



# Presentation of The Global Waste-to-Energy Research and Technology Council (GWC)

# What is WtERT?

Recognized as one of the world's foremost research centers on thermal conversion of waste (experimental and analytical)

The Waste-to-Energy Research and Technology Council (WtERT) was founded in 2002 by the Earth Engineering Center of Columbia University in New York, and the Energy Recovery Council, the U.S. association of waste to energy companies in the U.S.

The Earth Engineering Center is the engineering unit of Columbia University's Earth Institute. It's mission is to develop technologies that can help in the sustainable development of the Earth's resources: Minerals, energy, water, and the environment.

Over the years, universities and organizations in several other countries created WtERT organizations resulting in the formation, in 2011, of the Global WtERT Council, Inc. (GWC). GWC is now a non-profit corporation registered under the laws of New York State and the U.S. and brings together engineers, scientists and managers from universities and industry in several countries to develop solutions to major environmental problems.



# Our Mission

More than 20 years of continuous research and dissemination of knowledge

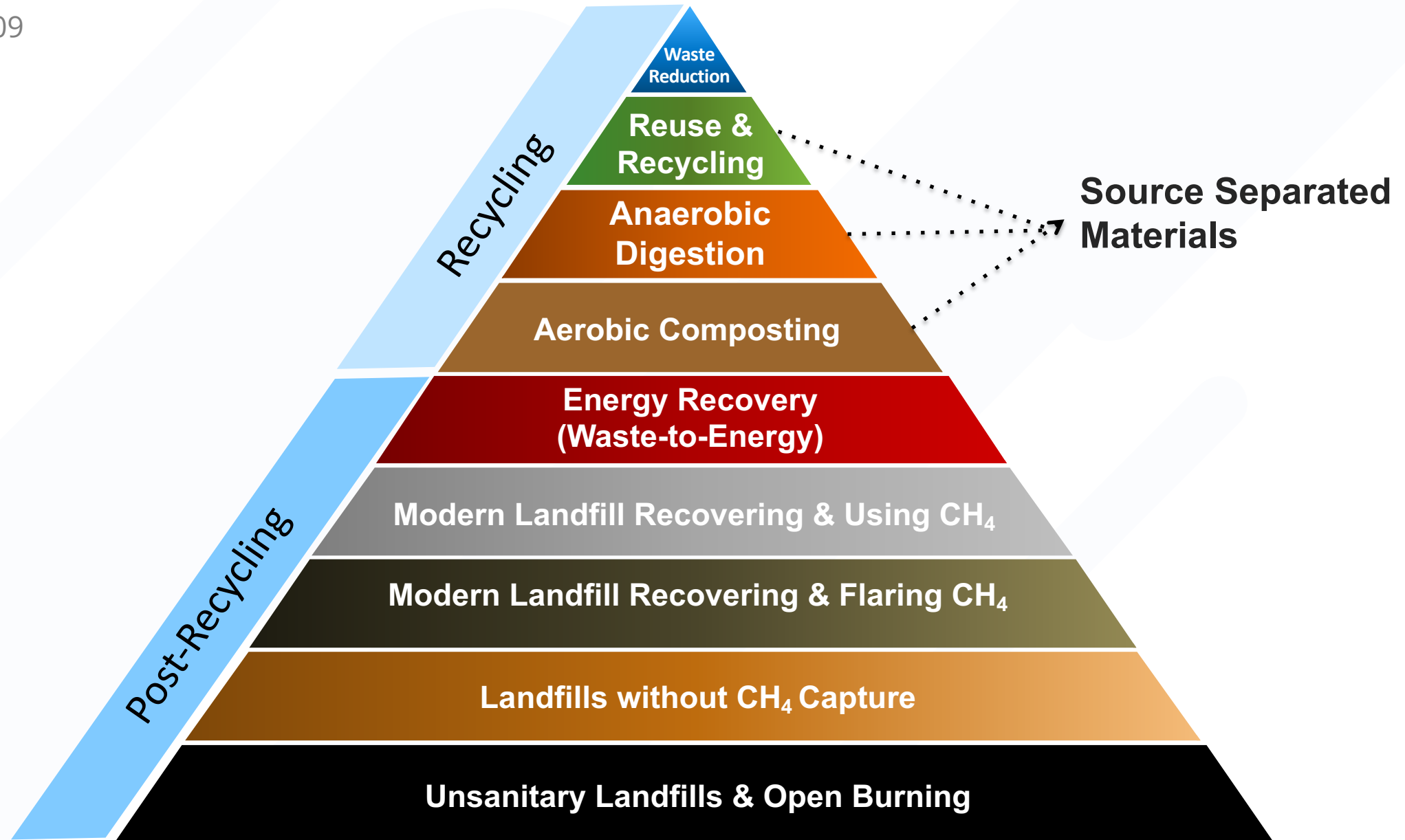
The mission of GWC is to:

- identify the best available technologies for the recovery of materials and energy from urban and other residues of human activity
- conduct research and development as required, and
- disseminate this information by means of its publications, the web, and periodic Meetings.

In particular, the objectives of the GWC member organizations are to increase resource recovery from used products and minimize the environmental impacts of waste disposal, worldwide. The guiding principle of GWC is that the sustainable management of wastes must be based on science and best available technology and not what seems to be inexpensive now but can be very costly in the near future.

# The GWC hierarchy of waste management

EEC 2009



# OUR Global Reach

We are actively seeking local and global collaboration with industry, academia and all levels of government around the World.

17  
Nations

5  
Continents

23  
Academic &  
Research  
Institut  
partners

14  
Languages  
spoken



U.S.A



Canada



France



Germany



Greece



China



India



Chile



Italy



Turkey



South  
Korea



Japan



Brazil



U.K.



Colombia



Morocco

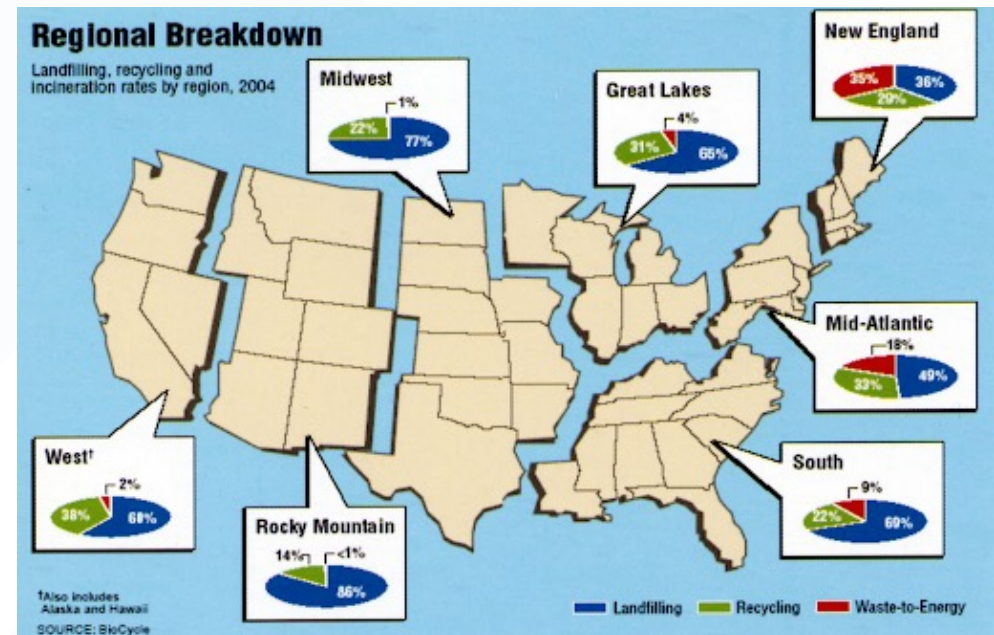


Czech  
Republic

# Major achievements of GWC since its inception

**Research papers:** The web page [www.wtert.org](http://www.wtert.org), under Publications-Theses, provides the results of over eighty GWC-sponsored studies on all subjects of waste management. Many of these theses and hundreds of technical papers have been published and are cited in the technical literature.

**U.S. Survey of Waste Management:** Since 2004, Columbia University, GWC has carried out a bi-annual survey of waste management in the fifty states of the U.S. The results of this study have been used by the Environmental Protection Agency in computing the greenhouse effects of managing municipal solid wastes in the U.S.



# Major achievements of GWC since its inception

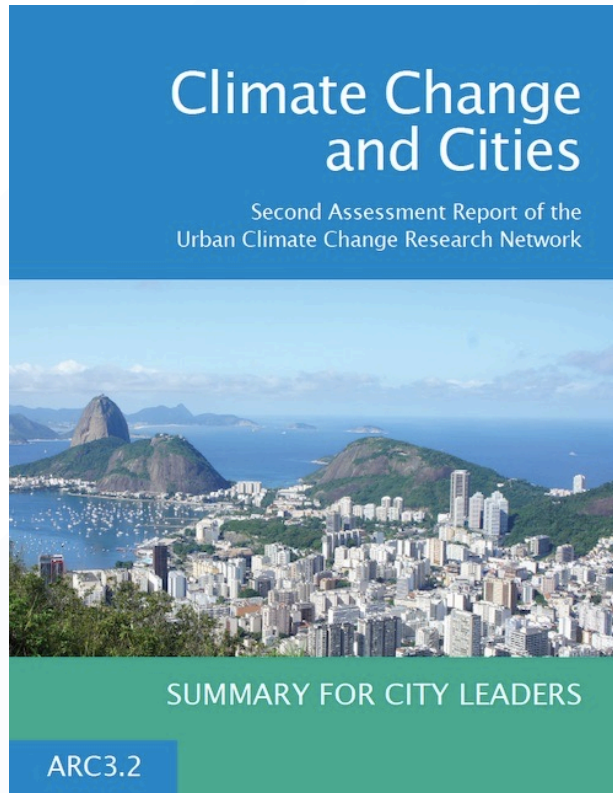
Through its research, training and global partnerships, it mobilizes science and technology to advance sustainable development

## **International recognition:**

- GWC has been recognized by the most prestigious awards of the Materials and Energy Division of the American Society of Mechanical Engineers and by the Confederation of European Waste to Energy Plants (CEWEP).
- GWC co-authored the Waste Management section of the 2015 Assessment Report of the Intergovernmental Panel for Climate Change (IPCC).
- GWC was member of the the technical advisory panel of Singapore's Environmental Protection Agency for the development of environmental guidelines for the beneficial utilization of Waste-to- Energy Bottom Ash.

# Major achievements of GWC

Co-authoring UCCRN report presented at COP-21



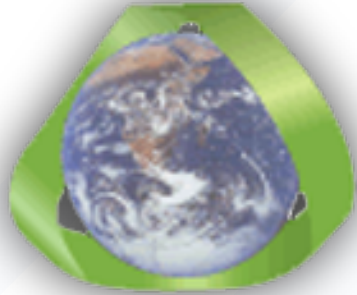
Prof. Thanos Bourtsalas is co-author of the Waste Management Chapter in the Second Assessment Report of the Urban Climate Change Research Network (UCCRN), a joint effort between the Earth Institute and the UN presented in COP21 and in UNHQ.

Including WtE in IPCC 2014 Report



Due to extensive GWC efforts WtE was for the first time acknowledged as Sustainable Waste Management (SWM) technique including the SWM ladder and SWM hierarchy and as such mentioned in IPCC 2014 report. In 2007 only recycling and composting was referred as such.

# Major achievements of GWC



## **SOE** Search Engine

*Earth Engineering Center*  
**Columbia University**

SOE Search Engine is the most comprehensive on line database under the auspices of the GWC and the Earth Engineering Center of Columbia University. SOE contains numerous publications and dissertations regarding advancing Sustainable Waste Management.

# Guidebook on Sustainable Waste Management

In 2011, the Inter-American Development Bank (IDB) engaged the Earth Engineering Center of Columbia University to put together a Guidebook on Sustainable Waste Management that guides Latin American and Caribbean cities how to proceed with selecting the best waste management technologies and executing multi-million projects.

This Guidebook is available on Google and by now has been translated into Portuguese, Spanish, and Greek; Chinese edition is under way by the GWC regional organization WtERT-Asia.



## GUIDEBOOK

FOR THE APPLICATION OF  
WASTE TO ENERGY TECHNOLOGIES  
IN LATIN AMERICA AND THE CARIBBEAN

NICKOLAS J. THEMELIS, MARIA ELENA DIAZ BARRIGA,  
PAULA ESTEVEZ, AND MARIA GAVIOTA VELASCO  
EARTH ENGINEERING CENTER, COLUMBIA UNIVERSITY



JULY, 2013

*PLEASE NOTE: THIS GUIDEBOOK IS STILL UNDER FINAL REVIEW BY  
IDB, BUT IT HAS BEEN RELEASED FOR DISTRIBUTION*

# WtERT Pre-feasibility studies of WtE projects

GWC has accumulated an enormous amount of information and contacts that can be of value

## The island of Rhodes, Greece

2008; sponsored by DEKR, updated in 2017 on behalf of the Public Power Corporation of Greece

## Tripoli, Peloponnese, Greece

2009; Sponsored by Technodomiki company of Greece

## Buenos Aires, Argentina

2011; sponsored by IADB

## Valparaiso region, Chile

2012; sponsored by IADB

## Toluca City, Mexico

2012; sponsored by IADB

## Montevideo, Uruguay

2013; sponsored by United Nations and Waste Management Agency of Montevideo

## Lahore, Pakistan

2015; sponsored by Ecoair-U.S. and Lahore Waste Management Company

## Santiago, Chile

2016; sponsored by the Columbia Global Centers

## Araucania, Chile

2017; sponsored by WTE-Araucania group of Chile

# Supporting and advising Governments and Leaders around the World on best management practices



On September 26, 2018, Prof. Themelis of GWC made a presentation to UN-visiting First Lady of Turkey Emine Erdoğan and to Minister of the Environment, Prof. Birpinar, regarding the potential and benefits of WTE, for Turkey. The good news is that a one-million ton WTE plant start operation in Istanbul on March 2021.

The Institute has advised dozens of heads of state and government on economic strategy and carries out extensive researches on environmental issues caused by growing economies

<https://www.tccb.gov.tr/en/news/542/98830/first-lady-erdogan-meets-with-professor-sachs-the-director-of-the-earth-institute-at-columbia-university>

# The President's Global Innovation Fund Columbia Global Centers

The third round of grants from the President's Global Innovation Fund



Nickolas J. Themelis is one of the faculty winners of the Columbia University 2015 President's Global Innovation Fund grants for the project titled, "Advancing Sustainable Waste Management in Latin America and Disseminating the Results to Other Developing Regions".

The purpose of the Fund is to support faculty who are developing projects that increase opportunities for research, teaching, and service around the world.

COLUMBIA  
GLOBAL  
CENTERS

MUMBAI  
SANTIAGO  
RIO DE JANEIRO

## WtERT involved in The Columbia Global Centers around the World

- On April 17, 2017, The Mumbai center invited Dr. Bourtsalas of WtERT-USA to present research findings on the level of municipal solid waste (MSW) management achieved by different countries.
- On August 24, 2017, The Santiago Columbia Global Center organized a workshop to address the best available WTE technologies for the recovery of energy or fuels from municipal solid wastes and other industrial, agricultural, and forestry residues. It featured the participation of Dr. Bourtsalas as well Prof. Alex Godoy from WtERT-Chile.
- On August 29, 2017, The Rio de Janeiro Columbia Global Center hosted a workshop organized by the Earth Engineering Center of Columbia and GWC to discuss the future of waste management in Brazil and in Latin America

# Contact Us



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