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IWWG News & Views

Compiled by Demosthenes Axiotis

In this section of the Journal the reader will find information on the IWWG (International Waste Working Group), reports on activities carried out by Task Groups, a list of future events and relevant notes on the think tank elaboration and activities of the association.

In this issue: reports from the Crete 2010 Conference and the Venice 2010 Symposium, notes from the meeting of the IWWG Task Group on “Hospital Waste” and announcement of the Sardinia 2011 Symposium.

Report from the 2nd International Scientific Conference on Hazardous and Industrial Waste Management. Chania, Crete, Greece, 5–8 October, 2010

The 2nd International Scientific Conference on Hazardous and Industrial Waste Management “CRETE 2010” was successfully held from 5th to 8th October 2010 in Chania, Crete, Greece, under the organization of the Technical University of Crete (GR), the University of Padua (IT), the Technical University of Hamburg (DE) and IWWG.

More than 300 participants from 35 different countries attended the conference from all over the world. A total of 10 keynote speeches, 19 general sessions, 4 workshops, 2 special sessions (in Greek only) and 2 special courses were held, focusing on special issues of industrial and hazardous waste management and treatment, as well as remediation of contaminated sites.

During the opening session, addresses and short speeches were given by the Conference Chairmen, as well as representatives of the Hellenic Ministry for the Environment, Energy and Climate Change.

The first speaker in the Conference was Dr. T. Rummler from the German Federal Ministry for the Environment, Natural Conservation

and Nuclear Safety (DE), who introduced the Conference participants to the issue of hazardous and industrial waste management, through his keynote speech on “Circular economy and resource efficiency - a challenge for hazardous and industrial waste management”.

During the Conference several aspects of industrial and hazardous waste management were approached, including international legislation, waste management and treatment, special waste (e.g. hospital, WEEE, asbestos, etc.), site characterization and restoration, landfilling, waste-to-energy concepts, waste minimization and recycling and toxicity.

Particular attention was focused on the following keynote speeches:

- Prof. J. Gardea-Torresdey from the University of Texas at El-Paso (USA) “Biotransformation of nanoparticles in the environment: Is it a hazard?”
- Prof. N. Moussiopoulos from the Aristotle University of Thessaloniki (GR) “Integrated end-of-life management of electrical and electronic equipment”



The opening session was chaired by Prof. Gidarakos (GR), Prof. Cossu (IT) and Prof. Stegmann (DE).



Participants took part in traditional Cretan dancing during the gala dinner.

- Prof. R. Stegmann from the Technical University of Hamburg (DE) *“Release of landfills from aftercare”*
- Prof. B. Bilitewski from the Technical University of Dresden (DE) *“Why is the incineration of hazardous and industrial waste a necessity of a successful recycling society?”*
- Prof. Raffaello Cossu for the University of Padua (IT) *“Sustainable landfilling of industrial waste”*
- Dr. Gerhard Rettenberger from the Ingenieurgruppe RUK (DE) *“The production of RDF from waste using biological drying systems”*
- Dr. H. Van der Sloot from the Hans Van der Sloot Consultancy (NL) *“New characterization leaching tests and associated modeling tools in assessing hazardous nature of wastes”*
- Prof. T. Albanis from the University of Ioannina (GR) *Pesticide concentration levels and ecological risk assessment in natural surface waters and sediments*
- Dr. H. Grassl from the Max Planck Institute for Meteorology in Hamburg (DE) *“Hazardous waste management and global climate change”*

Two special sessions and one round table discussion were held in Greek only and focused on the prevailing situation of the industrial and hazardous waste management in Greece. Several representatives of different relevant governmental and local authorities, as well as the Hellenic scientific community were present, exchanging experiences, pinpointing problems and shortages and suggesting optimum action plans.

Following the announcement that selected original and high quality papers presented in the CRETE 2010 Conference will be forwarded for publication to scientific journals (Journal of Hazardous Materials, Waste Management and GLOBAL Nest), a special workshop on “How to get published” was scheduled and chaired by Dr. J. Gardea-Torresdey, Editor of the Journal of Hazardous Materials. During this very interesting workshop, important advice, instructions and guidelines were provided, for both new and more experienced authors.

A small committee (W. Calmano-DE, E. Diamantopoulos-GR, K.E Lorber-AT) evaluated all posters displayed in the Conference and an award was given to the best three:



Organizing and support group.



Fondazione Cinin Venice, venue of the Venice 2010 Symposium.

1. Christopoulos K., Mousios E., Anastasiadou K. and Gidaracos E. from Greece for the paper entitled “Solidification / stabilization of fly and bottom ash from medical waste incineration facility”.
2. Stoeberl M. and Russ W. from Germany for the paper entitled “Fermentative production of n-butanol using waste products from the food industry”.
3. Aulenius E., Nehrenheim E., Ribé V., Martel U. and Odlare M. from Sweden for the paper entitled “Risk characterization of a former surface treatment and metal industry site using the triad method”.

In addition to the Scientific Program of the conference, participants had the opportunity to attend the Gala Dinner, where examples of Cretan and Greek Dancing were provided and knowledge on dancing was also exchanged successfully!

The aim of this Conference was to establish an international meeting-point for scientists and practitioners working in the field of hazardous and industrial waste management and treatment. A large number of studies and experiences are carried out in this field in different countries, and therefore a regular two-yearly meeting of those involved would result in improved development in the specific field.

Report from the 3rd International Symposium on Energy from Biomass and Waste. Venice, Italy, 8–11 November, 2010

The Symposium took place in Venice on the premises of the Cini Foundation on the island of San Giorgio Maggiore. In spite of the adverse weather conditions, more than 583 people from 58 countries attended the conference, organized in seven parallel sessions (six in English and one in Italian).

The symposium was opened by Hon. Dr Paolo Russo, Chairman of the Agriculture Committee of the Italian Parliament.

In the opening speech, the opportunities for the agricultural sector represented by the local generation of biomass, focusing mainly on local energy generation, were underlined. Long distance transport of foreign biomass would be minimized if the region in which a biomass-to-energy plant is planned establishes local agricultural policies that avoid competition with food biomass production.

More in general, advances in the application of technologies for energy recovery from biomass and waste were the central themes of the event. Sub-topics addressed combustion and alternative thermal treatments applied to waste and biomass, Refuse Derived Fuel (RDF) characterization and generation, conventional and unconventional anaerobic digestion, biodiesel and other alternative biofuels, global warming, impact on health, strategies and policies.

Waste combustion was presented as a mature technology based on the grate system. However, improvements focusing on process optimization were illustrated. The extensive presence of pyrolysis and gasification plants in Japan was discussed with an aim to aiding comprehension of the real-scale applicability of these processes in different contexts using various streams of waste (for instance plastic residues). Particular emphasis was placed on the suitability of thermal processes on a small scale, in view of the fact that combustion coupled with a steam cycle for energy generation yields a low efficiency electrical output.

Several presentations addressed the issue of RDF. In addition to the co-combustion experience, some case-studies described real-scale plants where RDF is used as the sole input. Other contributions regarded RDF generation and characterization.

Other studies dealt with the characteristics of ashes from biomass and waste thermal treatment. In the first case, particular interest was represented by their means of direct reuse. In the second case, comparative data on ashes from conventional and unconventional processes applied to waste were presented.

A number of presentations on anaerobic digestion characterized the conference. When applied to food waste (following selective collection at source) and associated with post-composting, this process seems to afford an interesting means of integrating the aerobic approach, providing a significant generation of renewable energy and contributing towards limiting problems of odor generated from the treatment plant. Moreover, unconventional anaerobic digestion was presented as a strategy for bio-hydrogen generation.

However, biogas from anaerobic digestion was not the only type of biofuel studied: alternative biofuels were presented, together with the option of converting compost into fuel.

With regard to global warming, in the field of municipal solid waste management, selective collection at source was presented as a strategy to be optimized, also taking into account its indirect effects on the thermal treatment of residual waste. For a correct



Round table during the Venice 2010 Symposium.

approach, a clear traceability of the materials separated by selective collection is mandatory.

Impact on health focused on both industrialized and developing countries. The controversial role of biomass in developing countries was pointed out. Indeed, a significant health risk is produced by bad quality domestic combustion of wood due to the characteristics of stoves. Children are at greater risk than adults. A partial contribution to improving air quality may be provided by biogas combustion from small scale anaerobic digestion serving small communities. Taking into account the generable amount of methane, this gas seems to be more appropriate for use in village schools. Conversely, a few presentations contributed towards furthering knowledge of ultrafine particle sources in industrialized countries. Additionally, the potential underestimation of the role of nitrogen oxides produced in biomass-to-energy plants was pointed out with comparative examples.

With regard to strategies and policies, developing and emerging countries were indicated as a potential source of unexploited waste biomass. For example, in Brazil the banana cultivation sector yields huge amounts of biodegradable residues that are spread on land with the risk of activating an anaerobic process and releasing methane emissions with an impact comparable to that produced by green house gas. In a case-study from Indonesia, bamboo was presented as an interesting source of cultivable biomass. According to preliminary results from Romania, energy exploitation of grape marc could also be achieved through pyrolysis and anaerobic digestion. Moreover, an interesting contribution came from the agronomy sector: proximate and ultimate analyses of wooden and non-wooden biomass provide important information on the potential mix of biomass suitable for feeding into a combustion plant whilst minimizing nitrogen oxide generation and the risk of ash melting.

Two round tables were organized: one at the end of the Italian sessions and another (plenary) during the closing session of the Symposium.

The Italian round table was characterized by a significant contribution from the floor demonstrating the interest in the specific topic: energy, economic and environmental aspect of biomass-to-energy options. Poultry manure combustion was one of the subjects of major debate due to the significant generation of this kind of waste in some areas.

The round table organized during the closing session focused on a detailed comparison between combustion and pyrolysis/gasification. The differences revealed between small and large scale plants were discussed. The importance of complying with conventional design parameters (i.e. stack height) even on applying innovative processes was underlined.

Technical visits to two anaerobic digestion plants ETRA Public Company and one waste incineration plant were arranged. The level of reliability achieved to date by anaerobic digesters in terms of process control was explained. Details on pre-treatments and post-treatments were explained before and during the visit.

A third technical visit to the grate incinerator of Brescia (A2A public company) with high electrical generation efficiency and district heating was also undertaken.

Meeting of the “Hospital Waste” IWWG Task Group during the Hazardous Waste Management Conference Crete 2010

In the context of the Hazardous Waste Management Conference, which took place in Chania, Crete, Greece from 5th to 8th of October 2010, a meeting of the “Hospital Waste” Task Group was held.

The general aims of the Task Group were discussed and established as follows:

- International and interdisciplinary exchange in the collection, disposal and management of hospital waste.
 - The creation of a database of the “state of the art” (legal basis, waste amounts, means of collection and disposal etc.) in participating countries.
 - The identification of basic differences and needs in the varying countries, to be addressed by the task group as a matter of priority.
 - Perception of potentials for optimization and derivation of selected projects, elaboration of the projects in different countries and collation and publication of the results obtained.
- The following specific aims of the Task Group were established:
- Expert discussion and comparison.
 - Specific regulations and handling in participating countries – database.
 - Partner for research activities.
 - Transfer of know – how.

Furthermore, topics suggested by members to be elaborated by the Task Group are as follows:

- Waste generation rates and waste composition in hospitals.
- The management and transportation of Hazardous goods.
- Hospital wastewaters (drugs, chemicals, body fluids in hospital wastewater).
- Members were asked to present their:
 - Business environment.
 - Expectations and contributions in the task group.
 - Situation in the corresponding country regarding hospital waste management including.
 - Legal Situation.
 - Major Issues.

Moreover, Mr. Marc Hoffmann was invited to act as vice chairman. Mr. Hoffmann works for the Integrative Health and Security Management Center, Staff Section Environmental Protection at the Jena University Hospital (DE).

Finally, new members have been invited to join the task group in the context of the session "Hospital Waste". Members should belong to medical institutions, and be either academics or industrial researchers and scientists working in the field of healthcare waste.

Announcement of the 13th International Waste Management and Landfill Symposium SARDINIA 2011

The 13th International Symposium SARDINIA 2011 "Waste Management and Landfill" will be held on October 3–7, in S. Margherita di Pula, Cagliari, Italy. The previous symposium was held in October 2009 with an attendance of nearly 1000 delegates from 80 different countries.

The symposium will last 5 days and will include the following topics:

- A. Waste policy and legislation.
- B. Waste management strategies.
- C. Public concern and education.

- D. Waste management assessment and decision tools.
- E. Waste characterization.
- F. Waste collection.
- G. Waste minimisation and recycling.
- H. Biological treatment.
- I. Thermal treatment.
- J. Mechanical biological treatment prior to landfilling.
- K. Sanitary landfilling.
- L. Integrated wastewater and solid waste management.
- M. Waste management and climate change.
- N. Waste management in developing and low income countries.
- O. Special sessions.

Call for abstracts

An extended abstract (at least one but no more than two full pages) should reach the Organization no later than February 2011.

Acceptance of papers will be communicated to the Leading Author by March 15th 2011.

Abstracts should be addressed to:

Eurowaste Srl,
Via Beato Pellegrino 23, 35137 Padova, Italy
E-mail address: papers@sardiniasymposium.it

Please send your abstract by e-mail as a word file (.doc) attachment. The file should be saved using the Leading Author's name (e.g. Smith.doc).

For further enquires and information on registration, exhibition, accommodation, etc., please contact the Organising Secretariat (E-mail address: eurowaste@tin.it) or visit the official symposium website at www.sardiniasymposium.it

For further information on IWWG activities, please:

- Access the IWWG Website: www.iwwg.eu
- Contact: Demosthenes Axiotis, IWWG Secretariat,
Via Beato Pellegrino 23, 35137 Padova, Italy
Tel.: +39 (0)49 8726986; *fax* +39 (0)49 8726987
E-mail address: info@iwwg.eu