WTERT Waste-to-Energy Research & Technology Council

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

Introduction

U.S. has 87 waste-to-energy (WTE) plants that process 28 million tons of municipal solid wastes (MSW) and generate about 15 TWh of electricity annually. During the nineties, all of these plants implemented the Maximum Achievable Control Technology (MACT) regulations of EPA at an estimated cost of one billion dollars. As a result of this retrofit, the U.S. WTE emissions of dioxins were reduced by one thousand times and of mercury by one hundred. Another fifty smaller plants that existed in the U.S. in the eighties did not, or could not, implement MACT and were shut down.

Despite the fact that the existing U.S. WTE plants have been recognized by EPA as one of the cleanest high temperature sources, cleaner than coal-fired power plants, metal smelters and cement plants, there has been some continuing opposition to new WTE plants in the U.S. In the period 1995-2002, the Earth Engineering Center (EEC) of Columbia University studied all waste management technologies and concluded that WTE was preferable to the only other means for disposing post-recycling wastes: landfilling. In the same year, the academia-industry consortium known as the Waste-to-Energy Research and Technology Council (WTERT, www.wtert.org) was formed. Its objectives were

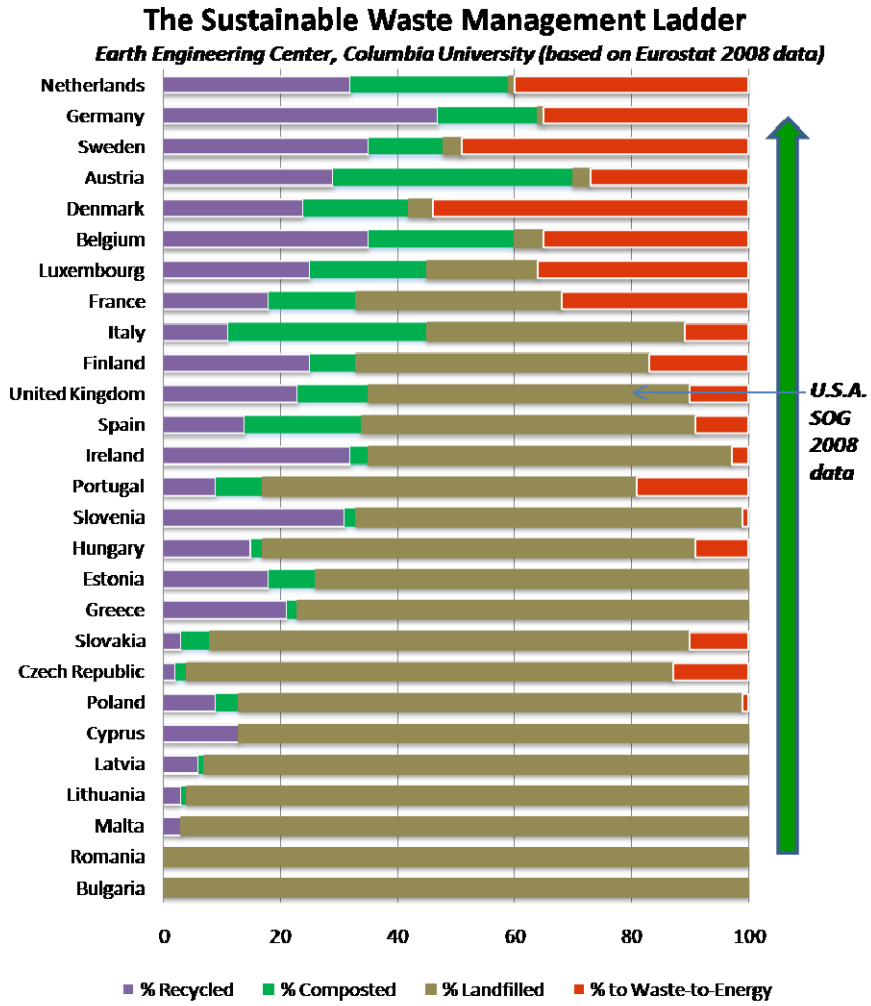
a) to advance technologies for recovering energy and materials from post-recycling residues
b) to inform the U.S. public and policymakers as to the advantages of waste-to-energy and all other means for the sustainable management of wastes.

By now WTERT is recognized as the premier source of information for WTE research and development in the U.S.

WTERT already has sister organizations outside the U.S., such as in China (www.wtert.cn), Germany (www.wtert.eu), Greece (www.wtert.gr), and Canada (www.wtert.ca). Also, other organizations are under development in U.K., Italy, and France.

The perceived need for WTERT-Brazil

Nearly all of the post-recycling MSW of Brazil goes to landfills some of which have been overfilled. The diagram below shows that some nations have reduced landfilling by a combination of recycling, composting and combustion with energy recovery that are already overflowing such as the one serving Rio de Janeiro.



Organization and objectives of WTERT-Brazil

In the view of the above, it is necessary for knowledgeable academics in Brazil to take the lead to inform the public by forming a web-based organization similar to WTERT-U.S. This organization will be called WTERT-Brazil or some suitable name in Portuguese (e.g., similar to SYNERGIA-Greece). The principal tool of WTERT-Brazil will be its web page and its links to all other academic, industry and government agencies in Brazil who are concerned with advancing sustainable waste management; and also with all the WTERT and SUR sister organizations around the globe.

The objectives of WTERT-Brazil are:

a) To link all research and development groups working on various aspects of waste management, in Brazil, and through the WTERT sister organizations, to share information on Sustainable Waste Management throughout the world.

b) Identify the most suitable technologies for the treatment of various waste materials in Brazil, encourage additional academic research as required, and disseminate this information within the nation in Portuguese; and also provide an English language window for the outside world to learn about problems and opportunities for advancing waste management in Brazil.

The guiding principle: Sustainable Waste Management

The guiding principle of WTERT-Brazil will be the same as that of its sister organizations in other nations: Responsible management of wastes must be based on science and best available technology and not on ideology and economics that exclude environmental costs.

A Columbia study has estimated that the global generation of wastes will be doubled by the year 2030. On a per capita basis, the U.S. consumption of energy and generation of solid wastes is double that of Europeans and Japanese who live just as comfortably. Therefore, there is a lot of room for waste and energy reduction in this country. However, the goal of "zero waste" is unattainable. This has been demonstrated by the most environmentally conscious nations, such as Japan and Switzerland, where every possible effort is made to recycle but still rely on WTE to avoid landfilling.

Recycling - It is the next best thing to do after waste reduction. In the U.S. it has reached the average of 20% of the MSW but some states are doing better than this.

Composting - Both aerobic and anaerobic - is practical only for source-separated organics. About 9% of the U.S. MSW is composted; most of it consists of source-separated yard wastes composted in open windrows. Other methods include covered aerated static piles and in-vessel bioreactors.

Waste-to-Energy (WTE): Of the post-recycling and post-composting wastes of the world's urban population, an estimated 200 million tons of municipal solid wastes are processed in waste-to-energy (WTE) plants that recover some of the energy content of wastes in the form of electricity or heat. Of the U.S. MSW, about 7% is processed in 87 WTE plants that annually recover about 15 million megawatt-hours of electricity.

Landfilling - Most of the global urban MSW, over 800 million tons, is landfilled. SUR estimates that one square meter (about 10 square feet) is used up, forever, for every ten tons of MSW landfilled. True sustainable development requires that only inorganic residues be landfilled, as is already done in Japan and Switzerland.

This requires to expand considerably the present WTE capacity (about 190 million tons), a very costly proposition for developing nations. Therefore, it is also necessary for nations like China and India to construct sanitary landfills that protect surface and ground water, and capture biogas that contributes to Climate Change. The U.S. is the world's largest landfiller with China following. However, the U.S. is leading in the capture and utilization of landfill biogas.

The hierarchy of waste management (EEC, 2008)