Nagy*, Chloride Egypt S.A.E, *Hanem Sibak*, Faculty of Engineering, Cairo University, Chemical Engineering Department, *Shakinaz El Sherbiny*, Faculty of Engineering, Cairo University, Chemical Engineering Department, *Prof. Dr.*, *Shakinaz El Sheltawy*, Faculty of Engineering, Cairo University, Chemical Engineering Department, **Egypt**

SESSION 3C

Landfill 2

Optimum Stability Parameters of the Industrial Sanitary Landfill: A Case Study, *Hasan Firat Pulat*, Celal Bayar University, *Yeliz Yukselen-Aksoy*, Dokuz Eylul University , **Turkey**

Landfill Site Selection Using Multi Criteria Decision Analysis and Geospatial Techniques, *Saad Malik*, Institute of Space Technology, *Javeria Gabriel Arain*, Institute of Space Technology, **Pakistan**

Expanded Vermiculite And Zeolite Used As Adsorbents To Remove N-Nh3 From Landfill Leachate, *Patricia Arns Steiner Ferreira*, Parana Federal Univesity, *Natalia Costa Dias*, Parana Federal University, *Cristina Braga*, Parana Federal University, **Brazil**

Ammonium Nitrogen Removal From Landfill Leachate Using Fixed Bed Adsorption Columns, *Patricia Arns Steiner Ferreira*, Parana Federal University, *Crisitna Braga*, Parana Federal University, *Sergio Michelotto Braga*, Parana Federal University, *Natalia Costa Dias*, *Miguel Mansur Aisse*, *Agnes de Paula Scheer*, **Brazil**

SESSION 3D
Recycling Technologies

MSW Biodrying in the Czech Republic, *Libuše Benešová*, Charles University Prague, *Vojtěch Pílnáček*, Charles University Prague, *Dr. Anita Zavodska*, Barry University, **Czech Republic**

Comminution Characteristics Of Small Domestic Appliances By High-Speed Vertical Shredder, *Joonheon Lee*, Seoul National University, *Heechan Cho*, Seoul National University, *Kihong Kim*, Seoul National University, *Jeonghoon Ok*, *Daeyang Lee*, *Sookyung Kim*, **Korea**

Metal Oxide Varistor Leachate Purification via Cementation for Electrowinning of Zinc, *Toni Gutknecht*, Chalmers University of Technology, *Britt-Marie Steenari*, Chalmers University of Technology, **Sweden**

Research and Development of Equipment and Facilities For WEEE/E-Waste Management in Lagos, Nigeria, *Abdul Wahab Ogunbiyi*, Lagos State Government, Ministry of Works and Infrastructure, *Olasunkanmi Ojowuro*, Lagos State Government, Ministry of Physical Planning and Urban Development, Lagos, Nigeria, *Adeshola Openibo-Adebosin*, Lagos State Government, Ministry of Transportation, Lagos, Nigeria, *Engr Rasheed A. Ayeni*, **Nigeria**

3:55 p.m. - 4:15 p.m.

Break

4:15 p.m. – 6:30 p.m.

Sessions 4

SESSION 4A
Case Studies 1

Case Study of Solid Waste Management: 3R (Reduce, Reuse, and Recycle) at Karnataka State Women's University, Bijapur, Karnataka, India, *Meena Maithili Chandawarkar*, Karnataka State Women's University, **India**

Case Study: Sustainable Energy Management by a Local Agricultural Organization Through Implementation of Complete Rice Husk Recycling, *Masafumi Tateda*, Toyama Prefectural University, **Japan**

Status of Solid Waste Material Recovery (SWMR) In Benin Metropolis, Nigeria, *Dennis Iyeko Igbinomwanhia*, University of Benin, *Emmanuel Ehis Osolease*, University of Benin, **Nigeria**

Swachh Bharat Mission – a Paradigm Shift in Waste Management in India, *Sadhan Kumar Ghosh*, Jadavpur University & International Society of Waste Management, Air and Water, **India**

Increasing Waste Recycling on Campus: The Influence of Situational and Personal Factors, *Adekunle Oke*, Robert Gordon University, *Seonaidh McDonald*, Robert Gordon University, **Scotland, UK**

Change in Future Waste Management in Saint-Petersburg, *Donald J. Birnesser, P.E.*, BCEE, Consulting Engineer, *Dr. Maria A. Liubarskaia*, Professor, Saint-Petersburg State University of Economics, **USA and Russia**

Zoomlion Ghana Limited: Providing Practical Solutions to Address Africa's Waste and Sanitation Challenges, *Dr. Bob Offei Manteaw*, Director, Research Innovation and Development, Africa Institute of Sanitation and Waste Management and Zoomlion Ghana Limited, **Ghana**

SESSION 4B

Geotechnical and Mining Advances

Determination of Clay Barriers Hydraulic Conductivity Using a Centrifuge Permeameter, *Jai Jung*, University of Waterloo, *Mark Knight*, University of Waterloo, *Shayne Giles*, Dillon Consulting, *Robin Pernet*, **Canada**

Compressibility Behavior of Synthetic Fresh and Aged MSWs, *Hasan Firat Pulat*, Celal Bayar University, *Yeliz Yukselen-Aksoy*, Dokuz Eylul University, **Turkey**

Evaluation of Dynamic properties of Municipal Solid Waste Sites by Geophysical Tests, *Naveen B.P.*, Indian Institute Of Science, *Sitharam T.G.*, Indian Institute Of Science, *Sivapullaiah P.V.*, Indian Institute Of Science, **India**

Mine Closure Planning In Steeply Dipping Coal Deposits of Indonesia-A Case Study at PT.RSM-Bengkulu with Cost Benefit Analysis for Closure Management in Steeply Dipping Coal Deposits by Open Pit Method, *Rajendra Prasad Reddy Ailoni*, PT. Antang Gunung Meratus-Indonesia, *Rao Nalini Erra Maheswar*, PT. Megaops Technologies, *A.R.P.Reddy*, *E.M.Nalini*, **Indonesia**

Fresh And Strength Properties Of Low Calcium Fly Ash Based Geopolymers-Review, *Rafat Siddique*, Thapar University, *Ankur Mehta*, Thapar University, **India**

Application of Treated Waste Tire Chips Mixed with Flyash-Lime-Gypsum for Use of Ground Improvement, *S. P. Guleria*, Jawahar Lal Govt. Engg. College, Sundernagar, Mandi (Himachal Pradesh) India, *R. K. Dutta*, National Institute of Technology, Hamirpur, **India**

Production and Characterization of Biochars from Mixed Solid Organic Waste for Soil Amendment, *Mohamed Ahmedna*, Qatar University, *Rishipal Bansode*, 38 North Carolina A&T State University, *Osman Hassan*, NCA&T State University, *Precilla Randolph*, *Djaafar Rehrh*, **Qatar**

SESSION 4C

Industrial Wastes I

Qatalum's 1st Cut SPL; Treatment and Applications, *Omar Al-Jarod*, Qatar University, *Aboubakr M. Abdullah Ali*, Qatar University, *Mufeed Odeh*, Qatalum, *Chris Devadas*, Hydro, **Qatar**

Industrial Solid Waste Management in Greece: The Current Situation and Prospects for Valorization, *Erasmia Pantazopoulou*, Aristotle University of Thessaloniki, *Ourania Zebiliadou*, Aristotle University of Thessaloniki, *Georgios Bartzas*, National Technical University of Athens, *K. Komnitsas*, *A. Xenidis*, *A. Zouboulis*, **Greece**

Valuable products from waste generated by the textile industry, *Karel Kolomazník*, Tomas Bata University in Zlín, *Jiří Pecha*, Tomas Bata University in Zlín, *Michaela Bařinová*, Tomas Bata University in Zlín, *Josef Vácha*, **Czech Republic**

Predicted Free Settling Velocity of Spherical Non-Oily Palm Oil Mill Effluent Particles at Different Particle Sizes, *Reem Alrawi*, Dams and Water Resources Engineering Department/ Collage of Engineering/ Salahaddin University-Hawler, *Anees Ahmad*, 2Division of Industrial Chemistry, Department of Chemistry, Aligarh Muslim University, Aligarh, *Norli Ismail*, 3Environmental Technology Division, School of Industrial Technology, Universiti Sains Malaysia, *A. K. Mohd Omar*, **Iraq**

Management of ceramic waste materials, *Hanem Sibak*, Faculty of Engineering Cairo University, *Shakinaz El Sherbiny*, Faculty of Engineering Cairo University, *Shereen Amin*, The National research Center, *Magdi Abadir*, **Egypt**

Utilization of Copper Slag in Concrete Manufacturing, *Ravinder Kaur Sandhu*, Thapar University, **India**

Investigation of Magnetic Iron Dust (MID) for Its Applicability as Matrix for Immobilization of Laccase, *Jagdish Patel*, Charusat University, *Darshan H Patel*, *Rucha Desai*, *Sunil Shah*, *Piyush Chudasama*, *Nilofar Sodagar*, **India**

Synthesizing New Anodes from Qatalum's 1st Cut SPL, *Abdullah Holozadah*, Qatar University, *Aboubakr Abdullah*, Qatar University, *Mufeed Odeh*, Qatalum, *Chris A. Devadas*, **Qatar**

SESSION 4D

Education and Analysis

A Flipped Classroom Approach to Solid Waste Minimization for Engineering Undergraduate Students, *Matthew Franchetti*, University of Toledo, **USA**

Raising Waste Management Awareness in Nigerian Schools, *Suleiman Abba Suleiman*, Premier International School, Abuja, *Daniel O Alamu*, Premier International School, Abuja, *Odiase E Omo-Osagie*, Premier International School, Abuja, *Ruth Garba*, **Nigeria**

Improving Solid Waste Reduction Programs by Predicting Waste Prevention Behaviour, *Ana Paula Bortoleto*, State University of Campinas, **Brazil**

Bibliometric Study of the International Scientific Production on "Solid Waste Management", *Pedro Luiz Côrtes*, University of São Paulo, *António Guerner Dias*, University of Porto, **Brasil**

Strengthening Waste Management Education as a Strategy for Sustainable Environmental Protection: The Role of the Media, *Aloysius Nnaemeka Ezirim*, The Department of Animal and

Environmental Biology, Imo State University, **Nigeria**

Bibliometric Study of the International Scientific Production on "Solid Waste Management", *Pedro Luiz Côrtes*, University of São Paulo, *Antônio Guerner Dias*, University of Porto, **Brazil**

Solid Waste: STEM (Science, Technology, Engineering, and Math) for Everyday Life, *Barbara MacLennan*, West Virginia University, *Ronald Mersky*, Widener University, *Frank Lafone*, West Virginia University, *Jessica Brewer*, West Virginia Department of Geology & Geography, *Nathalie Sing-Corcoran*, WVU Writing Studio; *Erica Harvey*, Fairmont State University, *Terry Ryan*, West Virginia University, **United States**

SESSION 4E

Collection and Transport

Design of a Hierarchical Waste Collection System on the Landscape, *Audrey Tanguy*, Ecole de Technologie Supérieure, *Mathias Glaus*, Ecole de Technologie Supérieure, *Valérie Laforest*, Ecole des Mines de St-Etienne, *Jonathan Villot*, *Robert Hausler*, **Canada**

Driving The Waste Collection Routing Agenda: A Model for Determination of the Route Time by Simulating a Collection vehicle traveling in Greater Baku Area, Republic of Azerbaijan, *Faig Sadigov*, Ministry of Economy and Industry, **Republic of Azerbaijan**

Fleet Operations of the Private Sector Participant in the Management of Solid Waste in the New Lagos Megacity, *Samuel Odewumi*, Lagos State University, **Nigeria**

Vacuum-Based Automatic Solid Waste Collection Systems, *Paul Marttila*, MariMatic Inc., **USA**

6:30 p.m. – 7:30 p.m

Posters 1 and Reception

POSTER SESSION 1

Performance Of Experimental Double Capillary Barrier Cover, Monolithic Cover And Evapotranspirative Cover In A Brazilian Landfill, *Juacyara Carbonelli Campos*, UFRJ - Federal University of Rio de Janeiro, *Gilberto Oliveira Joaquim Junior*, UFRJ - Federal University of Rio de Janeiro, *Elisabeth Ritter*, UERJ, **Brazil**

Resource Potential of Obsolete Household Appliances Recycling: The Case of Beijing, *Yifan Gu*, Institute of Circular Economy, Beijing University of Technology, *Yufeng Wu*, Institute of Circular Economy, Beijing University of Technology, **China**

Evaluation of the Biogas Productivity Potentials of Domestic and Agricultural Waste in a Tertiary Institution, *Adedayo Badejo*, Tshwane University of Technology, Pretoria South Africa,

Julius Ndambuki, Tshwane University of Technology, Pretoria South Africa, Williams Kupolati, Tshwane University of Technology, Pretoria South Africa, Ekeade O.B, Okunrounmu O.A.,
South Africa

Quantification of Pb, Cd and Hg in Waste Rare Earth Phosphors by ICP-AES, *Xiaofei Yin, Beijing University of Technology, Yufeng Wu, Beijing University of technology, Jiamei Yu, Beijing University of Technology, Tiejong Zuo,* **P.R. China**

Establishment of Energy Potential of Norio Landfill of Municipal Solid Waste of Tbilisi, *Natela Dvalishvili,* Institute of Hydrometeorology at Georgian Technical University, **Georgia**

Mechanical Properties of Concrete Containing Shredded Scrap Tires and Class C Fly Ash, *Pranshoo Solanki,* Illinois State University, *Bharat Dash,* Illinois State University, **USA**

Sustainable Waste Power Systems-Patented Wet Waste Gasification Technology-GIPO® ModuCore®, *Claudine Ellyin,* Sustainable Waste Power Systems, *Mike Gillespie,* Sustainable Waste Power Systems, *Chris Gillespie,* Sustainable Waste Power Systems, **USA**

Investigation of Scaffold Fabrication Techniques: Tissue Engineering for Reducing Medical Waste and the Environmental Impacts, *Ozlem Yasar,* New York City College of Technology, *Masato Nakamura,* New York City College of Technology, *Shalman Ahmed,* New York City College of Technology, **USA**

Biosurfactant Assisted Bioremediation of Polycyclic Aromatic Hydrocarbons (PAHs) in Liquid Culture System and Substrate Interactivity Factors, *Fisseha Anduaalem Bezza,* University of Pretoria, *Evans M. Nkhalambayausi Chirwa,* University of Pretoria, **South Africa**

Analysis of Municipal Solid Waste Composition (MSW), Evaluating Its Energy Potential by Using Direct Combustion Process, *Andrea Carolina Gutiérrez Gómez,* Universidade Federal do ABC, *Ana Maria Pereira,* Universidade Federal do ABC, *Juliana Tófano,* Universidade Federal do ABC, *Rodolfo Sbrolini,* *Mauro Malpeli,* *Maitê Thomaz,* **Brazil**

Speciation of Titanium Compounds in Incinerated Painted Wood Waste, *Mikael Carl Fredrik Karlsson,* Chalmers University of Technology, *Britt-Marie Steenari,* Chalmers University of Technology, **Sweden**

Recycling of Zirconia Waste Obtained During the Milling of Dental Ceramic Blocks, *Wilson Acchar,* Federal University of Rio Grande do Norte-UFRN, *Yankel Silva,* Federal University of Rio Grande do Norte-UFRN, **Brazil**

Effect of Temperature on Nutrient Availability in Sludge Amended Soil, *Pramod Kumar Sharma,* BHU, *Anupam Das,* BHU, **India**

The Technology of Carbon Dioxide Utilization through Carbon Fixation in Aqueous Phase with Fast Kinetics, *Dongwoo Kang,* Yonsei University, *Sangwon Park,* Korea Institute of Geoscience and Mineral Resources, *Min-Gu Lee,* Yonsei University, *Hoyong Jo,* *Yoonyoung Lee,* *Jinwon Park,* **Republic of Korea**

Estimation of Solid Waste Generation and Recycling Potential on Hotel Sector: Case Study in a Tourism City - Hue, Vietnam, *Thi Thu Trang Do,* Okayama University, *Yasuhiro Matsui,* Okayama University, *Phuc Thanh Nguyen,* Hitachi Zosen Corporation, *Cao Le Hung,* **Japan**

Adobe Bricks with Residues from Rigid Polyurethane Foam and Tire Rubber, *Ana Cecilia Vieira da Nóbrega*, Federal University of Pernambuco, *Simone Machado Santos*, Federal University of Pernambuco, *Maria Victória Leal de Almeida Nascimento*, Federal University of Pernambuco, *Tamara Ísis Ventura Carneiro*, *Dannúbia Ribeiro Pires*, *Ivaldo Brasileiro Viana Neto*, **Brazil**

Hybrid Alkaline Concrete Based on Fly Ash, Blast Furnace Slag and Portland Cement: Mechanical and Permeation Properties, *Daniela E. Angulo Ramirez*, Universidad del Valle, Grupo Materiales Compuestos (GMC), *William G. Valencia Saavedra*, Universidad del Valle, Grupo Materiales Compuestos (GMC), *Ruby Mejía de Gutierrez*, Universidad del Valle, Grupo Materiales Compuestos (GMC), **Colombia**

Adsorption of Basic Dyes Using Activated Carbon Prepared From Date Palm Fibre, *Riham Hazzaa*, Petrochemical Engineering Department, Faculty of Engineering Pharos University in Alexandria, *Mohamed Hussien*, Chemical Engineering Department, Faculty of Engineering, Alexandria University, **Egypt**

Morphological Composition of Municipal Solid Waste, *Shodi Kholikuoly*, Samarkand State University, *Sindor Pardaev*, Samarkand Agricultural institute, **Uzbekistan**

Mathematical Modeling for Predicting Generation of New York City Municipal Solid Waste (NYCMSW), *Masato Nakamura*, New York City College of Technology (City Tech), *Sharon Jones*, New York City College of Technology (City Tech), **USA**

The Preparation of an Effective and Low-Cost Coal Fly Ash Catalyst and Its Application, *Wei Ma*, School of Chemical Engineering, Dalian University of Technology, Dalian 116024, China National Institute of Clean-and-low Carbon Energy, Beijing 102209, China, *Panpan Zong*, Dalian University of Technology, *Zihong Cheng*, Dalian University Technology, **China**

Application of Anaerobic Digestion to the Treatment of MSW in China, *Hao Chen*, Ordos Institute of Solid Waste Technology, RCEES of CAS, *Yuzhu Zhao*, Ordos Institute of Solid Waste Technology, RCEES of CAS, *Xiaohua Xia*, Ordos Institute of Solid Waste Technology, RCEES of CAS, *Mr. Zhenyu Wu*, *Mr. Wenbiao Han*, **P. R. China**

Can Earthworms Reduce Greenhouse Gas Emissions from Urban waste Composting?, *Abebe Nigussie Nigatu*, Copenhagen University, *Sander Brunn*, Copenhagen University, *Thom Kuyper*, Wageningen University, *Libjert Brussaard*, *Andreas de Neeragaard*, **Denmark**

Potential, Prospects and Perspectives of Upgraded Bottled Biogas for Transport and Cooking Applications in India, *Rimika Kapoor*, Indian Institute of Technology, *Virendra Kumar Vijay*, Indian Institute of Technology, **India** *Subarao PMV*, Indian Institute of Technology, **India**

Thermal Exploitation of Agroforest Wastes in a Draft-Tube Conical Spouted Bed, *Maria Jose San Jose*, University of the Basque Country, *Sonia Alvarez*, University of the Basque Country, *Raquel Lopez*, University of the Basque Country, *Iris Garcia*, **Spain**

Assessing Material Recycling Facilities Performance Using Monte Carlo Simulation, *Patrice Lajoie*, FORAC Research consortium, Laval University, *Jonathan Gaudreault*, FORAC Research consortium, Laval University, *Alexandre Morneau*, FORAC Research consortium, Laval University, *Hugues Paquet-Blanchette*, *Guillaume Lorquet*, *Martin Savoie*, **Canada**

TUESDAY, MARCH 17

8:00 a.m. - 5:30 p.m.

Conference check-in and registration

8:00 a.m. – 8:30 a.m.

Coffee

8:30 a.m. - 10:10 a.m.

Sessions 5

SESSION 5A

Construction and Demolition Wastes

Source Identification, Classification and Quantification of Construction Waste Material, *Khalid Iqbal*, Institute of Environmental Sciences and Engineering (IESE), School of Civil and Environmental Engineering (SCEE), National University of Sciences and Technology (NUST), Islamabad, Pakistan, *Muhammad Anwar Baig*, *Institute of Environmental Sciences and Engineering (IESE), School of Civil and Environmental Engineering (SCEE), National University of Sciences and Technology (NUST), Islamabad, Pakistan*, *Muhammad Waseem Mumtaz*, Department of Chemistry Sciences, University of Gujrat, Gujrat, Pakistan, **Pakistan**

Mixing Construction, Demolition and Excavation Waste and Solid Waste Compost for the Derivation of a Planting Medium for Use in the Rehabilitation of Quarries, *Eleni Assaf*, American University of Beirut, *Nadim Farajalla*, *American University of Beirut*, **Lebanon**

Construction and Demolition Waste Addition to Soil Urban Degraded by Mining. Growth Promotion of *Leucaena leucocephala*, *Erica Mejia*, Universidad de San Buenaventura, *Angelica Rosso*, *Universidad de San Buenaventura*, *Maria Castro*, Universidad de San Buenaventura, *Jorge Ivan Tobón*, *Walter Osorio*, **Columbia**

Use of Recycled Aggregate Concrete in Pavement Construction, *Roz-Ud-Din Nassar*, University of South Asia Lahore, *Parviz Soroushian*, *Michigan State University*, **Pakistan**

SESSION 5B

Energy Recovery 2

MSW (Municipal Solid Waste) Thermal Treatment: Evaluation from the Energetic and Environmental Point of View, *Deborah Panepinto*, Politecnico di Torino, *Giuseppe Genon*, *Politecnico di Torino*, *Francesca Viggiano*, Politecnico di Torino, **Italia**

Recovery of Combustible Gases via Pyrolysis of the Combustible Fraction of Municipal Solid Waste, *William Buah*, University of Mines and Technology, *Paul Williams*, *University of Leeds*, **Ghana**

Final Disposal of Wastewater Sewage Sludge: The Thermal Treatment Option, *Giuseppe Genon*,

Politecnico di Torino, *Panepinto Deborah, Politecnico di Torino, Francesca Viggiano,*
Politecnico di Torino, **Italy**

Westinghouse Plasma - Commercialized; Industrial scale plasma gasification technology for the conversion of various waste feedstocks into clean energy, *Kal Bhojak, Westinghouse Plasma Corp.,* **CANADA**

Regional MSW Strategy for Waste to Energy in the Arabian Gulf Region (GCC), *Noura Al-Sarawi, Wilkes University, Alaa Al-Enezi, Wilkes University, Mohammad Al-Sarawi,* Kuwait University, **USA**

Waste Treatment Technologies (MSW) for Waste to Energy, *Mohammad Al-Sarawi,* Kuwait University, *Shareifa Al-Suwaidan,* Kuwait Municipality, **Kuwait**

Co-Processing of Waste in Cement Plants, *Rahul Baidya,* Jadavpur University & International Society of Waste Management, Air and Water, *Sannidhya Kumar Ghosh,* Jadavpur University, *Sadhan Kumar Ghosh,* Jadavpur University, **India**

SESSION 5C

Generation and Composition 2

Quantification of Electronic Passive in the Valley of Toluca, *Maria del Consuelo Mañon-Salas,* Universidad Politécnica del Valle de Toluca, *Maria del Consuelo Hernandez-Berriel, Instituto Tecnológico de Toluca, Martha María Montes de Oca-Herrera,* Universidad Politécnica del Valle de Toluca, *Laura Verónica Díaz Archundia, Elvira Olay Romero,* **México**

Comparison of Municipal Solid Waste Typologies Generation Between Two Municipalities in Serra Gaúcha, Brazil, *Vania Elisabete Schneider,* University of Caxias do Sul, *Denise Peresin, University of Caxias do Sul, Mariana Riegel Grandó,* University of Caxias do Sul, *Denise Peresin, Mariana Riegel Grandó, Veronica Casagrande. Artur Rech da Rosa, and Nicolas Finkler,* **Brazil**

Household Waste Generation and Characteristic in Iskandar Malaysia: Current And Projection, *Cindy Ik Sing Lee,* Universiti Teknologi Malaysia, *Zainura Zainon Noor, Universiti Teknologi Malaysia, Fatin Aliah Phang,* Univesiti Teknologi Malaysia, **Malaysia**

Application of Anaerobic Digestion to the Treatment of MSW in China, *Hao Chen,* Ordos Institute of Solid Waste Technology, RCEES of CAS, *Yuzhu Zhao, Ordos Institute of Solid Waste Technology, RCEES of CAS, Xiaohua Xia,* Ordos Institute of Solid Waste Technology, RCEES of CAS, *Mr. Zhenyu Wu, Mr. Wenbiao Han,* **P. R. China**

Waste Audit Findings Conducted at Jackson State University, Mississippi, *Moe Chowdhury,* Jackson State University, *Ricardo Brown,* Jackson State University, Urban and Regional Planning, **United States**

SESSION 5D
Biological Treatment

Influence of Vermicompost and Vermicompost Leachate on Growth Characteristics of *Withania Somnifera* (L.), *Arvinder Kaur*, Guru Nanak Dev University, *Amandeep Kaur*, *Guru Nanak Dev University*, *Puja Ohri*, *Guru Nanak Dev University Amritsar*, *Dr. P.K. Pati*, **India**

Significance of Waste Separation on Composting Process and Compost Quality, *Manohara Badekkanadka*, *University of Mysore*, *Shiddappa Lagamappa Belagali*, *University of Mysore*, **India**

Biodegradation of hydrocarbons exploiting spent substrate from *Pleurotus ostreatus* in agricultural soils, *Beatriz Pérez-Armendáriz*, *Universidad Popular Autónoma del Estado de Puebla*, *Judith Cavazos-Arroyo*, *Universidad Popular Autónoma del Estado de Puebla*, **México**

Disposal of Organic Waste Worship Materials through Vermicomposting from Some Religious Places of Patna, Bihar, *Arvind Kumar Nag*, *College of Commerce, Patna*, *under Magadh University Bodh Gaya*, *Bihari Singh*, *A.N.College Patna*, *Under Magadh University Bodh Gaya*, *Abhishek Mani*, *A.N. College Patna*, *Chiranjeev Kumar*, **India**

Anaerobic Digestion of Source-Segregated Domestic Food Waste: The Role of Trace Elements, *He Song*, *University of Southampton*, *Charles Banks*, *University of Southampton*, *Yue Zhang*, *University of Southampton*, **UK**

World's Only Hybrid Anaerobic Digestion System That Efficiently and Effectively Processes Mixed Waste Streams, *Shane Chrapko*, *Himark BioGas*, **Canada**

Composting Food Waste at Philadelphia's Riverside Women's Correctional Facility, *Peter Moon*, *O2Compost*, *Laura Cassidy*, *Philadelphia Prisons*, **USA**

Dynamics of Fermentative and Methanogenic Bacteria in the Accelerated Degradation of Municipal Solid Waste, *Elvira Olay Romero*, *Instituto Tecnológico de Toluca*, *María del Consuelo Hernández-Berriel*, *Instituto Tecnológico de Toluca*, *Isaías de la Rosa-Gómez*, *Instituto Tecnológico de Toluca*, *Liliana Márquez-Benavides*, *María del Carmen Carreño-de León*, **México**

10:10 a.m. - 10:30 a.m.

Break

10:30 a.m. – 12:15 p.m.

Sessions 6

SESSION 6A
Agricultural Wastes

Energy from Agricultural Wastes: Environmental Evaluation, *Viggiano Francesca*, *Politecnico di Torino*, *Deborah Panepinto*, *Politecnico di Torino*, *Giuseppe Genon*, *Politecnico di Torino*, **Italy**

Comparative Analysis of Some Neem Seed Oil Extraction Methods for Biodiesel Production, *Mohamed Ben Oumarou*, University of Maiduguri, *Garba Mohammed Ngala*, University of Maiduguri, **Nigeria**

Utilization of Cassava Processing Waste in Ibadan as a Viable and Sustainable Option to Meet Cassava Processing Energy Needs: Case Study from Ibadan City, Nigeria, *Akinwale Coker*, University of Ibadan, *Chibueze Achi*, University of Ibadan, **Nigeria**

Seed Priming With Vermicompost Tea And Vermicompost Leachate For Enhancing Seedling Emergence And Growth Of A Valuable Medicinal Plant Withania Somnifera, *Amandeep Kaur*, Guru Nanak Dev University, *Arvinder Kaur*, Guru Nanak Dev University, *Puja Ohri*, Guru Nanak Dev University Amritsar, *Dr. P.K. Pati*, **India**

Suppressiveness of Composts against the Plant Pathogens Phytophthora and Fusarium Oxysporum, *Josefa Blaya*, Center of Edaphology and Applied Biology of Segura River (CEBAS-CSIC), *Margarita Ros*, Center of Edaphology and Applied Biology of Segura River (CEBAS-CSIC), *Jose A. Pascual*, Center of Edaphology and Applied Biology of Segura River (CEBAS-CSIC), **Spain**

Renewable Waste Substrates of Plant Origin for Bioethanol Production, *Bartho Okolo*, University of Nigeria, *Anene Moneke*, University of Nigeria, *Reg Agu*, Scotch Whisky Research Institute, *Onyetugo Amadi*, Department of Microbiology University of Nigeria, **Nigeria**

Integrating Anaerobic Manure Digestion with Algal Cultivation, for Decentralized Near - Zero Discharge Waste Management, *Revital Riklin*, The Jacob Blaustein Institutes for Desert Research, Ben Gurion University of the Negev, *Amit Gross*, Zuckerberg Institute for Water Research, The Jacob Blaustein Institutes for Desert Research, Ben Gurion University of the Negev, *Sammy Boussiba*, Microalgal Biotechnology Laboratory, The Jacob Blaustein Institutes for Desert Research, Ben-Gurion University of the Negev, *Dr. Stefan leu*, **Israel**

Three Stages Composting Process for Poultry Mortality at Open Desert Site in Kuwait, *Samir Al-Ghawas*, Kuwait Institute for Scientific Research, *Hamad Al-Munsoor*, Kuwait Institute for Scientific Research, **Kuwait**

SESSION 6B **Medical Wastes**

Investigation of Scaffold Fabrication Techniques: Tissue Engineering for Reducing Medical Waste and the Environmental Impacts, *Ozlem Yasar*, New York City College of Technology, *Masato Nakamura*, New York City College of Technology, *Shalman Ahmed*, New York City College of Technology, **USA**

Medical Waste Management in Libya Northeastern Region Hospitals as a Case Study, *Farag El Mabrouk*, Benghazi University, *Ibrahim Ghaweel*, Benghazi University, **Libya**

Waste Prevention and Management in Hospitals, *Joan Plisko*, Maryland Hospitals for a Healthy Environment, University of Maryland School of Medicine, *Carrie Flora*, *Maryland Hospitals for a Healthy Environment*, *University of Maryland School of Medicine*, **USA**

The Challenge of Healthcare Waste Management Practices in Primary Healthcare Centers, *Ogun State, Nigeria*, *Ezechiel Oladapo Longe*, University of Lagos, *Ismail Adenuga*, *Ogun State Government*, **Nigeria**

Developing a Regional Hospital Waste Management: A Case Study, *Mervat El-Hoz*, University of Balamand, **Lebanon**

SESSION 6C

Waste Utilization in Construction 2

The Use Of Dumpsite Solid Waste In The Production Of Clay Bricks, *Magdi Abadir*, Cairo University - Faculty of Engineering, *Shakinaz El Sherbiny*, *Faculty of Engineering - Cairo University*, *Shereen Amin*, National Research Center, *Marwa Ahmed*, *Kamilia El Naggar*, **Egypt**

Deformation Properties of Recycled Concrete with Mixed Recycled Aggregates, Focused On Precast Prestressed Products, *Fernando L. Gayarre*, Universidad de Oviedo, *Ruben Blanco Viñuela*, *Universidad de Oviedo*, *Pedro Serna Ros*, Universidad Politecnica de Valencia, *Carlos Lopez-Colina*, *Aitor Llano Torre*, **Spain**

Utilization of Fly Ash and Red Mud to Make Foam Bricks by Addition of Polystyrene, *Kamalesh Singh*, Indian Institute of Technology (BHU), *Vinay Singh*, *Indian Institute of Technology (BHU)*, *T. R. Mankhand*, Indian Institute of Technology (BHU), **India**

Mechanical Behavior of Reinforced Clayey Soil with Polyethylene Terephthalate Fibers, *Ingrid Milena Reyes Martinez*, Pontifical Catholic University of Rio de Janeiro - PUC-Rio, *Nathalia Louzada*, *Pontifical Catholic University of Rio de Janeiro - PUC-Rio*, *Michele Casagrande*, Pontifical Catholic University of Rio de Janeiro - PUC-Rio, *Lucas Mendes Repsold*, **Brazil**

Influence of Coal Bottom Ash on the Strength Properties of Concrete, *Rafat Siddique*, Thapar University, *Malkit Singh*, *Thapar University*, **India**

Influence of Coal Bottom Ash on the Strength Properties of Concrete, *Rafat Siddique*, Thapar University, *Malkit Singh*, *Thapar University*, **India**

Novel Self-consolidating Concrete Containing Industrial Waste, *Felix Udoeyo*, Temple University, *Armaghan Izadpanahi*, *Temple University*, *Evan Shepard*, Formerly, Temple University, *Priyank Patel*, *Stuart Shepard*, **USA**

Hybrid alkaline concrete based on fly ash, blast furnace slag and Portland cement: Mechanical and permeation properties, *Daniela E. Angulo Ramirez*, Universidad del Valle, Grupo Materiales

Compuestos (GMC), *William G. Valencia Saavedra, Universidad del Valle, Grupo Materiales Compuestos (GMC), Ruby Mejía de Gutierrez, Universidad del Valle, Grupo Materiales Compuestos (GMC), Colombia*

SESSION 6D

Environmental and Health Impacts

Industrial Pollution, *Parbati Pudasaini, Nepal Red Cross Society Kathmandu, Nepal*

Water Pollution, *Binod Bhattarai, Kathmandu Metropolitan City Office, Nepal*

Liquefied Petroleum Gas Operated Vehicles, *Bhimsen KC, Kathmandu Metropolitan City Office, Nepal*

Development and Implementation of a Municipal Solid Waste Management Single Score Sustainability Index, *Hacer Ak, Stevens Institute of Technology, Washington Braida, Stevens Institute of Technology, USA*

The Impact of Entrepreneurs in Mitigating Effects of Polythene and Plastic Waste to Soils, *Mugisha Mathias Richard, LWECOTEP, Uganda*

Constructed Wetland Based System for Waste Water Treatment, *Bihari Singh, A. N. College, Patna, Magadh University, Bodh Gaya, India, Amrendra Kumar, A. N. College, Patna, PIN-800013, Bihar, India, Tahsheen Anwar, A. N. College, Patna, PIN-800013, Bihar, India, Ms. Archana Singh, India*

Respiratory Disease Risk Assessment Among Solid Waste Workers Using Fuzzy Rule Based System Approach, *Namrata Jariwala, S.V.National Institute Of Technology, Surat, Robin Christian, S.V.National Institute Of Technology, Surat, India*

12:15 p.m. – 1:15 p.m.

Poster Session 2

POSTER SESSION 2

Evaluation of the Ability of Municipal Solid Waste Treatment Plants to Serve as Regional Disaster Response Facilities, *Tomohiro Tabata, Kobe University, Peii Tsai, Kobe University, Takashi Saeki, Toyama Prefectural University, Japan*

Bacteriological Characterization Of Leachates From Experimental Cells Containing Household Solid Waste And Health Care Solid Waste, *Juacyara Carbonelli Campos, UFRJ - Federal University of Rio de Janeiro, Bianca Ramalho Quintaes, COMLURB - Municipal Waste Management Company, Alessandra Fonseca Lourenço, UFRJ - Federal University of Rio de Janeiro, Marco Antonio Lemos Miguel, João Alberto Ferreira, Brazil*

Albizia Tree Hazard Mitigation Following Tropical Storm Iselle, *Julia Crowley*, University of Hawaii at Manoa, *Karl Kim*, University of Hawaii at Manoa, **USA**

Economic and Environmental Benefits of the Indium Recycling from the Waste Liquid Crystal Displays in China, *Yufeng Wu*, Institute of Circular Economy, Beijing University of Technology, *Yifan Gu*, Institute of Circular Economy, Beijing University of Technology, *Yu Gong*, Institute of Circular Economy, Beijing University of Technology, **China**

Mixing Construction, Demolition and Excavation Waste and Solid Waste Compost for the Derivation of a Planting Medium for Use in the Rehabilitation of Quarries, *Eleni Assaf*, American University of Beirut, *Nadim Farajalla*, American University of Beirut, **Lebanon**

Biodesulfurization Of Biogas In Biotrickling Filters: Study Of The Empty Bed Residency Time (EBRT), *Renata Solcia*, Dept of Biochemistry and Chemical Technology, Institute of Chemistry, UNESP – Univ Estadual Paulista, *Denise Bevilaqua*, Dept of Biochemistry and Chemical Technology, Institute of Chemistry, UNESP – Univ Estadual Paulista, **Brazil**

Lessons Learned in The City of Boras and What Can Be Shared in Curitiba, *Marisa S. Borges*, Federal University of Parana, **Brazil**

Biobleaching Of Trace Elements From A Residue Of Sugarcane Industry: Effect Of The Pulp Density, *Josiane Gaspar Grillo*, Institute of Chemistry, Universidade Estadual Paulista in Departament of Biochemistry and Chemical Technology, *Rafael Ferreira*, Itatijuca Biotech, *Julio Marumo*, Instituto de Pesquisas Energéticas e Nucleares, *Ana Teresa Lombardi*, Rodovia Washington Luís, *Mauricio Cesar Palmieri*, Professor Lineu Prestes, *Denise Bevilaqua*, Prof. Francisco Degni, **Brazil**

Glass and E-Waste Disposal Management at Karnataka State Women's University, Bijapur, Karnataka, India, *Mahantappa Jogad*, University, *Meena Maithili Chandawarkar*, Karnataka State Women's University, Bijapur, **India**

Anaerobic Digestion of Source-Segregated Domestic Food Waste: The Role of Trace Elements, *He Song*, University of Southampton, *Charles Banks*, University of Southampton, *Yue Zhang*, University of Southampton, **UK**

Diagnosis of Solid Waste Generation of Administrative Sector of Education Institution, *Fernando Reis*, Instituto Federal de Educação, Ciência e Tecnologia do Sul de Minas Gerais, *Misael Juliani*, Instituto Federal de Educação, Ciência e Tecnologia do Sul de Minas Gerais, *Neife Abraão*, Instituto Federal de Educação, Ciência e Tecnologia do Sul de Minas Gerais, *Luiz Flávio Reis Fernandes*, *Luiz Antonio Lima*, **Brazil**

In Order to Install Ecopontos Final Destination Suitable for Scrap Tires, *Neife Santos Abraão*, Instituto Federal de Educação, Ciência e Tecnologia do Sul de Minas Gerais, *Misael Silva Juliani*, Instituto Federal de Educação, Ciência e Tecnologia do Sul de Minas Gerais, *Fernando Yuri da Silva Reis*, Instituto Federal de Educação, Ciência e Tecnologia do Sul de Minas Gerais, *Luiz Flavio Reis Fernandes*, *Luiz Antonio Lima*, **Brazil**

Municipal Waste Management in Poland: Current Status and Challenges, *Marta Sebastian*, Wrocław University of Technology, **Poland**

How to Improve the Quality of Waste Derived Fuels, *Emilia Den Boer*, Wrocław University of Technology, *Marta Sebastian*, Wrocław University of Technology, **Poland**

Comparison of Environmental Performance of Municipal Solid Waste Compost and Chemical Fertilizer, *Zerihun Abate*, Addis Ababa Institute of Technology, Addis Ababa University, *Berhanu Assefa*, Addis Ababa Institute of Technology, Addis Ababa University, *Wakene Negessa*, Department of Plant, Soil and Microbial Sciences, Michigan State University, East Lansing, USA, **Ethiopia**

Hidden Wastes of Finnish Food Consumption: Global Impact of Imports, *Sari Piippo*, University of Oulu, *Pablo Piñero*, University of Oulu, *Eva Pongrácz*, University of Oulu, **Finland**

Analysis of Controlled Release Rate Models in Porous Collagen Matrices, *Eugene Bender*, Manhattan College, *Gennaro Maffia*, Manhattan College, **USA**

Performance Evaluation of Recycling in the Highway SC-355: Characterization of the Recycled Mixture and Structural Assessment of Monitored Segments Executed, *Gislaine Luvizão*, Universidade Federal De Santa Catarina - UFSC, *Glicério Trichês*, Universidade Federal De Santa Catarina - UFSC, **Brasil**

Medical Waste Management: A General Perspective and Issues in Kathmandu Valley of Nepal, *Manoj Bista*, Clean Environment Nepal (CEN) PVT.LTD, *Durga Rawal*, Environmentalists' Association of Nepal (EAN), **Nepal**

Solid Waste Management in Addis Ababa Ethiopia, *Zeineb Yassin*, Maichew Polytechnic College, **Ethiopia**

Construction and Demolition Waste Addition to Soil Urban Degraded by Mining Growth Promotion of *Leucaena leucocephala*, *Erica Mejia*, Universidad de San Buenaventura, *Angelica Rosso*, Universidad de San Buenaventura, *Maria Castro*, Universidad de San Buenaventura, *Jorge Ivan Tobón*, *Walter Osorio*, **Columbia**

Estimation of Microbial Growth Kinetics and in Waste Water and Design of a Bio-Reactor, *Girish Kumar Sinha*, Magadh University Bodh-Gaya, *Sury Narayan Yadav*, Magah University Bodh-Gaya, *Akanksha Priya*, University of Delhi, **India**

Evaluation of Dynamic properties of Municipal Solid Waste Sites by Geophysical Tests, *Naveen B.P.*, Indian Institute of Science, *Sitharam T.G.*, Indian Institute of Science, *Sivapullaiah P.V.*, Indian Institute of Science, **India**

Management of Medical Waste in Rural and Urban Clinics within Polokwane Municipality, *France Raphela*, Central University of Technology, Free State, **South Africa**

Evaluating the Impact of Lime Softening Sludge Disposal in Natural Environments through the Use of Alternative Leach Tests, *Nawaf Blaisi*, University of Florida, *Justin Roessler*, University of Florida, *Weizhi Cheng*, University of Florida, *Timothy Townsend*, *Souhail Al-Abed*, **USA**

Comparison of Municipal Solid Waste Typologies Generation Between Two Municipalities in Serra Gaúcha, Brazil, *Vania Elisabete Schneider*, University of Caxias do Sul, *Denise Peresin*, University of Caxias do Sul, *Mariana Riegel Grando*, University of Caxias do Sul, *Denise Peresin*, *Mariana Riegel Grando*, *Veronica Casagrande Artur Rech da Rosa*, and *Nicolas Finkler*, **Brazil**

Thermal Decomposition Kinetics Of Blends Of Sugar Cane Mills Wastes In N₂/O₂ Atmosphere By Flynn-Wall-Ozawa Method, *Daniel Rodrigues da Silva*, UNESP - IQ/CAR, *Marisa Spirandeli Crespi*, UNESP - IQ/CAR, **Brasil**

Study Of The Application Of Waste Generated In The Process Of Effluent Treatment In Agriculture And As Source Of Energy, *Weverton Nozela*, Universidade Estadual Paulista, *Marisa Crespi*, Universidade Estadual Paulista, *Sandra Maintinguer*, Universidade Estadual Paulista, *Sonia de Almeida*, *Carina de Freitas Velloso Nozela*, **Brasil**

Improving Solid Waste Reduction Programs by Predicting Waste Prevention Behaviour, *Ana Paula Bortoleto*, State University of Campinas, **Brazil**

Swachh Bharat Mission – a Paradigm Shift in Waste Management in India, *Sadhan Kumar Ghosh*, Jadavpur University & International Society of Waste Management, Air and Water, **India**

Co-Processing of Waste in Cement Plants, *Rahul Baidya*, Jadavpur University & International Society of Waste Management, Air and Water, *Sannidhya Kumar Ghosh*, Jadavpur University, *Sadhan Kumar Ghosh*, Jadavpur University, **India**

Innovative Containment System for Recycling and Application of Oil Contaminated Sand in Construction, *Souad khalid/Al-Bahar*, Kuwait Institute for Scientific Research, **Kuwait**

Enhancement of asphalt rubber properties obtained from waste tires produced in the laboratory, *Liseane Padilha Thives*, Federal University of Sannta Catarina, *Glicério Trichès*, Federal University of Sannta Catarina, *Jorge Carvalho Pais*, University of Minho, *Paulo António Alves Pereira*, **Brazil**

Placing Disposal Decisions in Historical Context: Project A.L.E.R.T Traveling Exhibits, *Barbara MacLennan*, West Virginia University, *Bridget Benson*, Marion County Solid Waste Authority, *Mary Bronson*, Marion County Solid Waste Authority, *Bobbi Benson*, Marion County SWA; *Gabby Lively*, Marion County SWA, **United States**

1:15 p.m. – 2:15 p.m.
Luncheon

2:15 p.m. – 4:15 p.m.
Sessions 7

2:15 p.m. – 6:00 p.m.
Professional Education Short Course 2, Part A
(description is listed after Session 7E)

SESSION 7A *Case Studies 2*

Impact of Informal Private Sector in Integrated Solid Waste Management (ISWM) in Ibadan, Nigeria, Lukman Habeeb, Deecency Cleaning & Restoration, Nigeria

Status of Solid Waste Material Recovery (Swmr) In Benin Metropolis, Nigeria, Dennis Iyeke Igbinomwanhia, University of Benin, Emmanuel Ehis Osalease, University of Benin, Nigeria

Glass and E-Waste Disposal Management at Karnataka State Women's University, Bijapur, Karnataka, India, Mahantappa Jogad, University, Meena Maithili Chandawarkar, Karnataka State Women's Uiversity, Bijapur, India

Too Much Waste – Too little Space: Waste Management System in the Greater Banjul Area (GBA) of the Gambia, Challenges and Prospects, Dawda Badgie, University of Cape Coast – Ghana C/O National Environment Agency, The Gambia, Latifah Abd Manaf, University Putra Malaysia, Mohd Armi Abu Samah, University Putra Malaysia, Gambia

Application of EDSS-MSWM for Primary Collection and Secondary Storage of Municipal Solid Waste Management, Anurag Ohri, Indian Institute of Technology (Banaras Hindu University) Varanasi, Prabhat Kumar Singh, Indian Institute of Technology (Banaras Hindu University) Varanasi, India

Concept Paper for Multiple Utilisation of Solid Waste for the Generation of Electricity and Composting in Kathmandu, Nepal, Suman Adhikari, Kathmandu Metropolitan City Office, Nepal

Concept Paper For Utilization Of Solid Waste In Kathmandu, Nepal For The Generation Of Electricity In Kathmandu, Suman Adhikari, Kathmandu Metropolitan City Office, Kathmandu, Nepal, Nepal

Solid Waste Management Practices in Rural South Africa: A Case Study of Shigalo Village in Limpopo Province, Joseph Binala, University of Venda, Simango Thembi, University of Venda, South Africa

Solid Waste Management in Developing Countries, Babatunde Olawale Falana, Water Supply & Environmental Sanitation Department. Ipokia Local Government, Nigeria

Albizia Tree Hazard Mitigation Following Tropical Storm Iselle, Julia Crowley, University of Hawaii at Manoa, Karl Kim, University of Hawaii at Manoa, USA

Solid Waste Management in Addis Ababa Ethiopia, Zeineb Yassin, Maichew Polytechnic College, Ethiopia

Waste Collection and Transportation in Developing Economies, Vivek Agrawal, Centre for Development Communication, Siddhant Srivastava, Centre for Development Communication, India

SESSION 7B

Ash

Heavy Metals Immobilization in Hazardous ASR Residue by Novel Nanometallic Ca/CaO Based Composite Materials, *Srinivasa Reddy Mallampati*, University of Ulsan, *Chi-Hyeon Lee*, University of Ulsan, *Byeong-Kyu Lee*, University of Ulsan, **Republic of Korea**

Stabilization of Spreader Stoker Coal Fly Ashes (SSCFA) by Using Alternative Binders and Chemical Activators, *Julie Hot*, LMDC - Toulouse University, *Moustapha Sow*, LMDC - Toulouse University, *Christelle Tribout*, LMDC - Toulouse University, *Prof. Martin Cyr*, **France**

Indian Fly Ash: A Study on the Removal of Unburnt Carbon from Fly Ash by Flotation to Use It as an Adsorbent, *Surabhi Singh*, Department of Applied Chemistry, Pillai Institute of Information Technology, Engineering, Media Studies & Research, Mumbai University, New Mumbai, India, *Udayabhanu G.*, Indian School of Mines, Dhanbad, *Nikkam Suresh*, Indian School of Mines, Dhanbad, India, **India**

The Preparation of an Effective and Low-Cost Coal Fly Ash Catalyst and Its Application, *Wei Ma*, School of Chemical Engineering, Dalian University of Technology, Dalian 116024, China National Institute of Clean-and-low Carbon Energy, Beijing 102209, China, *Panpan Zong*, Dalian University of Technology, *Zihong Cheng*, Dalian University Technology, **China**

Pollution Characteristics Overview of MSW fly ash in China and Potential Health Risk, *Qian Guangren*, School of Environmental Engineering, Shanghai University, **P.R.China**

SESSION 7C

Waste Utilization in Construction 3

A Novel Self-consolidating Concrete Containing Industrial Wastes as Supplementary Materials, *Felix Udoeyo*, Temple University, *Armaghan Izadpanahi*, Temple University, *Evan Shepard*, Formerly, Temple University, *Priyank Patel*, *Stuart Shepard*, **USA**

Use of PVC Waste in Road Construction Process, *Ambika Behl*, CSIR-Central Road Research Institute, *Girish Sharma*, CSIR-CRRI, *Gajendra Kumar*, CSIR-CRRI, *Dr. P.K Jain*, **India**

Applicability 'Pure Water' Sachet In Asphalt For Sustainable Environment, *Adedayo Badejo*, Tshwane University of Technology, Pretoria South Africa, *Julius Ndambuki*, Tshwane University of Technology, Pretoria South Africa, *Williams Kupolati*, Tshwane University of Technology, Pretoria South Africa, *Adekunle AA*, *Adekoya OO*, **South Africa**

Leaching of Asphalt Resulting from Moisture Conditioning, *Mekdim Weldegiorgis*, Brudis Associates, *Rafiquel Tarefder*, University of New Mexico, **USA**

SESSION 7D
Industrial Wastes 2

Disposal of Solid Waste Generated by Stainless Acid Pickling Process, *Raed Hasan*, Clean Environment Technologies, **Saudi Arabia**

SESSION 7E
Innovative Technologies

Innovative Technique for Waste Water Treatment and Contaminated Site Remediation, *Klaus Philipp Sedlazeck*, Montanuniversitaet Leoben, *Daniel Höllen*, Montanuniversitaet Leoben, *Peter Müller*, Ferro Decont, *Robert Mischitz*, **Austria**

Analysis of Controlled Release Rate Models in Porous Collagen Matrices, *Eugene Bender*, Manhattan College, *Gennaro Maffia*, Manhattan College, **USA**

Characterization and Application of Hazardous Sludge Waste Generated in CETPs, *Rajashekar Mohan*, Andhra Pradesh Pollution Control Board, *Srivatsav*, Telengana State Pollution Control Board, **India**

The Feasibility of Using Banana Peels as a Solid Catalyst for the Transesterification of Non-Edible Bauhinia Monandra Seed Oil into Methyl Esters: An Optimization Study, *Aramide Mistura Akintunde*, Obafemi Awolowo University, *Victoria Oluwadamilare Odude*, Obafemi Awolowo University, *Sheriff Olalekan Ajala*, Obafemi Awolowo University, *Tunde Victor Ojumu*, *Eriola Betiku*, **Nigeria**

Design and Testing of a Low Cost Single Axis Solar Tracker, *Mohamed Ben Oumarou*, University of Maiduguri, *Abdulrahim Abdulbaqi Toyin*, University of Maiduguri, **Nigeria**

Novel Separation Technique to Break the Water- Alcohol Azeotrope., *Snehanjani Shivakumar*, Manhattan College, *AnnMarie Foglio*, Manhattan College, *Gennaro Maffia*, Manhattan College, **United States**

Innovative Containment System for Recycling and Application of Oil Contaminated Sand in Construction, *Souad khalid/Al-Bahar*, Kuwait Institute for Scientific Research, **Kuwait**

2:15 p.m. – 6:00 p.m.

Professional Education Short Course 2, Part A

Professional Education Short Course: Principles of Municipal Solid Waste, presented by U.S. Environmental Protection Agency, Region III

Solid waste management (SWM) planning and implementation can help local government officials protect human health and the environment from the dangers of improper waste disposal. The *Principles of Solid Waste Management Planning* is a training course which teaches the fundamental concepts for developing and implementing SWM plans and systems. The course was designed to be applicable in many countries as many governments recognize that environmental problems are not independent isolated issues, but are interrelated from local to global levels. Effective SWM planning to minimize both the adverse health and environmental effects of improper waste disposal needs to be systematic, practical, and specific to the planning area. This training course presents the fundamental principles of SWM that have contributed to the success in developing and implementing SWM plans and systems in the United States and provides a basic understanding of SWM. Participants learn concepts to successfully develop

SWM plans and implement SWM systems. This course focuses on the following:

- Fundamental SWM principles;
- Selecting and implementing SWM alternatives;
- The SWM planning process; and,
- Public participation in the SWM planning process.

The course allows participants to understand how SWM alternatives are applicable to their own situations. This course does not provide answers to specific SWM challenges and will not provide a ready-made SWM plan for a planning area or local government. This course is designed for all levels of policy makers from government, environmental groups, nongovernmental organizations, and the public. Participants are expected to have an understanding of basic SWM issues and an awareness of the need for SWM planning; no specialized training is required for course participation. The agenda includes sessions on:

- The importance of SWM planning and the SWM planning process
- Review of SWM alternatives
- Legislative/regulatory requirements
- Obtaining public and political input
- Establishing SWM objectives
- Technical comparison of SWM alternatives
- Economic comparison of SWM alternatives
- Developing SWM plans/systems
- Public education and outreach
- SWM System Implementation

Instructor:

Francesca Di Cosmo, International Programs Manager, Green Communities Program Manager, EFEDS Program Manager, U.S. EPA, Region III, U.S.A.

Each person who completes the course will receive a course completion certificate.

4:15 p.m. – 4:35 p.m.

Break

4:35 p.m. – 6:00 p.m.

Sessions 8

SESSION 8A

Case Studies 3

Waste to energy in India and UK : Analysis Through Case Studies, Debashree De, Jadavpur University, Sadhan Kumar Ghosh, Jadavpur University, Sadhan Kumar Ghosh, **India**

Noise Pollution in Kathmandu Valley, Ramchandra Adhikari, Creative Development Centre, **Nepal**

Electronic Waste Management and Discard of Technology, Anelize Irene Appelt, Federal University of Rondônia, Wellington Silva Porto, Federal University of Rondônia, Flávio de São Pedro Filho, Federal University of Rondônia, Robinson Francino da Costa, Alexandre de

Freitas Carneiro, Brazil

Study of Individual and Overall Effectiveness of Rice Waste Management Practices of Different Mills in West Bengal, India, *Ranajit Chakrabarty*, Calcutta University, *Suvranil Banerjee*, Calcutta University, **India**

Annakshetra Surplus Food Saving Initiative, *Vivek Agrawal*, Centre for Development Communication, *Siddhant Srivastava*, Centre for Development Communication, **India**

SESSION 8B

Recycling 2

Enhancement of asphalt rubber properties obtained from waste tires produced in the laboratory, *Liseane Padilha Thives*, Federal University of Sannta Catarina, *Glicério Trichès*, 35 Federal University of Sannta Catarina, *Jorge Carvalho Pais*, University of Minho, *Paulo António Alves Pereira*, **Brazil**

Preparation and Characterization of Adsorbent from Waste Printed Circuit Boards, *Biswajit Debnath*, Jadavpur University, *Sadhan Ghosh*, Jadavpur University, **INDIA**

6:30 p.m. – 7:30 p.m.

Closing Reception

WEDNESDAY MARCH 18

8:00 a.m. – 9:00 a.m.

Conference check-in and registration

8:00 a.m. – 9:00 a.m.

Coffee

9:00a.m. – 2:00 p.m.

Technical Field Trips

Professional Education Short Course 2, Part B (description is listed after Session 7E)
(choose the short course or 1 field trip)

FIELD TRIP 1 – Environmental Landfill and Recycling

Delaware Solid Waste Authority Cherry Island Landfill

The Cherry Island Landfill is a municipal solid waste landfill located in Wilmington, Delaware. The site recently underwent a major landfill expansion. The expansion project included the successful design and construction of an 8,000-ft (1.5 mile) long, 60-ft high mechanically stabilized earth (MSE) berm over extremely soft river-dredge material. The site is located at the confluence of the Delaware and Christina Rivers. The

completion of this landfill expansion project represents a significant engineering achievement considering the size of the MSE berm and the deep layer of very soft soils over which the berm was constructed. The berm consists of 1.5 million cubic meters of fill and is one of the highest and most massive reinforced structures constructed over soft soils ever built in the United States. By completing this berm the capacity of the landfill to received waste was increased by an estimated 50 years. This pioneering project was selected as a finalist for the 2012 Outstanding Civil Engineering Achievement (OCEA) award by the American Society of Civil Engineers.

The Cherry Island Landfill manages approximately 1,200 tons of solid waste per day and operates four (4) unique handling areas. The state-of-the-art operation utilizes recovered resources for all operational needs such as landfill cover and access road construction. Zero virgin materials are imported for operational purposes. The landfill collects and processes approximately 3,000 scfm of landfill gas for the generation of green power. The landfill also operates a recycling area which removes materials such as metals, tires, drywall, and yard waste from the solid waste stream.

ReCommunity Delaware

The Delaware Solid Waste Authority is nationally recognized for its management of Delaware's solid waste material. It efficiently operates 3 landfills using innovative technology in order to provide a reliable disposal method for trash while protecting groundwater resources and preventing odors. DSWA also provides opportunities for disposal of special wastes including household hazardous waste, electronics, and used motor oil and filters. DSWA partners with national recycling leader ReCommunity, who operates a Materials Recovery Facility (MRF) in Delaware.

The MRF processes, sorts, and bales all of Delaware's single stream recyclable material as well as some material from counties in Maryland and Pennsylvania. The bales of material are then taken to different manufacturing facilities where the material is recycled and made into new products.

FIELD TRIP 2 –Energy Recovery and Recycling

Covanta Delaware Valley Energy-from-Waste Facility

The Covanta Delaware Valley Energy-from-Waste facility, located in Chester, Pennsylvania is capable of processing up to 3,510 tons of municipal and commercial solid waste each day. The facility originally opened for commercial operation in 1992. The plant not only meets the municipal solid waste disposal of Delaware County, but also provides capacity for up to 800,000 tons of additional waste each year from surrounding counties. Advanced control systems constantly monitor combustion performance, energy output and emissions at the Delaware Valley facility.

Utilizing six boilers, each with a rated capacity of 585 tons per day, the Delaware Valley facility has the ability to process up to 3,510 tons of municipal and commercial waste each day which, in turn, generates up to 90 MW of clean, renewable power. Additionally, the facility recovers approximately 32,000 tons per year of ferrous and non ferrous metal for recycling that would otherwise be lost in landfills. This operation conserves valuable landfill space by reducing the waste processed into an inert ash residue that is approximately 10% of its original volume.

A tour of the facility will include a brief overview by operations staff followed by a walking tour through the facility. The walking tour will allow visitors to see:

- Tipping floor – the location where municipal solid waste is unloaded from transfer trailers
- Control room – the command center of the facility
- Turbine Deck – the power generating equipment
- Boiler Floor – the combustion and steam generation equipment

Covanta Energy 58th St Transfer Station and E-vanta WEEE Recycling

The 58th St Transfer Station is permitted as a solid waste & recycling transfer station. It is located in South West Philadelphia & zoned for industrial use & has rail access to CSX line. The site accepts commercial, municipal & demolition type waste as well as cardboard & office paper for recycling purposes.

The facility includes an electronic scrap recycling process. Visitors to the facility will take a tour of the operations including the new electronic recycling project.

Richard S. Burns and Company Comprehensive Waste Recycling

Richard S. Burns & Company was founded as a small, one-man Philadelphia cleanout operation in the 1960's and has grown into an innovative waste recycling facility in Philadelphia with a staff largely comprised of employees from the local community and a 10 acre recovery compound capable of handling over 1500 tons a day of waste and materials. Long before “green” technology was a common phrase, Richard S. Burns & Company pioneered the recovery and recycling of waste and materials, inventing products and techniques to meet customer needs.

Today Richard S. Burns is the Delaware Valley's only complete waste recycling and recovery facility providing:

- Hauling service with a fleet of vehicles able to provide “same day” waste removal, often within one or two hours of a customer's call. For customers using other hauling services, the recycling facility is still ready to receive, recover or recycle materials.
- Container service, offering the ability to rent container sizes and configurations appropriate to specific customer needs.
- A fully-permitted facility which can receive and recycle any type of non-hazardous waste.
- Two LEED certified project managers on staff, allowing fulfillment of LEED requirements for materials recovery