



# UNEP IETC's Work on Waste Management

## Integrated Waste Management in Cities

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# Overview

- Defining waste
- Need for ‘waste management’
- Challenges
- Opportunities
- IETC – integrated waste management for cities



# Defining Waste!

- Discarded byproducts of human activities in solid state, liquid state and gaseous state
- Unwanted materials





# Need For 'Waste Management'

20<sup>th</sup> CENTURY

WASTE  
MANAGEMENT

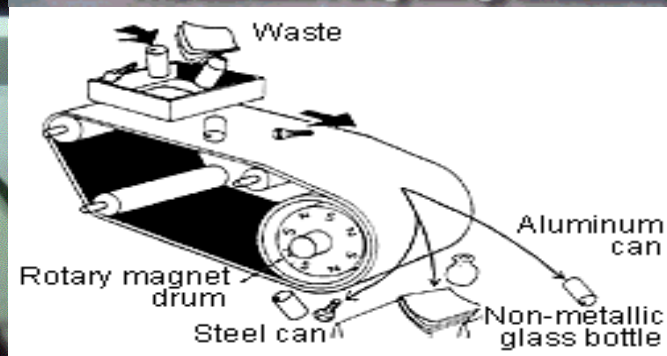
“How do we get rid of our waste efficiently with minimum damage to public health and the environment?”



21<sup>st</sup> CENTURY

RESOURCE  
MANAGEMENT

“How do we handle our discarded resources in ways which do not deprive future generations of some, if not all, of their value?”



# Need For 'Waste Management' - Cities

3% of land surface

50% of global wastes

60-80% of global GHG emissions

50% world's population now, 80% in 2050

75% of natural resources consumed

## Cities: drivers of growth

## Specific needs

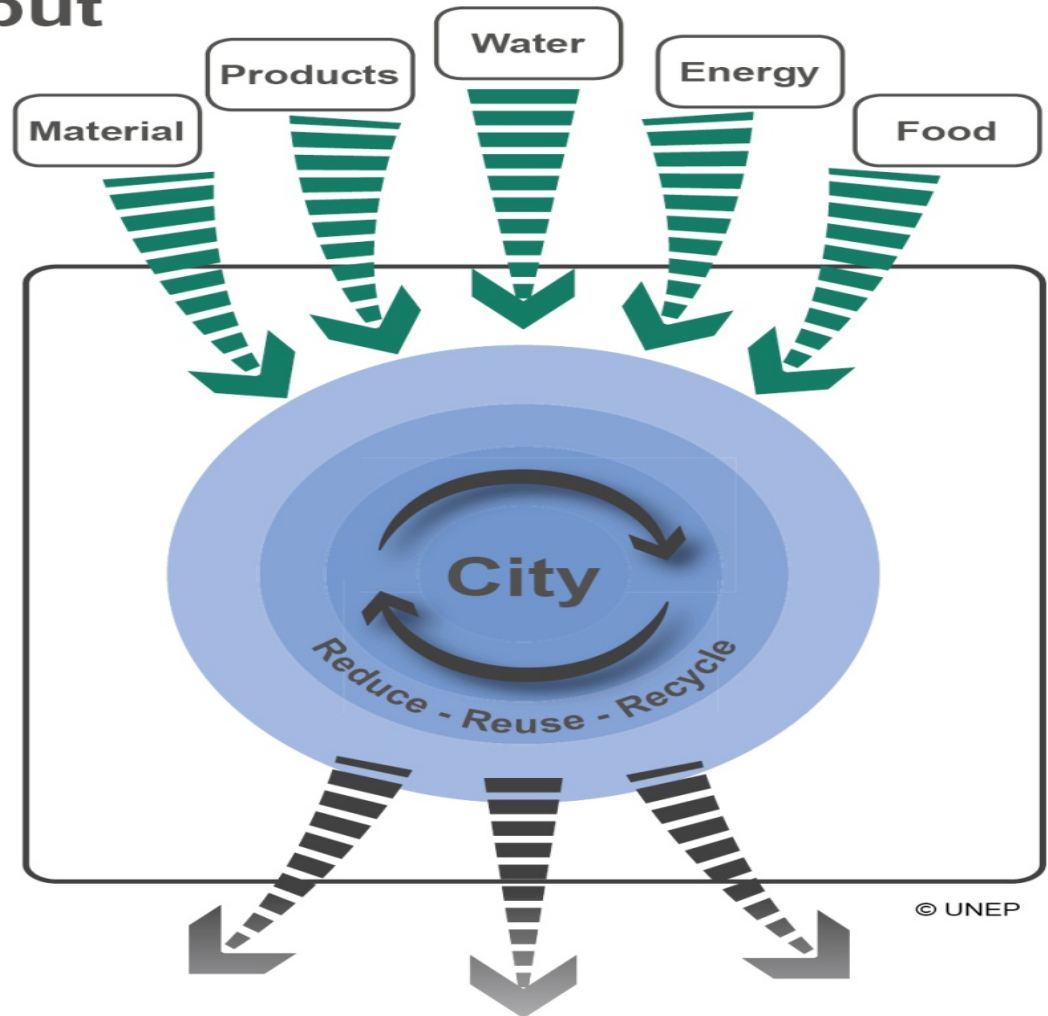
- ✓ Water – wastewater reuse including rainwater
- ✓ Materials – resource recovery (urban mining)
- ✓ Energy – energy recovery including landfill gas
- ✓ Labour productivity and reduced health costs
- ✓ Businesses and employment – poverty alleviation
- ✓ Reducing impacts on women and



# Zero Waste for Cities



**Input**

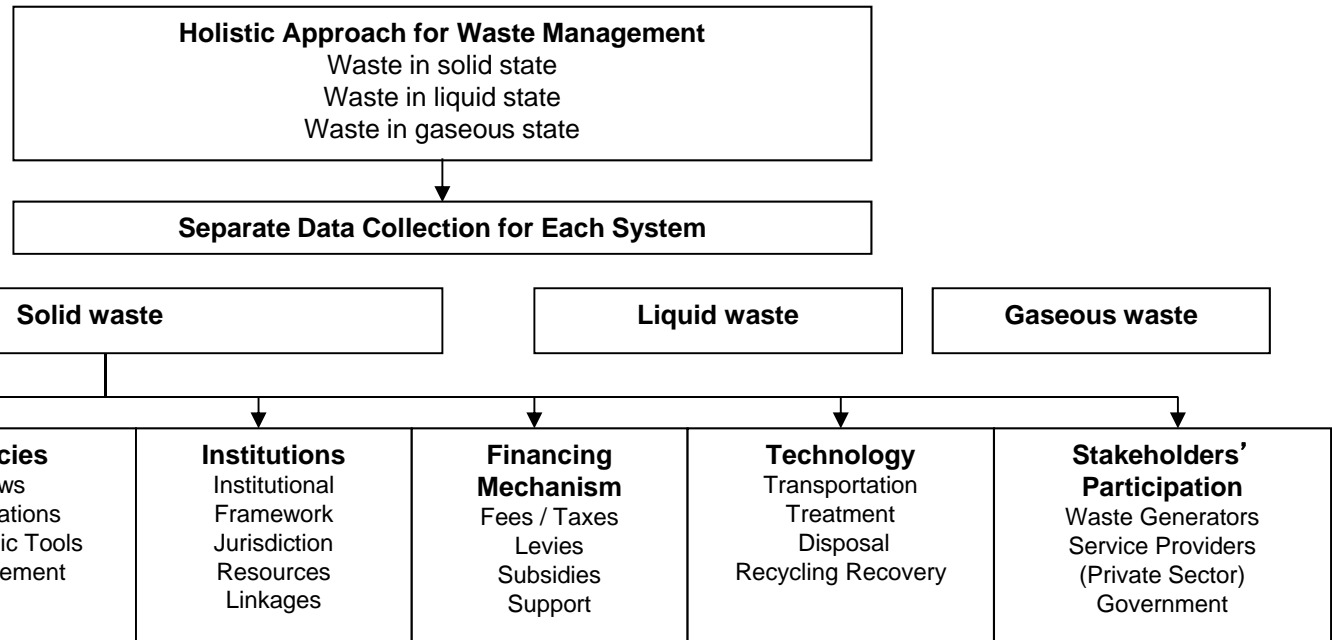


**Output**

Target: Zero Emission and Waste



# Challenges – Integrated Waste Management



Source Reductions /  
“Upstream”

Primary Disposal by Waste  
Generators

Collection and Transportation

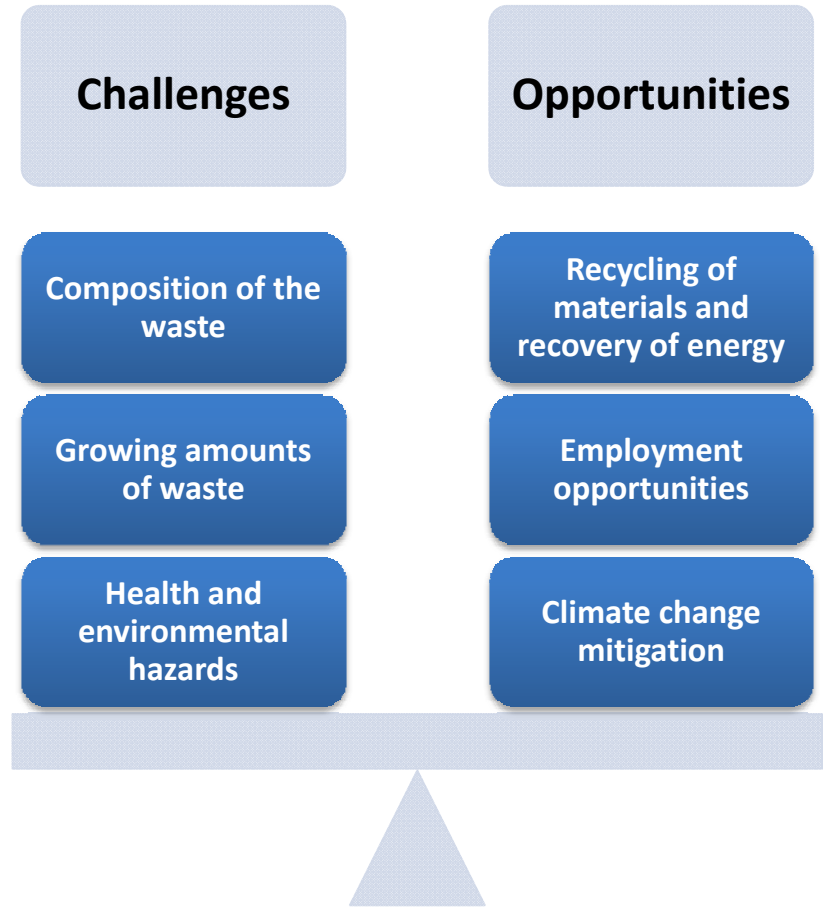
Treatment and Disposal

Reuse, Recycling and  
Recovery

# Opportunities



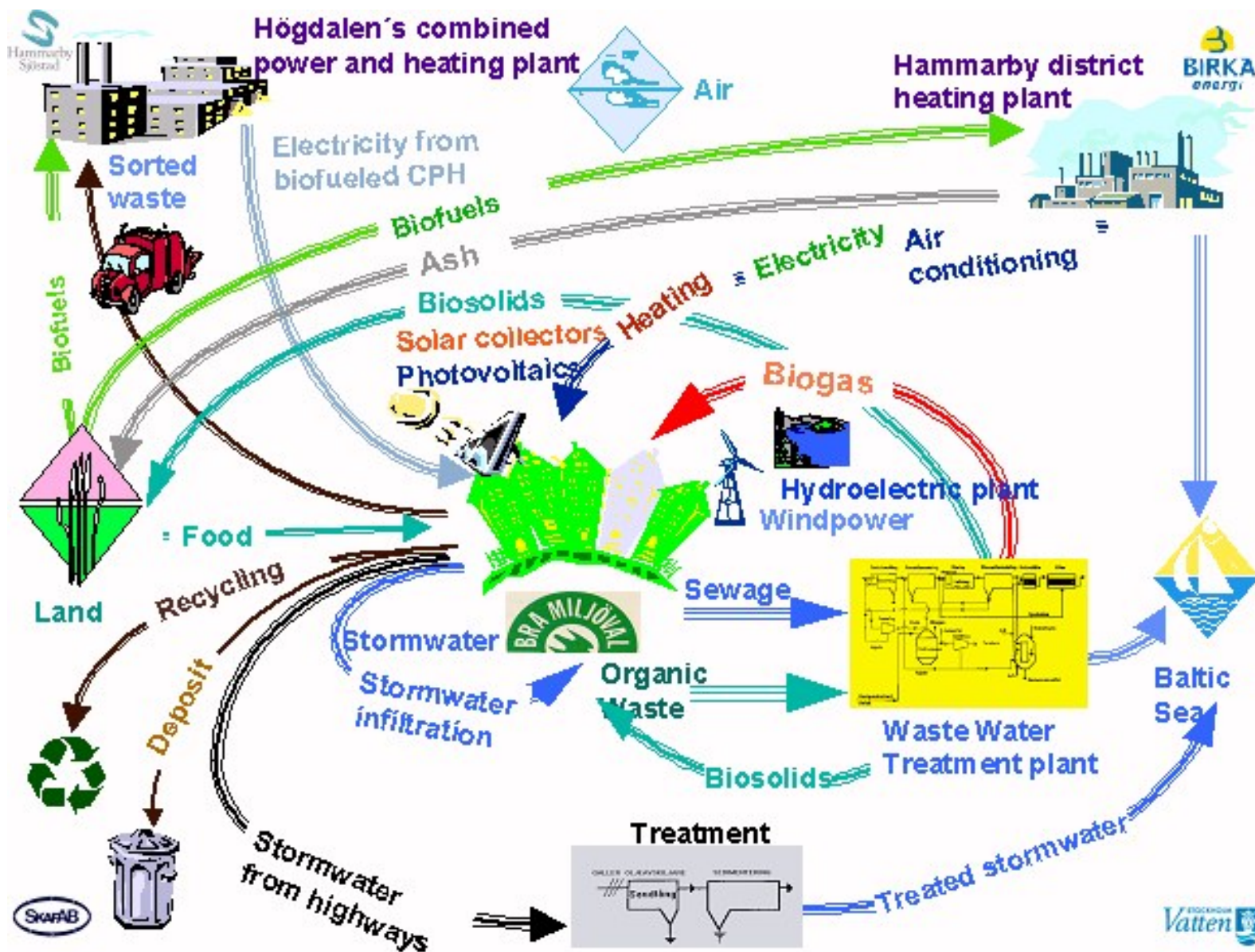
- Global focus – post 2015 sustainable development goals – technologies for resource efficient cities
- Turning waste into a resource – water, energy, food and material security – decentralized solutions





# Opportunities at City level

Hammerby Sjostad, Stockholm - Sweden





# International Environmental Technology Centre

- The International Environmental Technology Centre (IETC) established as UNEP office to focus on environmentally sound technologies (ESTs) in line with Rio 1992 outcome
- UNEP IETC supports the implementation of Bali Strategic Plan for Capacity Building and Technology Support
- UNEP IETC continues to focus on technology support in line with post 2015 Sustainable Development Goals
- Located in Osaka, Japan



# IETC – IWM in Cities



## City Waste Management Strategies

(Awareness and education, policies, technologies, financing and voluntary)

**Academic Curriculum Consortium of Universities**  
– certificate, diploma and postgraduate courses – long term capacity building

**Knowledge Hub**  
Solid waste  
Liquid waste  
Gaseous waste

## Interlinked activities

- National Waste Management Strategies
- The global Partnership on Waste Management
- The Global Outlook on Waste Management
- Mercury Waste Management
- Climate and Clean Air Coalition
- Japanese Experiences

# IETC – Experiences

## Solid Waste

- Integrated Solid Waste Management at municipal level – 11 countries (14 cities) in Asia, Africa and LAC – since 2006
- Guidelines (4 volumes) for ISWM– also in Chinese by MEP
- E-waste management– Guidelines (3 volumes) and piloting - 2007
- Waste agricultural biomass and waste plastics to energy – Guidelines, compendium of technologies and 8 pilots - 2009
- Disaster waste management – 2 International Tohoku Mission (2012) – Manual for flood waste in Thailand 2013
- Healthcare waste, waste oils and waste tyres – Compendium of technologies 2013
- Eco towns project – piloting in Penang and Bandung – 2007
- Japanese industrial waste experience publication – 2014

## Wastewater

- Wastewater and rainwater reuse in sugar industry Vietnam – 2006
- Wastewater reuse publication – 2006
- Technologies for wastewater treatment including constructed wetlands - piloting revival Iraqi marshlands – 2006 to 2013
- Every drop counts publication and toolkit - 2010
- Water footprints (industrial wastewater) – 2011





# Partnership, partnership & partnership!

## Thank you very much!

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