

# FINAL ANNOUNCEMENT

## 1<sup>ST</sup> INTERNATIONAL BRAINSTORMING WORKSHOP ON WASTE TO ENERGY IN INDIA

### Organized by:

National Environmental Engineering Research  
Institute, (NEERI) India

in Association with  
Earth Engineering Centre, Columbia University, USA



**Date: August, 24-25, 2012**

**Venue: Worli, Mumbai**

### BACKGROUND

With the fast depletion of the conventional resources and the growing awareness and concern regarding the environmental effects of their utilization, there has been a major thrust in the recent past to identify and develop alternate energy sources. Of many sources to be considered, municipal solid waste (MSW) could be an alternative and attractive option as an energy source. India, with its large population densities in urban centers, generates vast amounts of MSW, which when converted to multiple types of fuel generating sources, have appreciable calorific value. The cost of such fuel source could be an area of concern and needs economic assessment along with techno-commercial viability. On the other hand, hinterland produces agriculture biomass which is being used as an energy source by villagers, though in an energy in-efficient way.

Organic MSW is identified as one of the potential sources of biomass energy. Biomass is a renewable resource that has a steady and abundant supply, especially those biomass resources that are by-products of agricultural activity. It can displace fossil fuels and also helps in reducing greenhouse gas (GHG) emissions while closing the carbon cycle loop. As the debate on food versus fuel intensifies, biomass can provide added income to farmers without compromising the production of main food and even non-food crops. Energy recovery from wastes is consistent with and complementary to modern

integrated waste management practices. Efforts to prevent and minimize the generation of waste are clearly the most effective use of scarce resources and avoid environmental issues associated with waste handling, treatment and disposal. Energy recovery precedes the final and least favored option, which is the land disposal of residual wastes.

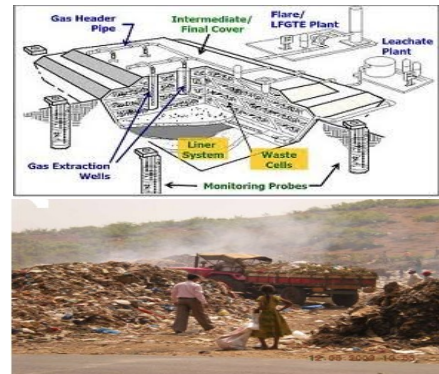
Every year, there are 69 million tons of solid waste generated in 366 Indian cities with a population of 377 million. MSW generation ranges from 0.25 to 0.66 kg/person/day with an average of 0.5 kg/person/day. Most of the generated wastes find their way into land and water bodies without proper treatment, causing severe water pollution. They also emit GHGs like methane and carbon dioxide, and add to air pollution. The problems caused by solid and liquid wastes can be significantly mitigated through the adoption of environment-friendly waste-to-energy technologies that will allow treatment and processing of wastes before their disposal. Waste-to-energy technology involves converting various elements of MSW, such as paper, plastics, and woods to generate energy by either thermo-chemical or bio-chemical processes. The thermo-chemical techniques consist of combustion, gasification, and pyrolysis that produce high heat in fast reaction times. The bio-chemical processes consist of anaerobic digestion, hydrolysis, and fermentation using enzymes that produce low heat in slow reaction times.

A waste-to-energy plant is an excellent alternative to developing a solid waste disposal plant if the landfill option becomes too expensive. A waste-to-energy plant can reduce the volume of waste by as much as 90 per cent. If there is a rapid increase in refuse disposal costs to a point at which it is no longer cost effective to continue off-site landfilling, waste-to-energy application should be considered. By reducing the waste volume down to only 10 per cent of the original volume, one can save 90 per cent of the disposal costs.

According to actual operating data collected by the US WTE industry, on an average, combusting 1 metric ton of MSW in a modern WTE power plant generates a net of 600 kWh of electricity, thus avoiding mining a 1/4 ton of high quality US coal or importing one barrel of oil. WTE is the only alternative to landfilling of non-recyclable wastes, where the decomposing trash generates carbon dioxide and methane, potent GHGs, at least 25% of which escapes to the atmosphere even in the modern sani-

tary landfills that are provided with a gas collection network and biogas utilization engines or turbines. The non-captured methane that escapes before a landfill is “capped” so that the landfill biogas can be collected which has GHG potential of 21 times that of the same volume of carbon dioxide.

The current status of experience and knowledge across the world need to be debated and analyzed to understand how one could use the option of energy generation from the waste. **Taking into account the benefits associated with waste-to-energy option and in view of rising awareness about WTE option in India, Council of Scientific and Industrial Research-National Environmental Engineering Research Institute (CSIR-NEERI) in association with Earth Engineering Centre, Columbia University, New York announces to organize an International Brainstorming Workshop on Waste to Energy under the aegis of CSIR's mission of Wealth from Waste.**



## **THEME AREAS**

**Public health, environmental and economical impacts of existing waste management systems in India and need for WTE technology as an integral component of the hierarchy of sustainable waste management.**

- Material Recovery from Municipal Solid Waste
  - a. Avenues for increasing material recovery for recycling
  - b. Beneficial use of WTE bottom ash
  - c. Landfill mining and remediation
- Energy Recovery from Municipal Solid Waste
  - a. Waste as a source of renewable energy
  - b. Biogas technologies for households, markets and large institutions
  - c. Landfill mining, landfill gas recover and landfill remediation
- Waste-to-Energy Research and Development
  - a. Adapting WTE technologies for India
  - b. Merits & Demerits of various other Thermal processes and their current state of operation & development
  - c. State of the art Flue-gas cleaning and monitoring systems
  - d. Effect of MSW size distribution and grate design on the combustion capacity of WTE Units
- Prevention of corrosion in WTE units
- Understanding the Market in India
  - a. Waste-to-Energy Market and Financing in India
  - b. WTE project failures around the world
  - c. Policy interventions required to make WTE viable
  - d. Legislation Framework in India for Waste Management and Improving Proposals
  - e. Policy on WTE technologies worldwide with special focus on India
  - f. Emissions regulatory system in India
- Role of GIS in waste management
- Challenges Faced by Waste Management Industry in India
  - a. Municipal expectations from the Waste Management Industry
- Innovation in Solid Waste Management for the Developing World
- Panel Discussion on Public Awareness of Waste-to-Energy

## ADVISORY BOARD

**Dr. Kalogirou**, VP Global WTER Council and President of WTER-Greece

**Prof Nickolas Themelis**, Director, EEC, Columbia University, USA

**Dr. S. R. Wate**, Director, NEERI, Nagpur

**Dr. R. N. Singh**, INSA Senior Scientist and Former Director, NEERI

**Dr. S. Devotta**, Chairman, SEAC Maharashtra and Former Director, NEERI

**Mr. Allard M Nooy**, CEO, JITF Urban Infrastructure Ltd., New Delhi

**Dr. DBSSR Sastry**, Ramky Enviro, Hyderabad

**Er. V. K. Chourasia**, CPHEEO, Ministry of Urban Development, New Delhi

**Mr. A. K. Dhussa**, Director, MNES, India

**Dr. Rashid Hasan**, Director, MoEF, India

**Prof. Somnath Mukherjee**, Professor, Jadavpur University, Kolkata

**Mrs. Valsa Nair Singh**, Secretary Environment, Government of Maharashtra, India

**Dr. A. D. Sawant**, Ex Pro-VC Mumbai University

**Prof Mortan Barlaz**, Professor, North Carolina State University, USA

**Prof Debra Reinhart**, Director, National Science Foundation, USA

**Prof Patrick Hettiaratchi**, Professor, University of Calgary, Canada

**Prof Raffaello Cossu**, Professor, University of Padua, Italy

**Dr. Zietsman Joe**, Director, Texas Transportation Institute, USA

**Prof C. Visvanathan**, AIT Bangkok, Thailand

**Prof Jonathan Wong**, Hong Kong Baptist University

**Prof Romeela Mohee**, National Research Chair in Solid Waste Management, Tertiary Education Commission, Mauritius

## ORGANIZING COMMITTEE

**Dr. R. Kumar**, NEERI, Mumbai

**Dr. A. N. Vaidya**, NEERI, Nagpur

**Dr. A. B. Akolkar**, CPCB, New Delhi

**Dr. Sunil Kumar**, NEERI, Kolkata

**Er. Ranjith Annepu**, EEC, Columbia University, USA

**Dr. M. R. Shah**, Senior Advisor, MMRDA, Mumbai

**Dr. S. S. Shastry**, Ramky Enviro, Hyderabad

**Ms. Perinaz Bhada-Tata**, Env. Consultant, Bangalore

**Dr. Anurag Garg**, CESE, IIT, Mumbai

**Dr. C. Sharma**, NPL New Delhi

**Dr. V. K. Garg**, GJ University, Hissar

**Mr. Ackmez Mudhoo**, Mauritius

## WTERT INDIA

**T**his is the first major event organized by WTER - India after its inception in June 2010. WTER - India is the result of an association between the Earth Engineering Center (EEC) at Columbia University and National Environmental Engineering Research Institute (NEERI). It aims to address the rising interest, increasing investments, and to funnel important decisions related to SWM in India in the right direction. WTER - India is included in Global WTER Charter (GWC) where it would function as India's window to the world on the entire spectrum of SWM

issues. WTER - India is set-up with the same guiding principle as GWC that "responsible management of wastes must be based on science and best available technology and not on ideology and economics that exclude environmental costs and seem to be inexpensive now but can be very costly in the future". All sister organizations in WTER's global charter understand that solutions vary from region to region and work together towards better waste management around the world. WTER - India is set-up with the understanding that solutions vary from region to region and is committed to researching locally

### Programme Convener

**Dr. Sunil Kumar**

Scientist, CSIR-NEERI

Email: [wtert\\_india@neeri.res.in](mailto:wtert_india@neeri.res.in)/

[s\\_kumar@neeri.res.in](mailto:s_kumar@neeri.res.in)/

[sunil\\_neeri@yahoo.co.in](mailto:sunil_neeri@yahoo.co.in)

M: 91- 990-363-9925

### Programme Co-ordinator

**Dr. Rakesh Kumar**

Chief Scientist and Head, CSIR-NEERI,

Mumbai Zonal Centre, 89/B, Dr. Annie Besant Road,  
Worli, Mumbai-400018, Maharashtra, India

E-Mail: [r\\_kumar@neeri.res.in](mailto:r_kumar@neeri.res.in)/

[rakeshmee@rediffmail.com](mailto:rakeshmee@rediffmail.com)

Phone: +91-22-24926859; Fax: +91-22-24936635

For additional information, kindly visit [www.wtert.in](http://www.wtert.in)

## REGISTRATION DETAILS

Name: .....  
Designation: .....  
Organization: .....  
Address: .....  
Mobile: .....Telephone:.....  
Email: .....  
Cheque/DD No. : .....Amount: .....

### REGISTRATION AND ACCOMMODATION

Advance registration of speakers and participants are compulsory.

### DATES TO REMEMBER

**Abstract submission:**

**14th July, 2012**

There are few government guesthouses in Mumbai which will be booked for Government officials on first come first serve basis. Information will be provided about hotels and other accommodation, if requested.

### EARLY REGISTRATION FEE

**International delegates: 200 US \$**

**Indian delegates: Rs. 5,000/-**

**Students: Rs. 2,500/ only**

## PUBLICATION DETAILS

A special issue on "Energy production from waste incineration" or "Biofuel production from waste" will be published for the journal **Waste Management, Elsevier Publication** from selected papers presented in the brainstorming workshop.

Special session will be arranged for research students. Poster presentation has also been kept and best papers/posters will be suitably rewarded. Details of poster size are available with Co-ordinator/Convener.

## SPONSORSHIP DETAILS

Sponsorship	Benefits
More than Rs. 1,00,000	6 participant free + One page write-up in souvenir + Displaying of banner + Distributing pamphlet and other company details in kits
Rs. 50,000 – 1,00,000	3 participant free + One page write up in souvenir + Distributing pamphlet and other company details in kits
Rs. 25,000 – 50,000	3 participant free + Distributing pamphlet and other company details in kits

## ADVERTISEMENT DETAILS

Types	Tariff
Back cover page (color)	Rs. 35,000
Inner back cover page (color)	Rs. 15,000
Inner front cover page (color)	Rs. 20,000
First page (color)	Rs. 15,000
Inner page (color)	Rs. 10,000
Inner page (black and white)	Rs. 5,000

**All the payment should be made in favor of Director, NEERI, payable at Nagpur**