

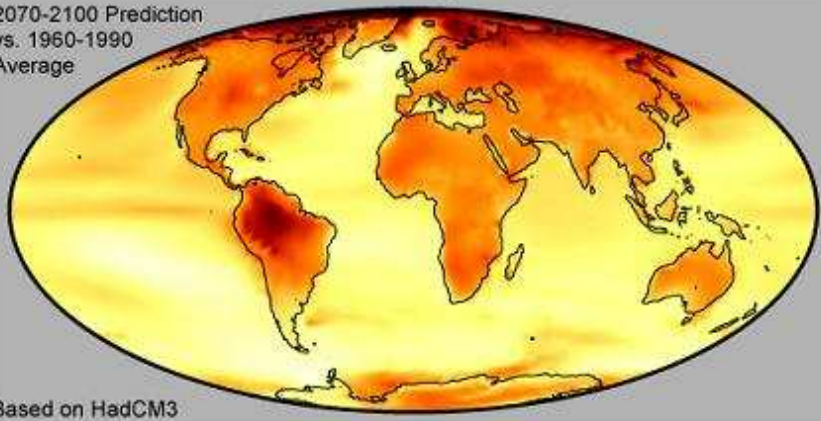
# ISWA's White Paper on Climate Change and Waste Management Re-evaluating Waste

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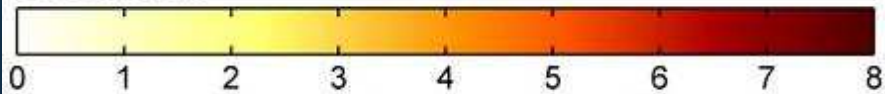
[mavropoulos.blogspot.com](http://mavropoulos.blogspot.com)

# Global Warming Predictions

2070-2100 Prediction  
vs. 1960-1990  
Average



Based on HadCM3



Temperature Increase (°C)

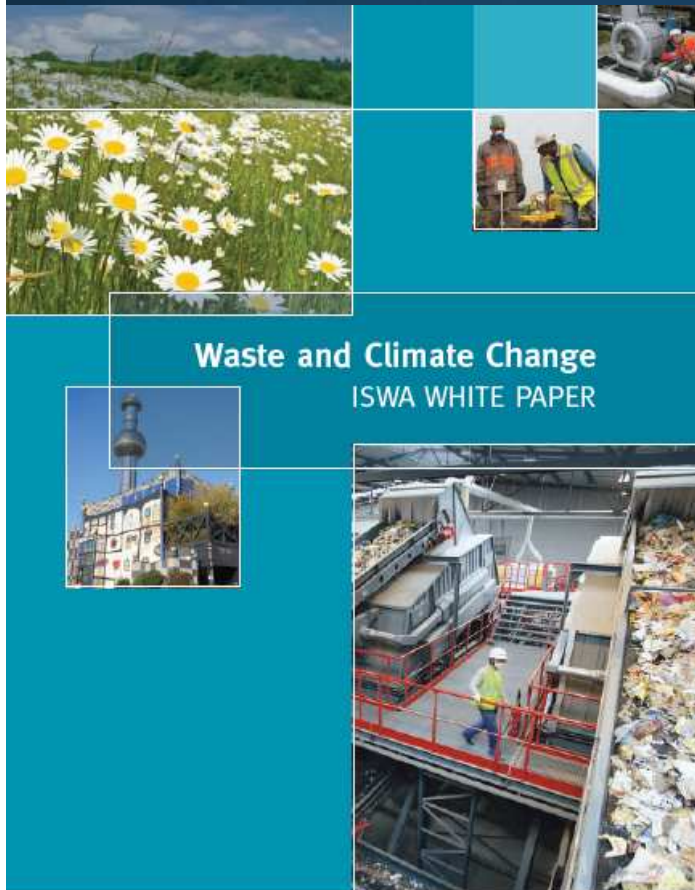


Polar Bear forages on dry ground, Barrow AK. © 2002 Braasch



[www.iswa.org](http://www.iswa.org)

- Introduction
- Industry's position and role
- Portfolio of technologies
- Waste prevention & Recycling
- Biowaste
- Energy from waste
- CDMs
- Policies & Regulations
- Quantification issues
- Conclusions

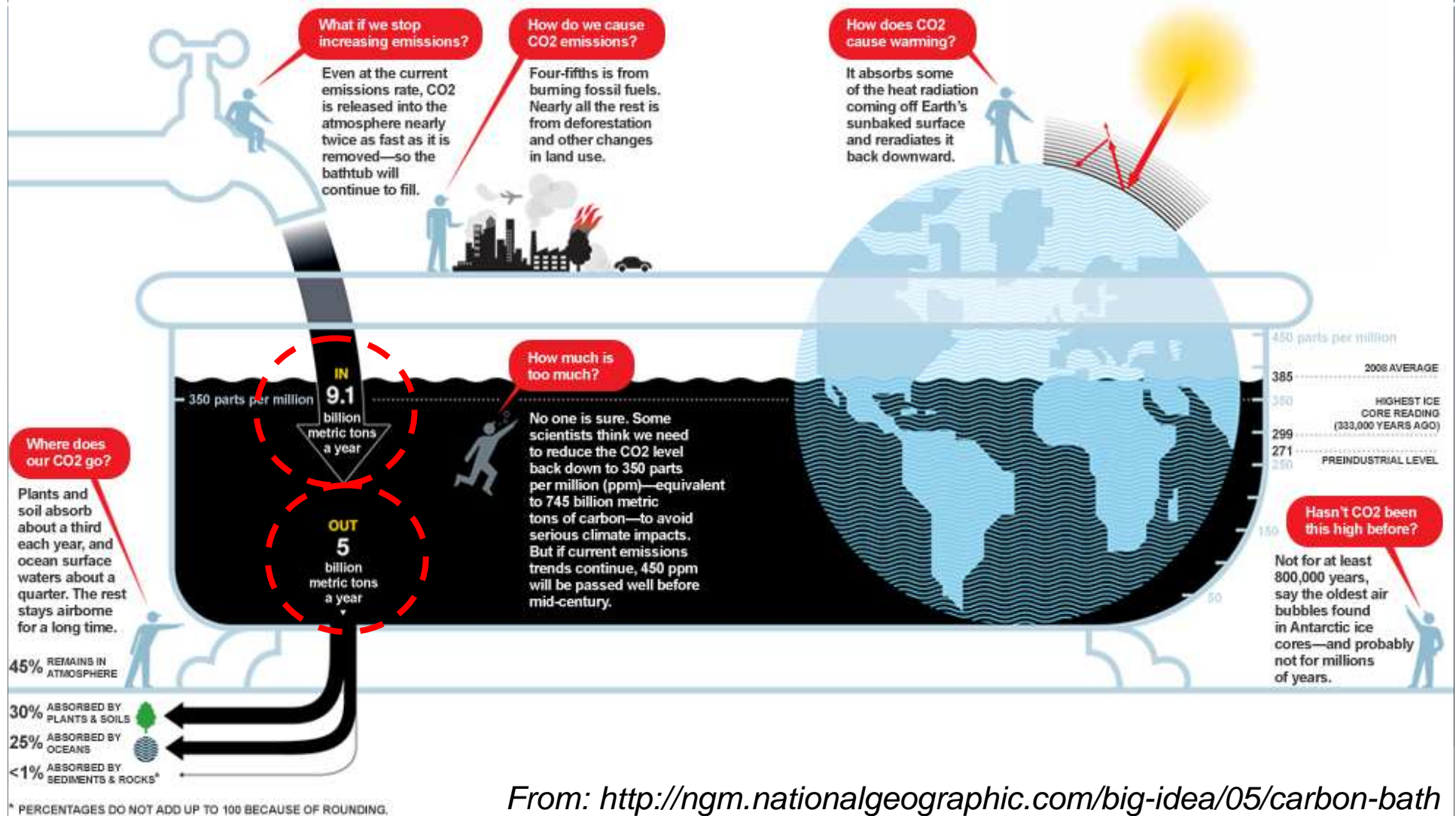




# What's different?

- Global view
- Holistic view
- Independency of the usual lobbies
- Framework for upgrading SWM activities within GHGs global discussion and action plans

# Introduction: the carbon bathtub and the SWM industry



From: <http://ngm.nationalgeographic.com/big-idea/05/carbon-bath>



- Stop increasing CO<sub>2</sub> emissions is not enough

- **Rapid reduction is a necessity**
- Even so, it will take time to reduce the level of the threats evolved
- **Humanity still lacks the required political tools and systems for a global response**





# Industry's role and position

3% of the problem worldwide

20% of the reduction in EU 2020

**SWM industry has the unique potential to become a net saver - reducer of CO<sub>2</sub> emissions**

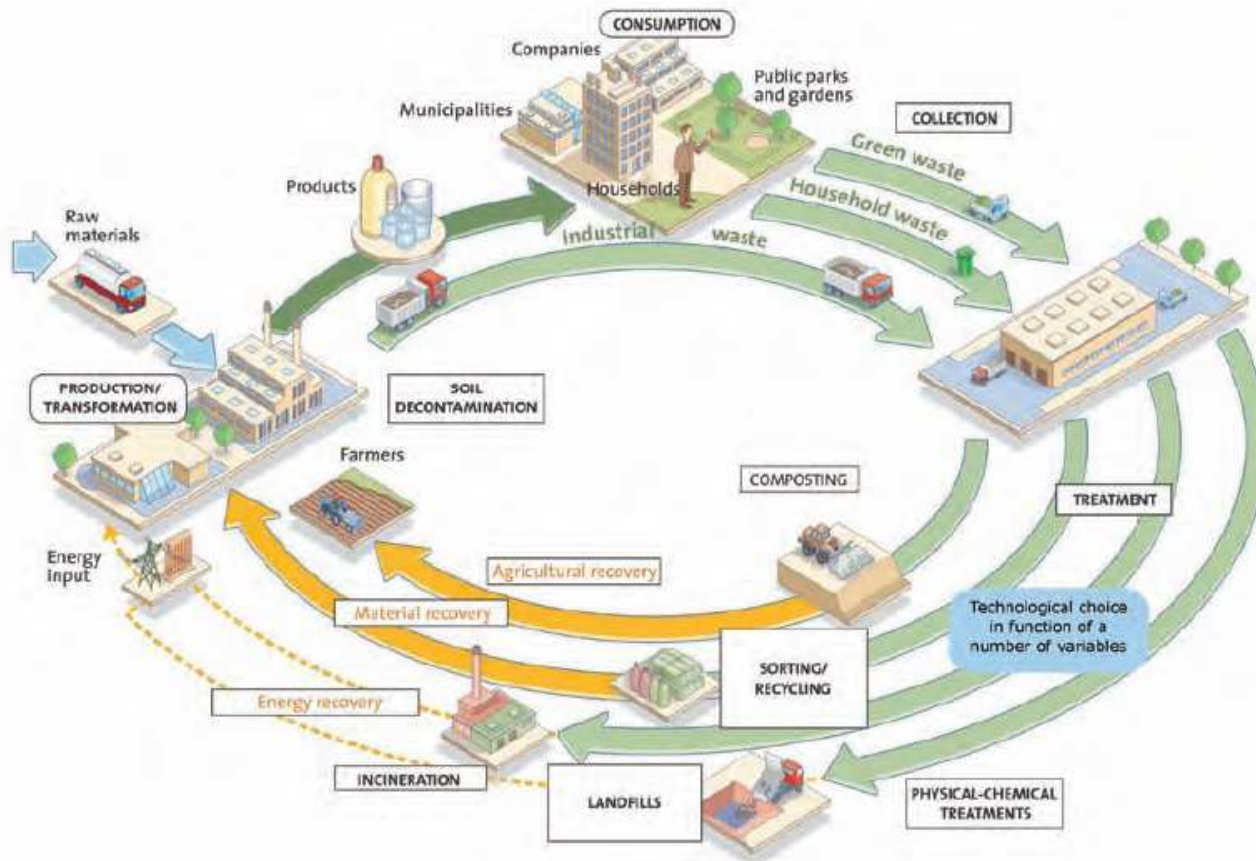
|  | 1990                              | 2007                              | 2012-2020<br>(projected) |
|--|-----------------------------------|-----------------------------------|--------------------------|
| European waste sector annual GHG emissions | 69 million tonnes CO <sub>2</sub> | 32 million tonnes CO <sub>2</sub> | Net reducer              |



# A key-area for CO<sub>2</sub> reduction investments

- Huge global unrealized potential of reduction of GHGs from SWM activities from both developing and industrialized countries
- There are obvious improvements in any country that can be directly applied in order to have measurable results in short-term horizon

# Portfolio of tools and technologies



Proven  
Commercial  
Continuously  
Improved  
Decades of  
expertise  
Tailor made  
solutions

# GHGs as an innovation driver

- Energy efficiency in collection - transportation and WtE
- **Biowaste management**
- Reduction of emissions –CCS
- **Increase production and use of alternative fuels**
- New production and consumption patterns of products



# Our main expertise: deliver change



The real expertise lies in applying decades of experience and advanced technology to establish integrated systems rather than copying single solutions from one region to another

# Waste Prevention and Recycling

- Potential savings by extended RRR applications could greatly exceed savings achieved by technologies

| Material  | Kg recyclables per 1000 kg MSW | Kg recovered per 1000 kg MSW | Kg CO <sub>2</sub> -eq. saved per 1000 kg Material | Kg CO <sub>2</sub> -eq. saved per 1000 kg MSW |
|-----------|--------------------------------|------------------------------|--|---|
| Paper     | 200                            | 140                          | 2,500-600  | 350-85  |
| Aluminium | 10                             | 6                            | 10,000   | 60  |
| Steel     | 25                             | 15                           | 2,000  | 30  |
| Glass     | 50                             | 30                           | 500  | 15  |
| Plastic   | 80                             | 50                           | 1,000-0  | 50-0  |
| Total     | 365                            | 241                          |  | 505-190                                       |

Table 4.1 Recyclables as present in typical Northern European MSW, and approximate CO<sub>2</sub>-eq saved when recycling the listed materials as opposed to use of virgin raw materials for production of the same amount of recycled material. Energy saving is by substituting energy from coal fired power plants.

# Biowaste management

## Soil Protection

Organic matter  
Water retention  
Workability

## Climate Change

C sequestration  
Reduction of Ps – Fs

## Waste Management

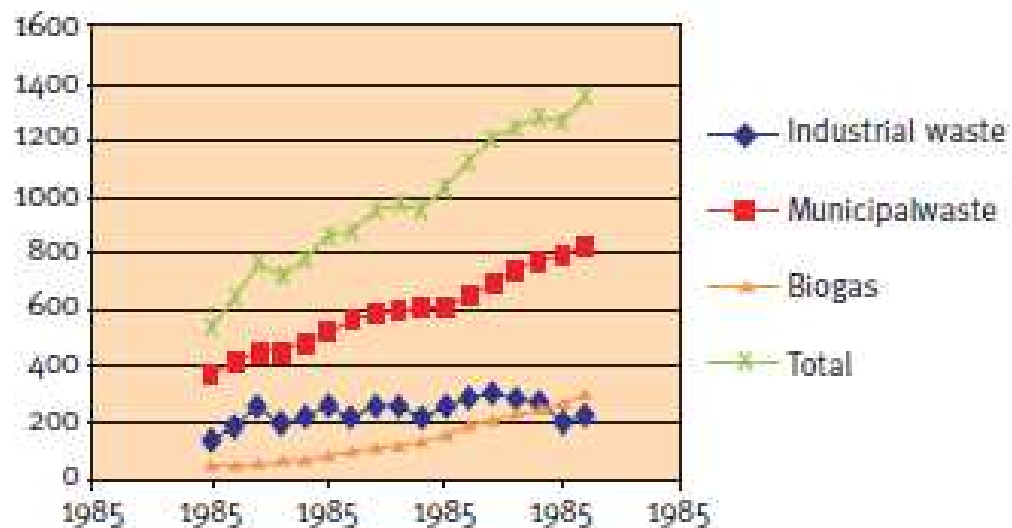


- Aerobic and anaerobic biological treatment technologies reduce GHG emissions by:
  - sequestering biogenic carbon in soils
  - improving soil physical properties
  - adding soil nutrients
- Avoided GHG emissions = 60 kg CO<sub>2</sub> eq. per tone of biodegradable waste

# Energy from waste

Waste advantages over many biomass resources:

- Regularly collected at public expenses in any case
- Transport and logistics are already established
- Proven energy conversion technologies are already there for many decades





# CDMs

## Key programs under the Kyoto Protocol

- CDM - 18% of the 1,834 CDM projects were waste related (10/09)
- JI – 19 of 73 projects are solid waste
- Lots of potential for additional projects



## Challenges:

- 1) Technology diversification
- 2) Geographical distribution
- 3) Approval process



# Policy and regulations

| Actions related to                          | Examples of policy and regulation instruments   |
|---|---|
| Waste generation and collection             | Producer responsibility<br>"Full cost" collection tariffs<br>Separate collection schemes for specific waste types   |
| Material recycling sector                   | Strategies and precise targets for recycling of specific waste streams<br>Producer responsibility<br>Landfill tax<br>Tax exemptions for recyclable materials<br>Green Public Procurement to stimulate demand for recycled products                        |
| Incineration and anaerobic digestion sector | Co-ordination with energy planning<br>Subsidies for construction<br>Landfill ban of biodegradable waste<br>Secure sufficient waste to the plants<br>Tax exemptions for energy generated<br>Emissions limitations  |
| Landfill sector                             | Strategies for phasing out old landfills<br>Landfill ban on biodegradable waste or untreated waste<br>High technical standards in general and especially for performance to reduce GHG emissions by capture and utilisation of the energy<br>Landfill tax |

# We need a more conscious WM industry

- GHGs as a global footprint of SWM activities
  - Global impacts of local actions
  - Necessity of global coordination for SWM infrastructure
- GHGs and the temporal scale
  - Previous and current practices create long-term results
  - Importance of long-term thinking and planning

# An opportunity for SWM industry to...

- Increase the importance of SWM in the political agenda
- Globalize the current scientific and technical knowledge and localize their shape and forms
- Setup new standards for waste management
- Innovate the whole life- cycle of waste management




# Instead of conclusions

- GHGs context provides a window of opportunity for SWM activities
- There are mature technologies and approaches that can be easily applied and deliver substantial CO<sub>2</sub> emission reduction
- The main problem is their worldwide adoption in a timely manner
- The central challenge is to create global incentives for firms and households to adopt state of the art ways of waste management



- Market forces can not face the problem themselves because market prices do not reflect environmental harm or benefits – markets must be part of the solution
- National and Local Governments can not resolve the problem by themselves – we can not afford a more intensive and more dangerous waste trafficking



# A Global Convention for waste is

- Absolutely required
- Certainly achievable and ...
- Waiting for your personal support



I will be happy to share ideas...

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