More Growth, Less Garbage

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Main Messages

• Waste generation is anticipated to increase by 73% by 2050 with Sub-Saharan Africa and South Asia growing the fastest (30% of global waste by 2050)

• Waste generation is decoupling from economic development for some high-income countries where the sector is approached in an integrated, sustainable manner.

• Low- and middle-income countries do not have to wait until their waste generation rates are comparable to those of high-income economies before taking action.
Waste is expected to increase by 73% by 2050

2020: 2.24 billion tonnes
2050: 3.88 billion tonnes
Waste generation is positively correlated with urbanization.
Sub-Saharan Africa and South Asia are the fastest growing regions

Projected Waste Generation
Millions of tonnes/year
Per capita waste generation increases with income initially and decreases at higher income levels.
High income countries generate 32% of the world’s waste with 16% of the global population.

Average global waste generation is 0.79 kg/capita/day.
Middle income countries driving growth in waste generation

Projected Waste Generation (millions of tonnes)

- Low-income
  - 2020: 104
  - 2050: 307

- Lower-middle income
  - 2020: 546
  - 2050: 1270

- Upper-middle income
  - 2020: 886
  - 2050: 1466

- High-income
  - 2020: 707
  - 2050: 834
5 cases across regions and incomes were driven by different factors

- Cambridge, USA
- Yokohama, Japan
- Tacloban, Philippines
- Ljubljana, Slovenia
- Republic of Korea

Drivers:

| Land scarcity | Resiliency | High costs |

- Waste reduced per capita ranged from 5-50%
- Residual waste reduction per capita ranged from 30-69%
The enabling environments were multifaceted

- Financial resources
- Financial and operational incentives (high disposal fees)
- Strong national and local policies / regulations
- Political will
- Strong enforcement
- Engaged citizens
- Communications
Cambridge focused on source separation

Interventions
- Expanding recycling and driving down contamination
- Diverting organic waste from landfills
- Promoting reduction and reuse

Results
- 30% reduction in residual waste, 2.4% in total city-managed waste (despite 3.2% increase in households served)
- 75% increase in organic waste volumes handled
- Recycling contaminated rates reduced to 6% against US average of 25%

Enablers
- Upfront investments
- Engaged citizens
- High disposal fees (> $110/tonne for landfilling)
- Supportive state level regulations
Tacloban wanted to be resilient

Interventions
• City-wide policies in partnership with neighborhood leaders
• Tailored community engagement and education
• Decentralize collection and sorting

Results
• 31% drop in landfill-bound waste
• Separation collection for ~70% of areas
• $375,000/year cost savings through lower transport costs & recyclable sales

Enablers
• Committed leadership
• Technical expertise from local NGO
• Collaborative funding model (donor grants & city funds)
• Forward-looking national solid waste management laws

~250,000 people
Middle-income country
4 years

Photos: GAIA Asia Pacific
Korea undertook national interventions

Interventions
• Implementing volume-based pricing
• Mandating producer responsibility for collection and recycling
• Reducing and treating food waste

Enablers
• Financial incentives (high disposal costs, limited landfill area)
• Strong political will
• Well-designed national policies including EPR as well as clear roles and responsibilities for municipalities
• Citizen environmental awareness and compliance

Results
• Municipal waste generated declined 50% from 1990 to 2000
• Waste generation remained roughly similar even though GDP per capita nearly tripled since 2000
• Diversion rates now >60%
• Plastic recycling rate increased to 60% by 2015, food waste recycling to 95 in 2019
Key ingredients

• Sound legislation and policies
• Clear responsibilities
• Enforcement mechanisms
• Financial incentives
• Strong citizen engagement
• Target setting and performance measurement
• Political will
If middle- and high-income countries had interventions achieving similar results as Korea, we would generate only 68% of today's waste by 2050.
Thank you

worldbank.org/what-a-waste