



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 stream 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

POLICY & REGULATION

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 CO₂e in 1990 to 32 million tonnes of CO₂e in 2007

POLICY & REGULATION

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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Waste Wise With ISWA