



COLUMBIA UNIVERSITY
EARTH ENGINEERING CENTER

CHARTER OF THE GLOBAL WTERT COUNCIL (GWC)

Introduction

For nearly two decades, the Earth Engineering Center (EEC) of Columbia University has conducted research on the generation and disposition of used materials and products in the U.S. and globally. Economic development has resulted in the annual generation of billions of tons of used materials which represent a considerable resource but, when not managed properly, constitute a major environmental problem both in developed and developing nations. The goal of EEC is to identify and help develop the most suitable means for managing various solid wastes research, and disseminate this information by means of publications, the web, and technical meetings. EEC is also collaborating with *BioCycle* journal in carrying out a bi-annual survey of generation and disposition of MSW in the U.S. that is now being used by U.S. EPA in computing greenhouse emissions from waste management.

This research has engaged many M.S. and Ph.D. students on all aspects of waste management. Since 2000, EEC has produced thirty M.S. and Ph.D. theses and published nearly one hundred technical papers. In 2002, EEC co-founded, with the U.S. Energy Recovery Council (ERC; www.wte.org), the Waste-to-Energy Research and Technology Council (WTERT), which is by now the foremost research organization on the recovery of energy and metals from solid wastes in the U.S.

In the course of its studies, EEC established that one billion tons of MSW are landfilled each year, landfilling will continue to be used in the foreseeable future, and nearly 80% of the world's landfills are not equipped to capture landfill gas (LFG) and protect surface and ground waters from contamination. Therefore, in 2008 EEC proposed the expanded Hierarchy of Waste Management that differentiates between traditional and sanitary landfills.

In recent years, sister organizations to the WTERT in the U.S. have been created in several other nations such as Brazil, China, France, Greece, and Japan. In the interest of the common goal of these organizations, i.e. the advancement of sustainable waste management, it was necessary to establish a WTERT "Charter" that was agreed upon by the existing members of the global WTERT Council and is used to explain the operations of the Council to other nations that wish to become members and also to prospective industrial and government sponsors.

The name of the WTERT Council

The principal tool for disseminating information by the U.S. and other existing members of WTERT has been the internet. The web addresses used (www.wtert.org, www.wtert.eu, www.wtert.gr, etc.) all include the acronym WTERT and this has the advantage that when one types WTERT in Google or other search engine, automatically one links to WTERT organizations in different countries. Thus WTERT has become a valuable brand name and can be very helpful to people seeking information on waste management in a particular country (e.g. Greece) by using the acronym WTERT and then the name of the country or letters representing it (e.g. "gr"). It is therefore necessary for member nations to register and use the "wtert" web address (e.g. www.wtert.gr) as well as whatever other name and address they wish. For example, the WTERT organization in Greece chose the name "SYNERGIA" so one can find their web either by going to www.wtert.gr or by using the SYNERGIA address.

Each new national or regional member should choose whatever word or words are most suitable to express the mission of their organization in their national language; and also use the second name "WTERT-Greece", "WTERT-France", etc. to express the fact that they are also a member of the Global WTERT Council.

Mission of WTERT Council

The mission of WTERT is to identify the best available technologies for the treatment of various waste materials, conduct additional academic research as required, and disseminate this information by means of publications, the WTERT web pages, and periodic meetings. In particular, WTERT strives to increase the global recovery of materials and energy from used solids, by means of recycling, composting, waste-to-energy, and sanitary landfilling with landfill gas utilization. The guiding principle is that responsible management of wastes must be based on science and best available technology at a particular location and not what seems to be inexpensive now but can be very costly in the future.

Figure 1 shows the accepted "hierarchy of waste management". However, WTERT understands that for practical or economic reasons it may be not be possible to follow this hierarchy at all times and at all locations. For example, waste-to-energy requires a much larger initial investment than a landfill and therefore may not be attainable at a certain stage of economic development of a community; in such a case, a sanitary landfill with LFG recovery would be the next preferable option. As another example, an EEC study has shown that use of yard wastes as Alternative Daily Cover in sanitary landfills, in place of soil, is environmentally advantageous to windrow composting.



The hierarchy of waste management

Scope of operations of Global WTERT Council (GWC)

The WTERT Council consists of designated representatives of each national WTERT organization. These representatives form the governing board of the Council. The Chair of the governing board of the Council will be elected by majority vote of the members for a tenure period of two years. The Council will review and vote on amendments of the WTERT Charter and subsequent actions affecting the operations of GWC. Most communications will be by e-mail or telephone conference. However, occasional meetings of the Council will be called, preferably to be held in conjunction with an international meeting on waste management.

The WTERT Council realizes that waste management solutions vary from region to region. It is hoped that through the new and powerful tool of the internet, we can collectively create a global platform for sharing of experience, expertise and information that will advance the goals of sustainable waste management world-wide. The Council may also provide some start up funding for new WTERT organizations.

Scope of operations of each national WTERT organization

The objectives of each WTERT national organization are:

- 1 To develop and maintain a WTERT web page that describes the mission and scope of the organization and links as many as possible academic, industrial, and government research groups working on various aspects of waste management, within the nation. Preferably, this web page will be hosted at a major university that is conducting research on resource recovery from wastes. Most of the material in this web page will be in the national language

- so as to inform the general public and policymakers as well as academia and industry. However, the front web page should also provide for English language translation of part of the content, as discussed in (2) below.
- 2 To bring together as many as possible of the research groups in the nation who are concerned with advancing sustainable waste management in their country.
 - 3 To identify the most suitable technologies for the treatment of various waste materials in the nation, encourage additional academic research as required, disseminate this information within the nation, and provide an English language window for the outside world to learn about problems and opportunities for advancing waste management in this nation.
 - 4 Once the organization platform described in (a) and (b) has been created, the national WTERT can seek sponsorship and funding by industry and government organizations concerned with advancing waste management in the nation. This model of operation has been successful with some of the existing WTERT national members who are willing to advise and assist new members.

Current WTERT national members and contact information (in chronological order of joining WTERT Council)

1. WTERT-US (www.wtert.org)

Earth Engineering Center, Columbia University
500 West 120th St., New York, NY 10027, U.S.A.

Prof. N.J. Themelis <njt1@columbia.edu>
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2. WTERT-Canada (www.wtert.ca)

Canadian EfW Coalition (CEFWC)
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3. WTERT-Greece (www.wtert.gr)

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Dr. Efstratios Kalogirou <stkal@intranet.gr>

4. WTERT-China (www.wtert.cn)

Waste-to-Energy Department

Chongqing University of Science and Technology (CQUST)

Dr. Songtao Kong <kst@tom.com>

Zhejiang University (Hangzhou)

Prof. Kefa Cen kfcen@sun.zju.edu.cn

Ms. Yani Dong, <yd2214@columbia.edu>, GWC liaison

5. WTERT-Germany (www.wtert.eu)

Name: W_tERT
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Dr. Michael Jakuttis <jakuttis@wtert.eu>
Prof. Martin Faulstich <m.faulstich@wzw.tum.de>
Prof. Peter Quicker (RWTH, Aachen, Germany)
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6. WTERT-Japan (www.wtert.jp)

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7. WTERT-Brazil (www.wtert.br)

Name of organization: Congeneres
University of Brazil, Rio de Janeiro (UFRJ)

Dr. Sergio Guerreiro Ribeiro <sergiog@rjnet.com.br>

8. WTERT-France (www.wtert.fr)

Ecole des Mines d'Albi-Carmaux Campus Jarlard, Ecole des Mines d'Albi-Carmaux, Campus Jarlard, Route de Teillet, ALBI CT Cedex France

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9. WTERT-U.K. (www.wtert.uk)

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10. WTERT-Italy (www.WTERT.it)

Name: MatER

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11. WTERT-India (web address pending)

National Environmental Engineering Research Institute (NEERI)

Dr. Sunil Kumar <s_kumar@neeri.res.in>

Mr. Ranjith Annepu rka2109@columbia.edu (GWC Liaison0)

12. WTERT-Mexico, Mr. Hector Gil Müller, Universidad Autonoma del NorEste,
Saltillo, Mexico

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