Northeast Forum on Climate-Waste Connections

Working Together: Reducing GHGs Through Materials Management

July 23, 2009

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West Coast Forum on Climate Change, Waste Prevention, Recovery and Disposal

A Materials Management Perspective to Climate Change Policy Work

Viccy Salazar, US EPA, Region 10

July 23rd, 2009

Materials Management

An approach to using and reusing resources most productively and sustainably throughout their life cycles

- **minimizing the amount of materials involved**
- **minimizing associated environmental impacts.**

Results in significant GHG savings.

Results in significant toxicity, emission and environmental quality improvements

GHG Emissions Across the Waste and Materials Lifecycle

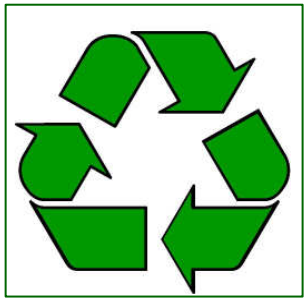
Materials Extraction

- energy and transportation emissions
- reduction in carbon storage

Manufacturing

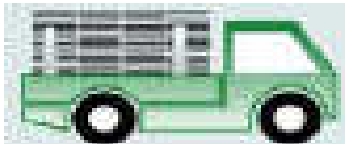
- energy, process and transportation emissions

Recycling, Reducing, Reusing



Use

- energy emissions



Composting

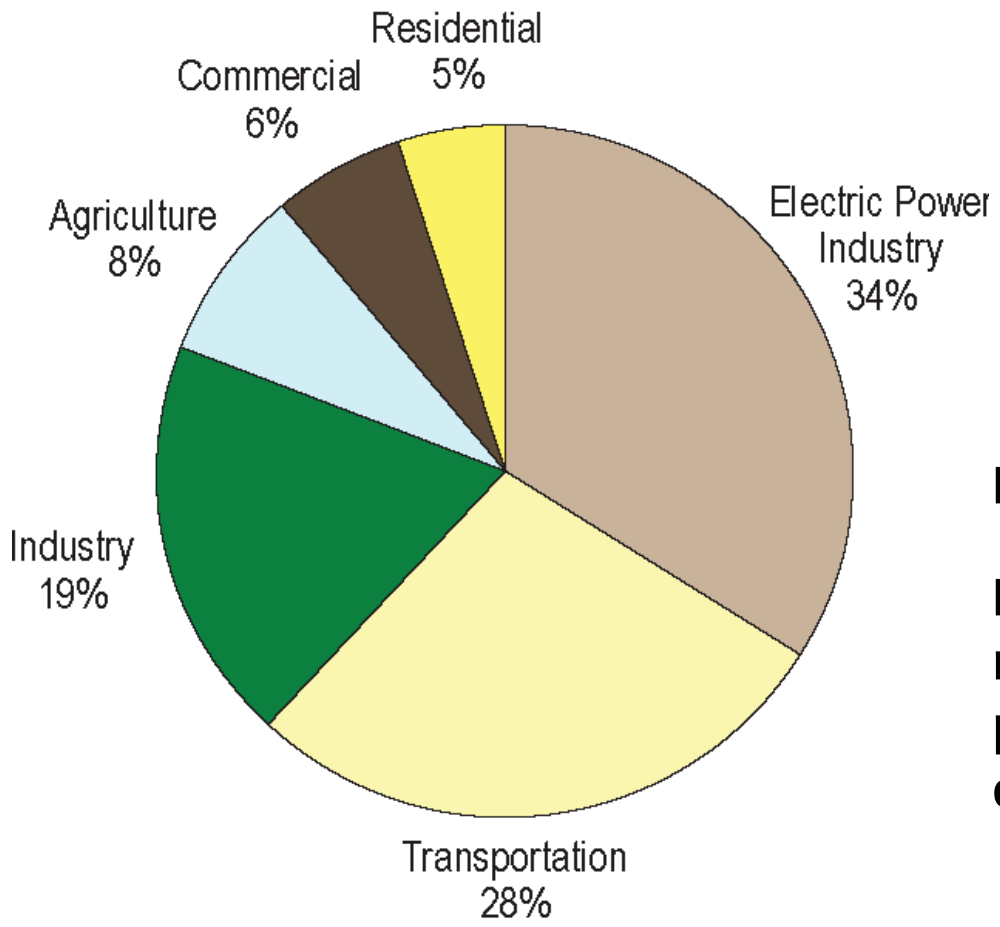
Landfilling

- landfill gas emissions
- offsets from energy recovery, if used

Waste Management

- transportation emissions

Conventional Accounting: Sector Based
U.S. GHG Emissions (2006)



End-of-pipe focus

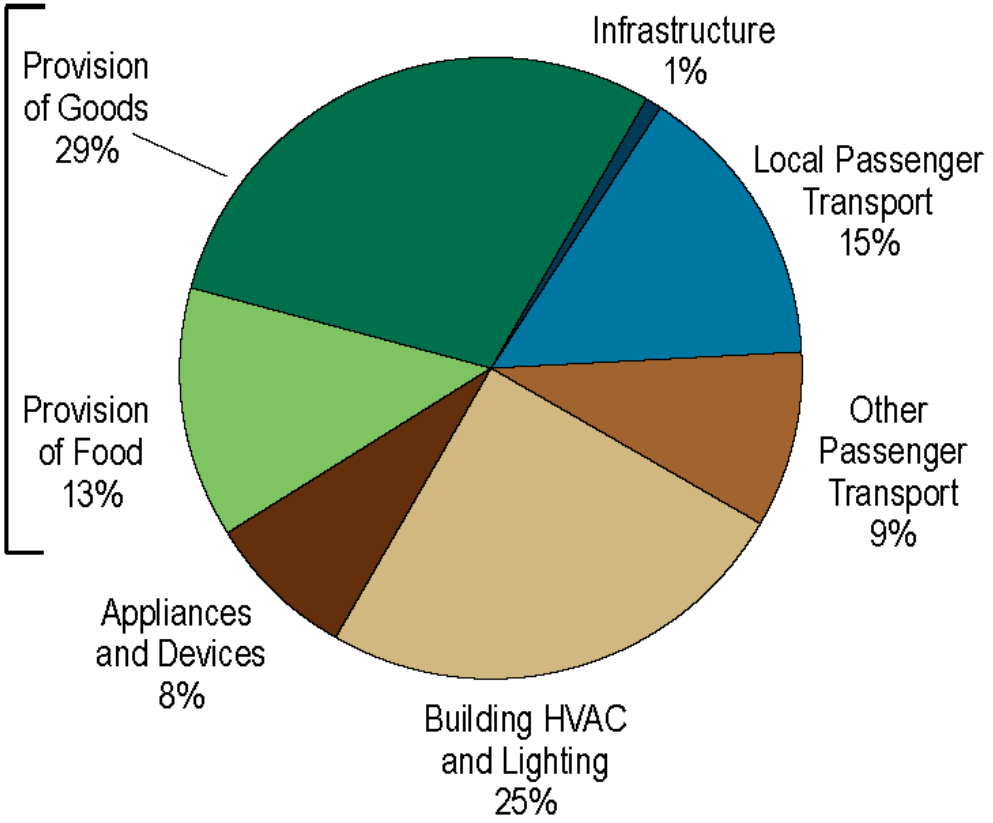
Doesn't show role materials management plays in reducing GHG emissions

Source: U.S. Inventory of GHG Emissions and Sinks : 1990-2006 (US EPA, 2008)

Systems Based View:
U.S. GHG Emissions (2006)

Same GHG emissions, a new lens.

Materials Management



Source: Draft values from *Opportunities to Reduce Greenhouse Gas Emissions through Materials and Land Management Practices*. U.S. EPA. (forthcoming).

Technical Potential Reductions from Materials Management

Source reduction	
Reduce packaging use by 50%	40-105 MMTCO2e/yr
Reduce use of non-packaging paper products by 50%	20–70 MMTCO2e/yr
Extend the life of personal computers by 50%	25 MMTCO2e/yr
Reuse/Recycling	
Recycle all construction materials	150 MMTCO2e/yr
Increase national MSW recycling and composting rate from 32.5% to 100%	300 MMTCO2e/yr
Compost all food scraps	20 MMTCO2e/yr
Energy Recovery/Disposal	
Combust for electricity generation all currently landfilled MSW	70-120 MMTCO2e/yr
Combust MSW remaining with 50% recycling rate	66-113 MMTCO2e/yr
Capture for electricity generation all landfill methane	150 MMTCO2e/yr

Note: Total U.S. 2006 Emissions = 7054 MMTCO2e

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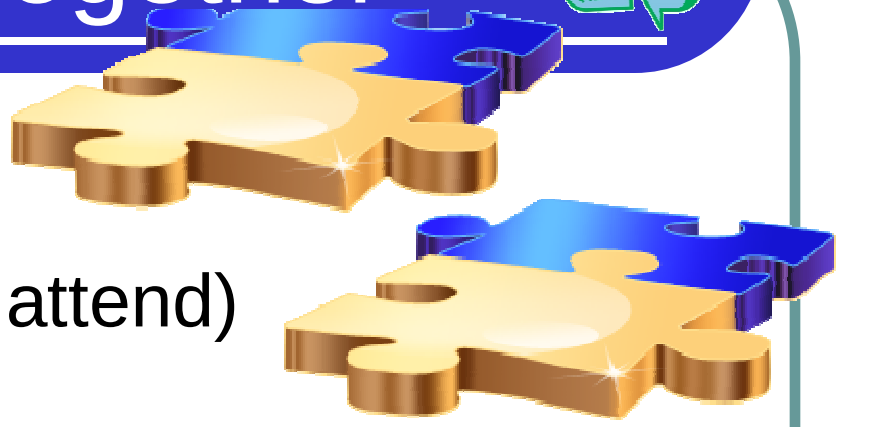
Creating Solutions Together



56 West Coast Govt Reps

- Get Educated (over 500 attend)
- Make a Plan
  - identify areas of collaborative effort and strategic actions to reduce greenhouse gas (GHG) emissions through improvements in ***waste prevention, recovery, and disposal***
- Develop a Joint Statement
- Work together to develop solutions
  - 6 workgroups working together

Joint Statement

- Participants identified five primary action areas that all types of communities and agencies can use to reduce GHG emissions associated with materials management.
  - Incorporate Materials Management into Climate Change Accounting and Inventory Methodologies
  - Develop GHG/Materials Management Communication Strategy and Public Outreach
  - Develop a Research Agenda
  - Prioritize Materials and Materials Management Actions for Immediate Implementation
  - Advance Product Stewardship as a Tool to Address Climate Change

Workgroups are working

Climate Change and Materials Management Communication Workgroup:
Goal: Outreach campaign directed at shifting both consumer behavior and influencing programs and policy.
Expected Outputs:
• Develop messaging/common language
• PowerPoint for local government
• Targeted public education “Top Ten” themes to reduce GHG impacts

Materials Management Workgroup:
Goal: Identify and develop immediate implementation strategies that have a high potential for significant GHG reductions
Expected Outputs:
• Review materials characterization and embodied energy data
• Develop prioritized lists of materials and actions to reduce GHG impacts of these materials

Workgroups are working

GHG Inventory Workgroup:
Goal: Integrate materials-related emissions (both upstream and downstream) into state and local GHG inventories.
Expected Outputs:
• Incorporate emissions associated with materials consumption and recovery related emissions reductions into the CARB/CCAR Community Inventory Protocol
• Work with ICLEI and the GHG inventory consulting community to integrate materials-related considerations into state/local government inventory software and inventories
• WARM (Waste Reduction Model) – Evaluate applicability for inventories and support improvements.

Research Workgroup:
Goal: Establish a shared research agenda and develop a strategy to communicate research results, working with an advisory committee and utilizing academic and library resources.
Expected Outputs:
• Develop agenda of prioritized materials/climate research questions
• Identify, annotate and share key research.
• WARM (Waste Reduction Model) –Incorporate research needs to support Improvements

Workgroups are working

Product Stewardship Workgroup:
Goal: Establish and/or harmonize state product stewardship/EPR framework policies and establish the connections between EPR framework policies and reductions in greenhouse gases.
Expected Outputs:
• Research emissions factors of priority EPR products
• Develop Climate/EPR briefing paper
• Coordinate western EPR and Climate/Materials policy initiatives

Alaska Workgroup (rural issues):
Goal: Utilize the knowledge gained from other states to develop strategies for Alaska. Alaskan strategies need to account for rural communities and transportation limitations.
Expected Outputs:
• Develop data collection and per capita waste generation goals (as opposed to recycling rate goals)
• Develop waste prevention, recovery, and disposal strategies

We can't get from here to there without major changes.

Key Findings:

- Measurement matters
  - WARM is a valuable tool and we need to continue improving it – especially around organics (underway)
  - Current inventories and protocols under represent the impact of effective materials management – ICLEI and CARB
  - Emissions accounting under represents the impact the US has on GHG emissions – we consume more than we produce.
  - Measurement is key to having materials become as important as energy and transportation in emission reduction policies..
    - How do we financially motivate producers to use less materials and less GHG intensive materials.

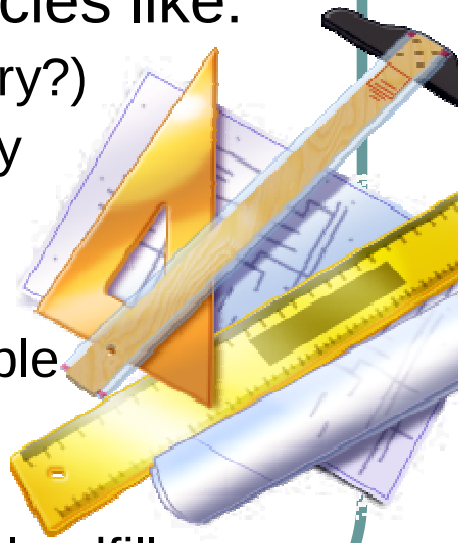
Getting from here to there (cont)

- More targeted research needed
  - We need to move forward with existing knowledge while increasing our knowledge base
- Education and communication are critical tools for success.
  - Stakeholders don’t understand the potential benefits.
  - Competition exists between traditional accounting and system accounting.
  - Lack of information a barrier to implementation.

Getting from here to there (cont)

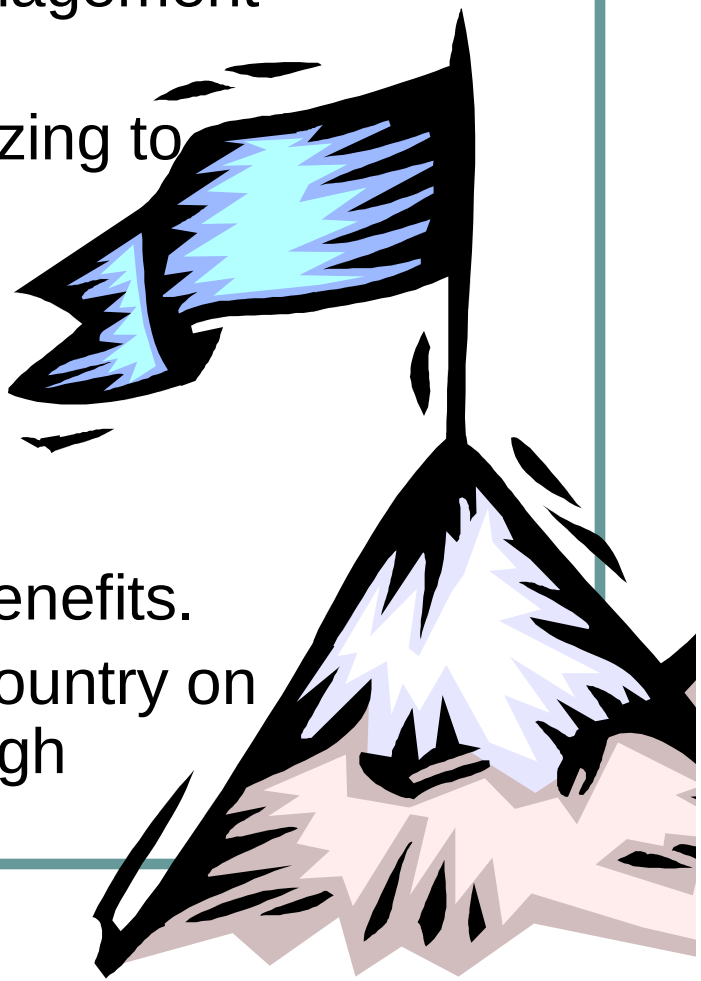
The old tools are not sufficient

- We need to expand and mandate solutions in partnership with all stakeholders and partners – *voluntary isn't enough*.
- We need to explore, implement and fund policies like:
  - Aggressive recycling and composting (mandatory?)
  - Product Stewardship and producer responsibility
  - Zero waste and 75-95% recycling goals
  - Product standards and labeling
  - Leveraging purchasing/environmentally preferable purchasing
  - Building capacity and infrastructure
  - Addressing high embedded energy materials in landfills
    - C&D, Organics, Paper, Metals, Plastics, Carpet



The Challenge

- To **be bold and strategic** in taking advantage of effective materials management policies and opportunities
- To **support each other** while organizing to act nationally.
- To be **transformational** instead of incremental.
- To **learn** from others who have been successful
- To **fund** this work and achieve the benefits.
- To **lead and add value** across the country on how to reduce GHG emissions through effective materials management.



Working together

- Contacts (about the west coast forum):
  - Dana Warn, EPA Region 10, Warn.dana@epa.gov or 206-553-6390
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- If you want to be on a workgroup
  - Webinar Organizers will be sending out information
  - Contact Dana or Shannon directly

NEWMOA Climate – Waste Action Plan

Sarah Weinstein,
Mass DEP

Overview

- Background
- How the Plan was developed
- Plan Framework
- Plan Strategies
- Moving Forward

Background

- NE states have a long history of working regionally to address pollution:
  -NEGC Environment Committee
  -NEIWPCC
  -NESCAUM
  -NEWMOA

What is NEWMOA?

- Northeast Waste Management Officials' Association
- State programs governing:
  - hazardous & solid waste
  - pollution prevention
  - waste site cleanup
- Members: CT, ME, MA, NH, NJ, NY, RI, VT

Why Prepare a Regional Climate - Waste Plan?

- 2007 request from NEGC Environment Committee: How will the NE interstates' programs help achieve regional climate change goals?
- Addressing climate change is the Environmental Commissioners' highest priority

Background Research

- Researched:
  - NE waste generation & management
  - Connection of waste management & GHG emissions
  - Benefits of strategies for reducing GHGs
  - State SW & Climate Action Plans
- Interviewed key state contacts, researchers, & others

NEWMOA Planning Steps:

- Created guiding principles
- Identified waste management strategies with significant co-benefits for GHG reductions
- Identified options for regional collaboration
- Prepared Action Plan

Status

- Plan under review by state environmental commissioners (6 have approved it)
- NEWMOA Directors identified "Year 1" priorities

Guiding Principles

- Interstate collaboration is necessary
- Focus on products/materials with biggest climate impacts (based on full life cycle)
- Minimize energy consumption & GHGs from waste

Guiding Principles

- Avoid unintended consequences
- Seize opportunities for renewable energy development & use
- Consider waste management in climate change adaptation plans

Strategies

- Minimize life cycle GHG impacts of products & waste
- Increase waste reuse & recycling
- Reduce methane emissions from landfills
- Increase public awareness

Strategies

- Improve data on the climate/waste connection
- Facilitate renewable energy development at waste sites
- Promote “green” cleanups of hazardous waste sites
- Improve planning for disaster debris management

Near Term Priorities

- Work on baseline for regional waste contributions to GHG emissions
- Develop training on carbon footprint of products & waste
- Research & share information about emerging technologies for using waste to generate energy & regulatory implications

Near Term Priorities

- Develop regional strategy for expanding diversion of C&D materials
- Assist states in advancing organics composting / anaerobic digestion
- Develop public information on Climate-Waste connection
- Advance citing renewable energy on waste sites

Next Steps

- Seek funding for priorities
- Collaborate with EPA, NGO's, local government, & others
- Assist state agencies
- Organize webinars & other training
- Action Plan: (www.newmoa.org/publications/NEWMOAClimate-WasteActionPlan.pdf)

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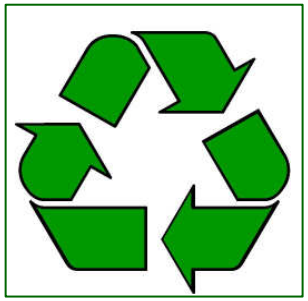

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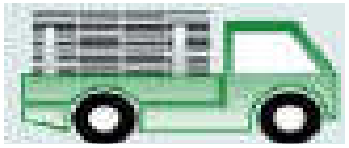

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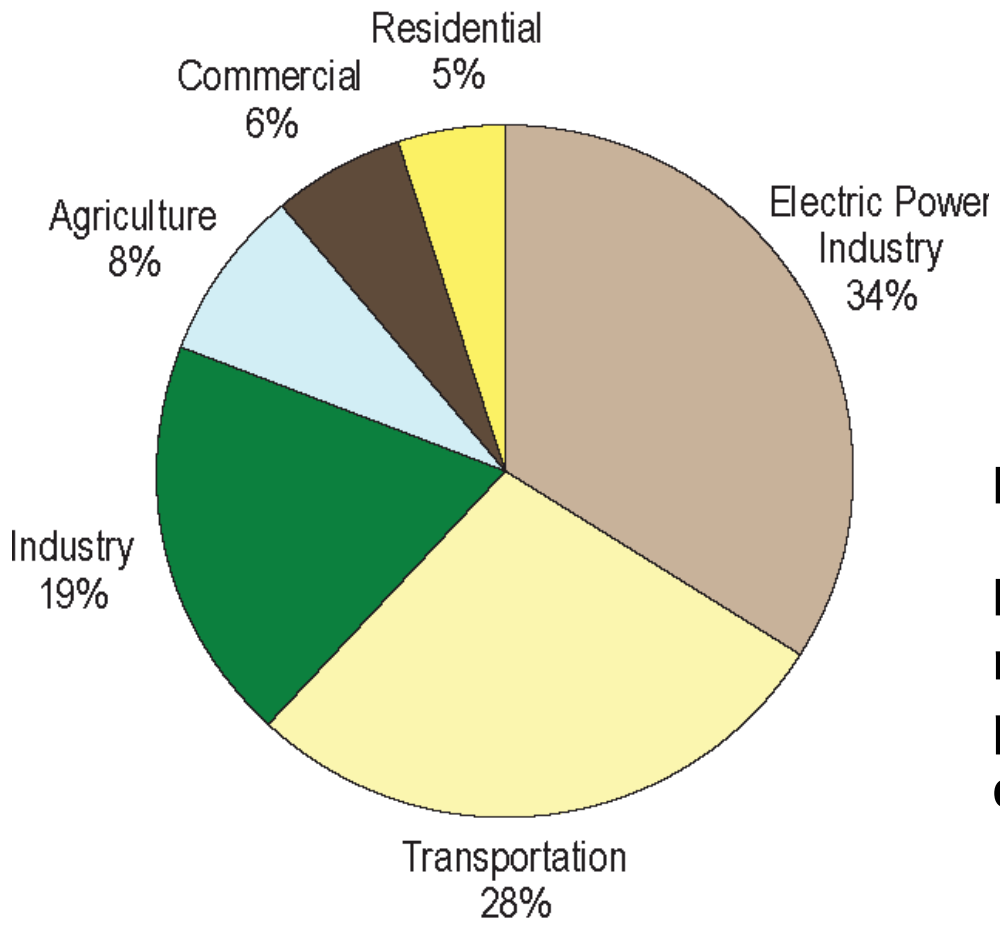

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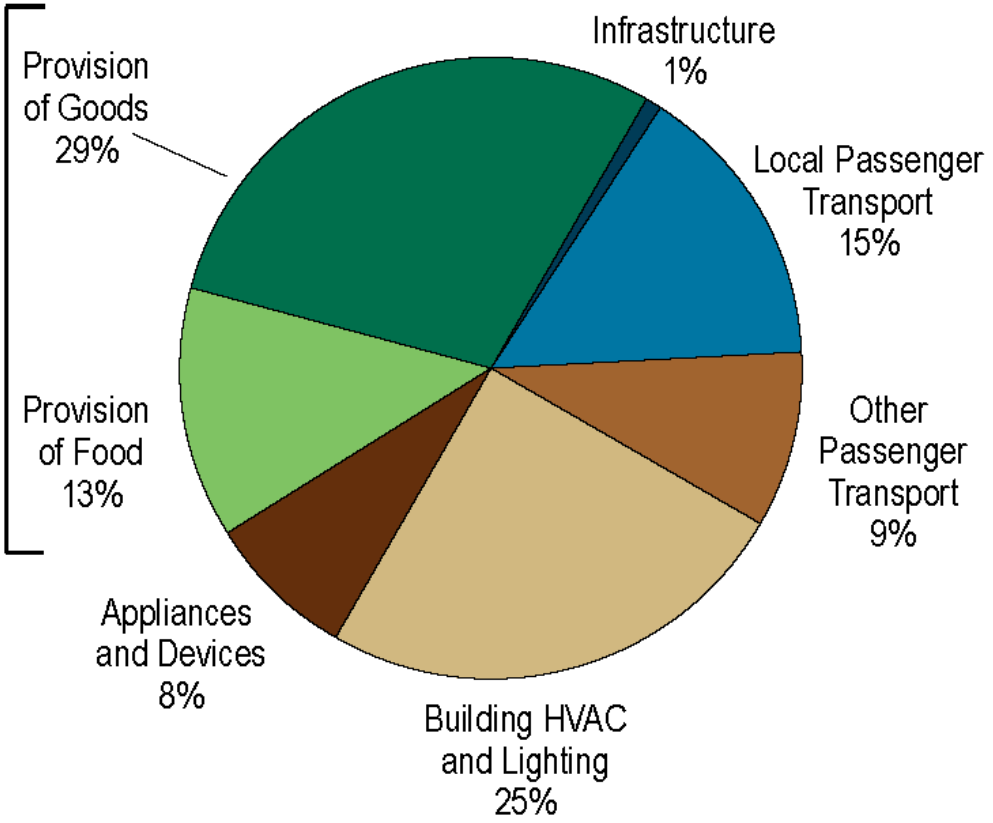

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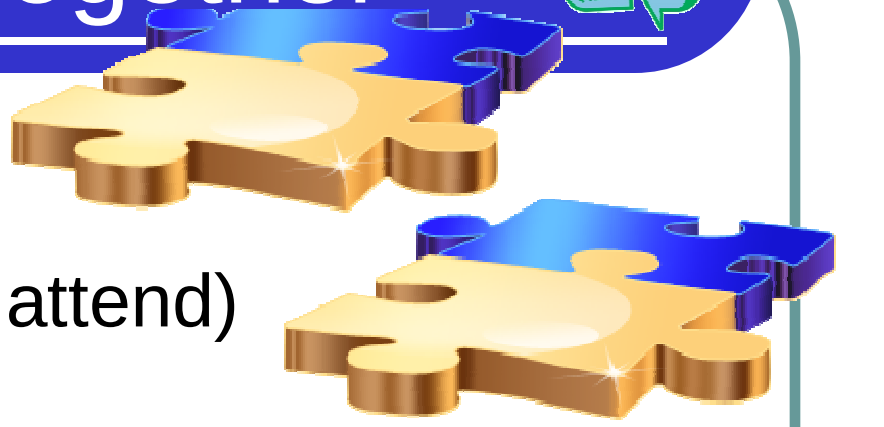

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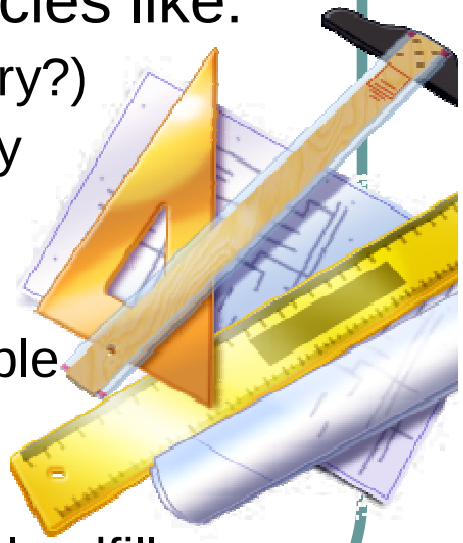

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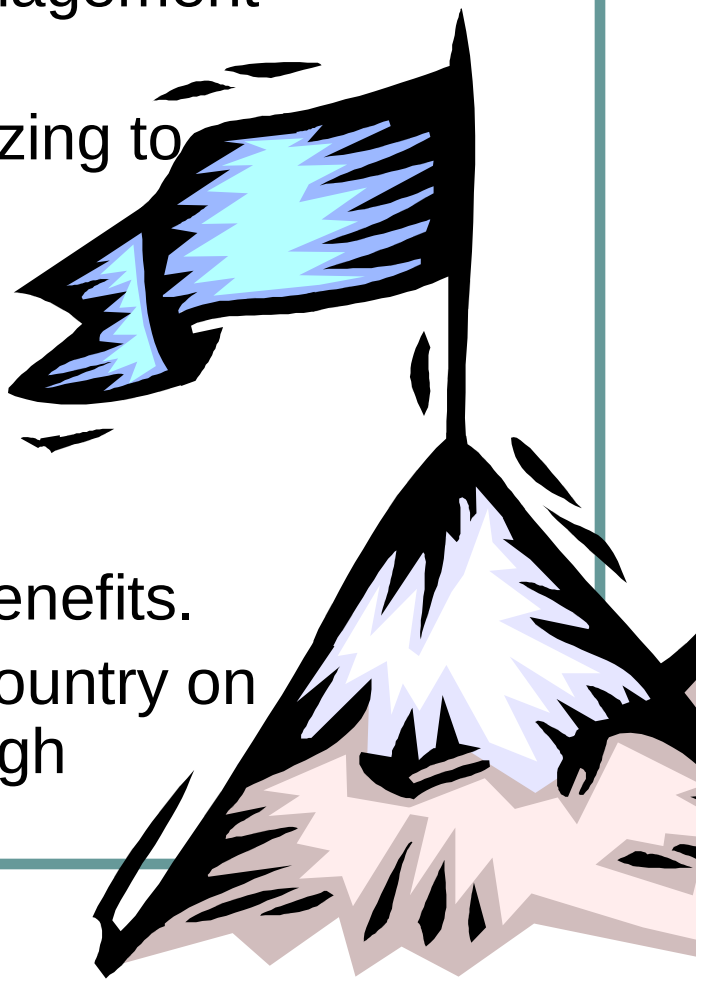

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