INTRODUCTION

• The causes and consequences of climate change are generally accepted and recognized

• Solid waste management practices generate GHG emissions

• ISWA White Paper (December 2009)
KEY DRIVERS

- ISWA has identified the following drivers to move the waste industry forward as a leader in reducing GHG emissions:
  - Technology
  - Material Recovery
  - Organic Recovery
  - Energy Recovery
  - CDM
  - Policy and Regulation
  - GHG Accounting Methodologies
TECHNOLOGY

• No one size fits all!
• Must be tailored to particular country/region
• Key components:
  1) Integrated
  2) Lower energy consumption
  3) Utilizes energy recovery
TECHNOLOGY (continued)

• **ISWA Recommendations:**

1) Encourage global responsibility

2) Assess present GHG emission levels

3) Foster the sharing of experiences, technologies, skills and knowledge

4) Utilize proven technologies and additional research
MATERIAL RECOVERY

- CRITICAL!
- Substantial GHG emission reductions
- Variety of materials to target
- U.S. national recycling rate was 33.4% (2007)
ORGANIC RECOVERY

- Substantial portion of waste steam globally (30-70%)
- Soil conditioning or fertilizer
- Impact – reduced need for pesticides
ORGANIC RECOVERY (continued)

• **ISWA Recommendations:**
  1) Understand impact of compost on soil
  2) Continue research and sharing of best practices
ENERGY RECOVERY

- Significant energy value in waste
- Proven technologies exist
  - Waste-to-energy -- more than 130 million tonnes of waste are burned every year at over 600 waste-to-energy plants
ENERGY RECOVERY (continued)

- Dual GHG reduction benefit
- Encourage favorable waste utilization policies
- Policies/incentives may include:
  1) Pricing
  2) Tax credits
CDM/JI

• 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
CDM/JI (continued)

• Challenges:
  1) Technology diversification
  2) Geographical distribution
  3) Approval process
CDM/JI (continued)

• Effective mechanisms for transferring SW technologies to developing countries
• Significant environmental, social and economic benefits
CDM/JI (continued)

- **ISWA Recommendations:**
  1) Develop new CDM methodologies for unrepresented SW projects
  2) Streamline project approval process
  3) Simplify CDM demonstration additionality requirements
POLICY & REGULATION

• Waste policies and regulations can be strong drivers for reducing GHG emissions
• Paradigm shift in WM policies
  • Public health to waste utilization
• Policies should contain precise intermediate and long-term goals
• Regulations and policies from one country or region cannot be transferred across borders
Example #1 – European Union

- Prior to 1990 policies focused on reducing waste going to landfills and encouraging the recycling of materials, but with no binding targets.
- From 1990 to 2007 the EU reduced GHG emissions through progressive policies that targeted reducing packaging and diversion of organics from landfills – included binding targets.
- GHG emissions have been reduced from 69 million tonnes of CO$_2$e in 1990 to 32 million tonnes of CO$_2$e in 2007.
Example #2 – North America

- Past few years have seen a dramatic shift in the political climate concerning the need to limit GHG emissions

- No national GHG reduction program has been established (although lots of pending legislation); however, many states are taking the lead in reducing GHG emissions through regional initiatives

- U.S. EPA issued final regulation that requires mandatory reporting of GHG emissions from sources (including landfills and waste-to-energy facilities) that emit over 25,000 tonnes of CO₂e annually
POLICY & REGULATION

Example #3 – Malaysia

• Policy and regulation instruments include:
  • Producer Responsibility
  • Action plans and targets for recycling materials and closure of old landfills
  • Requirements for waste minimization, use of recycled content materials, limitation on the use or disposal of environmentally degrading products and product labeling
  • Current policies in Malaysia call for 17% waste reduction and recovery and the closure of all existing dumpsite by 2020
POLICY & REGULATION

• ISWA Recommendations:

  • Policies and regulations coupled with fixed goals are important drivers for reducing GHG emissions and obtaining other environmental benefits

  • Review and analyze experience in Europe and U.S. to understand potential mechanisms to implement SW policies
GHG ACCOUNTING

• Accurate measurement and quantification is necessary to set realistic reduction targets
• Reporting and quantification tools exist
• IPCC GHG inventory methodologies only estimate direct emissions
  • Significant portion of waste sector’s GHG benefits are from avoided emissions
GHG ACCOUNTING

• **ISWA Recommendations:**

  • Waste sector should continue its efforts to standardize the accounting methodologies

  • Encourage the IPCC to adopt an additional methodologies to capture in avoided emissions and environmental benefits
SUMMARY

• The waste industry has made substantial contributions and efforts to reduce GHG emissions, but there still exists significant potential for further emission reductions

• ISWA white paper titled Waste and Climate Change is available from the ISWA website www.iswa.org
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