



Commission on Sustainable Development (CSD-18) Thematic Seminar Series: Waste Management

Converting Waste Management Problems into Opportunities

Presentation by
UNEP





Waste management and sustainable development

Environmentally sound management of waste is an essential component of sustainable development.

Agenda 21:

Environmentally sound management of wastes is among the environmental issues of major concern in maintaining the quality of Earth's environment and especially in achieving environmentally sound and sustainable development in all countries.

WSSD-JPOI Chapter 3 para. 22:

Prevent and minimize waste and maximize reuse, recycling ...

(a) Develop waste management systems, with the highest priority placed on waste prevention and minimization, reuse and recycling, and environmentally sound disposal facilities, ...



Challenges in waste management

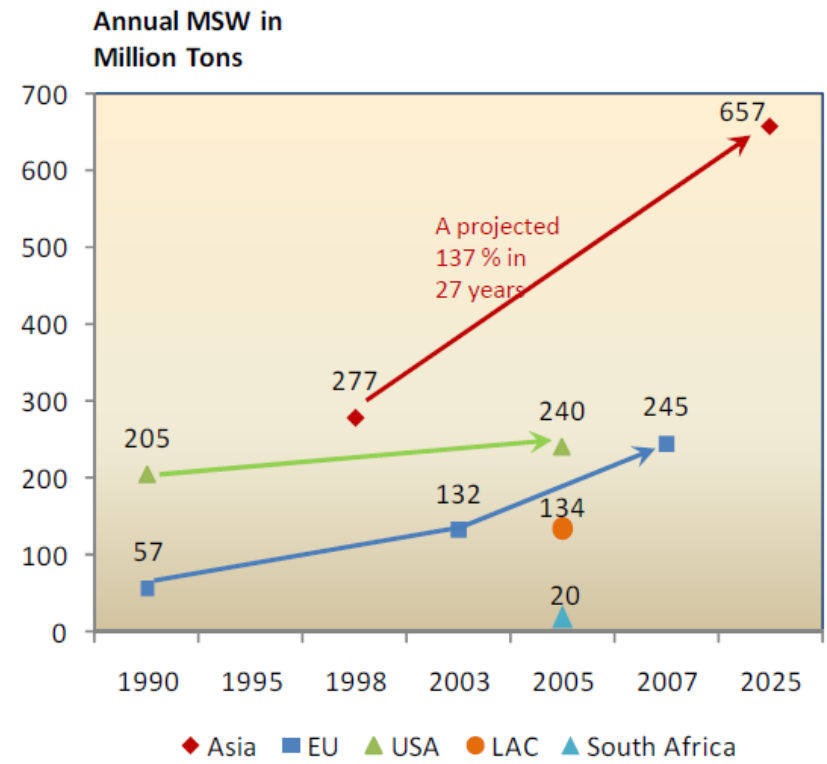
1. Increasing quantities and changing composition
2. Increasing waste flows
3. Increasing severity of adverse impacts
4. Increasing cost of waste management
5. Limited policy framework in developing countries
6. Lack of political priority



1. Increasing quantities and changing composition

Globally, 2.5 to 4 billion tons of waste was generated in 2006

MSW	Worldwide: 1.84 billion tons (2004) 25 OECD countries: > 610 million tons (2006)
Industrial non-hazardous waste	Typically 1.1 – 1.8 billion tons in countries like EU, USA, China (2006)
C&D	10-15% of total waste in developed countries (2006)
Hazardous waste	338 million tons (2001)
E waste	20 – 50 million tons world wide (2005)
Automobile	8 – 9 million tons in EU (2006)



Data compiled from various sources

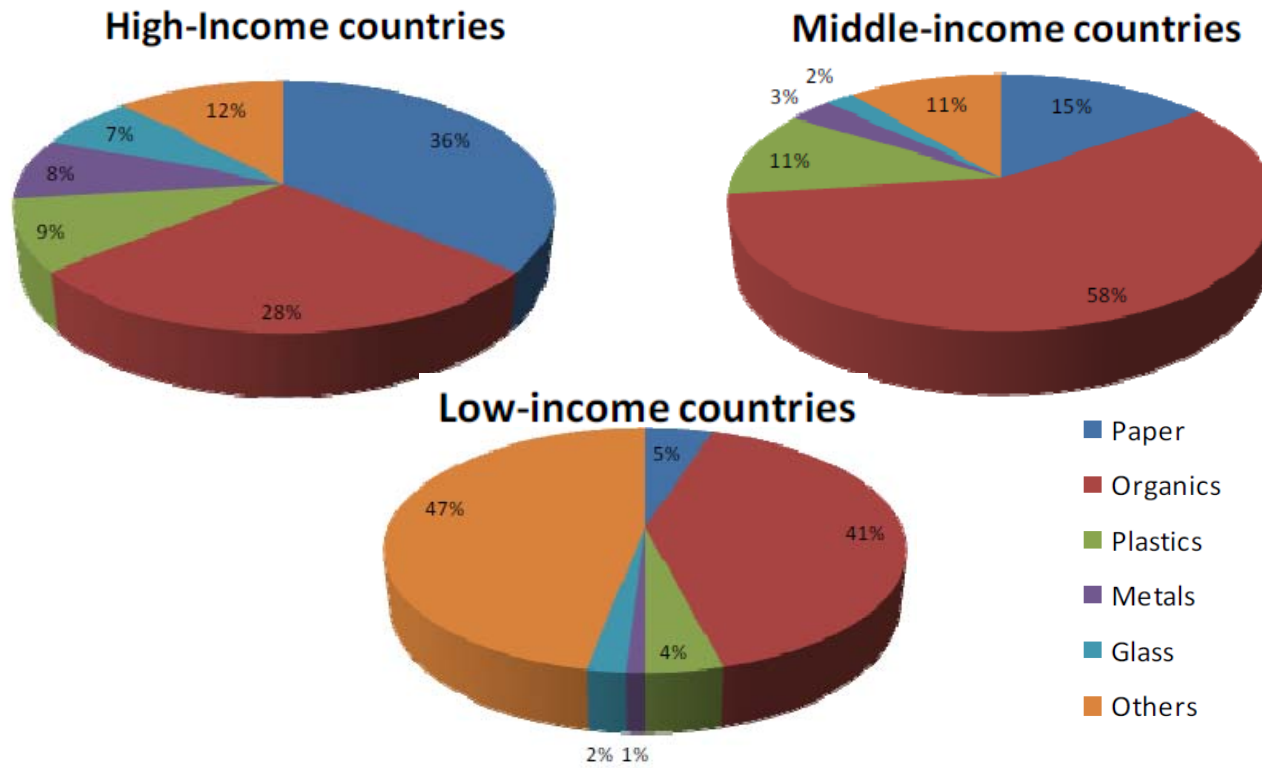
Source: Arunprasad, Swati. (2009) "Waste Management as a Sector of Green Economy," Presentation at International Forum on Green Economy, Beijing, China, November 2009.





1. Increasing quantities and changing composition

- Shift from high organics to higher plastic and paper corresponding to increase in relative standard of living

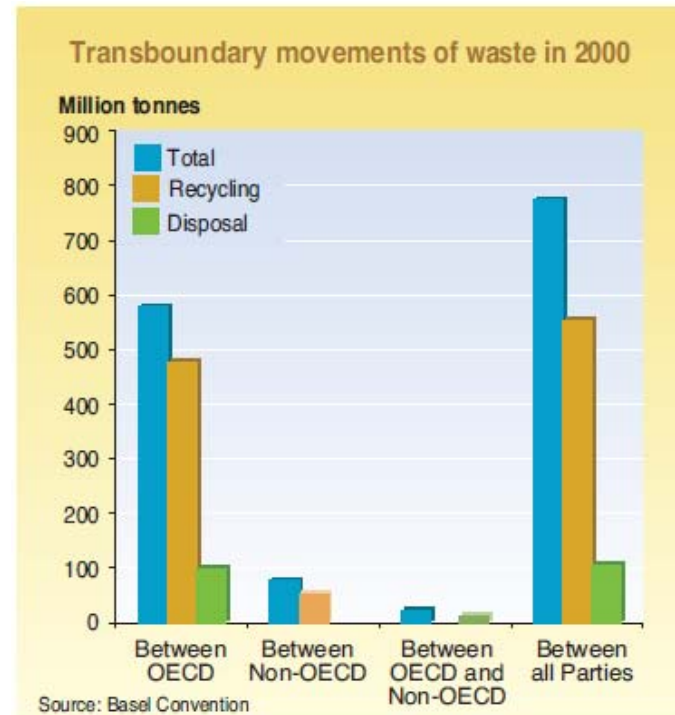
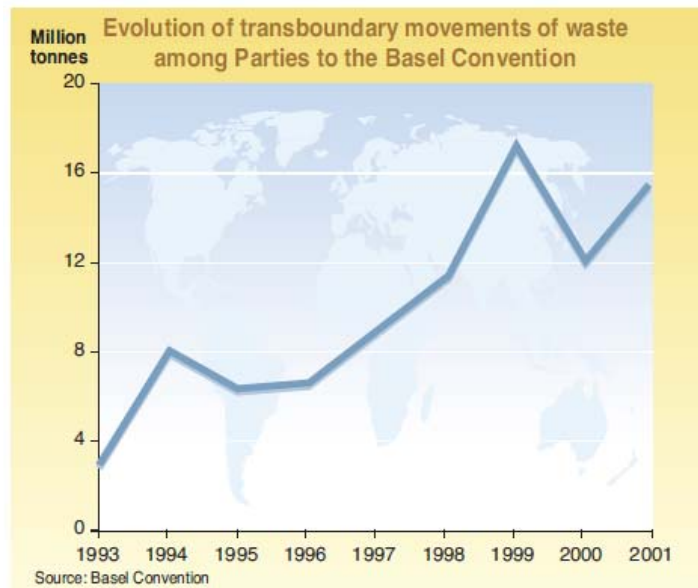


Source: Arunprasad, Swati. (2009) "Waste Management as a Sector of Green Economy," Presentation at International Forum on Green Economy, Beijing, China, November 2009.



2. Increasing waste flows

The amount of waste flow both inter country and intra country is increasing rapidly. Reports to the Basel Convention indicate that between 1993 and 2001 the amount of waste crisscrossing the globe increased from 2 million tons to 8.5 million tons.





3. Increasing severity of adverse impacts



Payatas, Philippines

Photo: Pforr, Chris.

- Severe health impacts particularly on community in vicinity of dumpsites.
- Pollution of surface and sub-surface water bodies due to leachate contamination.

Nairobi, Kenya



Photo: UNEP

- Air pollution from emissions of spontaneous combustion in dumps.
- Adverse impacts on fauna and flora.



4. Increasing cost of waste management

OECD countries:

Municipal waste – USD120 billion/year

Industrial waste – USD150 billion/year

Developing countries:

20-50% of recurrent budget of municipalities is spent on solid waste management although only 50% of urban population is covered. In low-income countries collection alone drains 80-90% of total waste management budget.



5. Limited policy framework in developing countries

- Rely on end-of-pipe solutions with focus on collection and disposal
- Safe disposal
 - 30% practised only in middle-income developing countries
 - 5% practised only in low-income developing countries
- Lack of funding for creating waste management infrastructure
- Policy implementation at best in selected big cities



6. Lack of political priority

- Waste management and resource recovery still a low priority area
- Lack of national initiatives and fund allocation particularly in low-income countries
- Lack of comprehensive programme at national/local level



Overall challenge

20th CENTURY

**WASTE
MANAGEMENT**

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

21st 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?”



Source: Dr. Paul Connett, Zero Waste, Power Point



Opportunities from waste management

The UN Green Economy Initiative identifies waste management as a key area of intervention.

- The waste market – high economic value being attributed to “waste”

OECD municipal waste market – USD125 billion

Emerging economies (Brazil, China, India) – USD25 billion

Increase in global MSW market (2007-11) – 37.3%



Opportunities from waste management

- Waste a latent resource – recovery of materials and energy from waste

World secondary materials market (million tons)

Fibres	170
Ferrous metal	405
Non-ferrous metal	24
Plastics	5
Total	600 approx.



Opportunities from waste management

- Composting segregated organic waste to produce manure (for agricultural use) and/or biomethanated to produce biogas (to substitute fossil fuels). In developing countries 40-80% of municipal waste is organic waste.
- Waste management is a business opportunity with potential for job creation.



Waste minimization

- Waste reduction at source minimizes material and energy consumption, including reduction in use of toxic/hazardous substances.
- Reducing material/energy intensity in production and consumption of goods-and-services is widely recognized by many international organizations and national governments.



Reduce, reuse and recycle

- Huge recovery potential both due to financial attractiveness and technology development
- Main materials recovered include; plastic, paper, glass, metals, textiles, etc.
- Waste to energy conversion is rapidly increasing. Several technologies now available, e.g., bimethanation (for organic waste, direct incineration with energy recovery, pyrolysis, etc.)



Japan's 3Rs – reduce, reuse and recycle

- Japan enacted in 2000 the Basic Law for Establishing the Recycling-based Society to lower waste volume.
- In 2003, formulated the Fundamental Plan for Establishing a Sound Material-Cycle Society to make the law operational.
- The law assigns, in addition to greater recycling, disposal and collecting facilities, an extended producer responsibility (EPR) to businesses that produce and sell products.
- EPR functions through a take-back requirement, deposit refund schemes and shifting of financial and/or physical responsibility of a product at the post-consumer stage upstream to the producer.



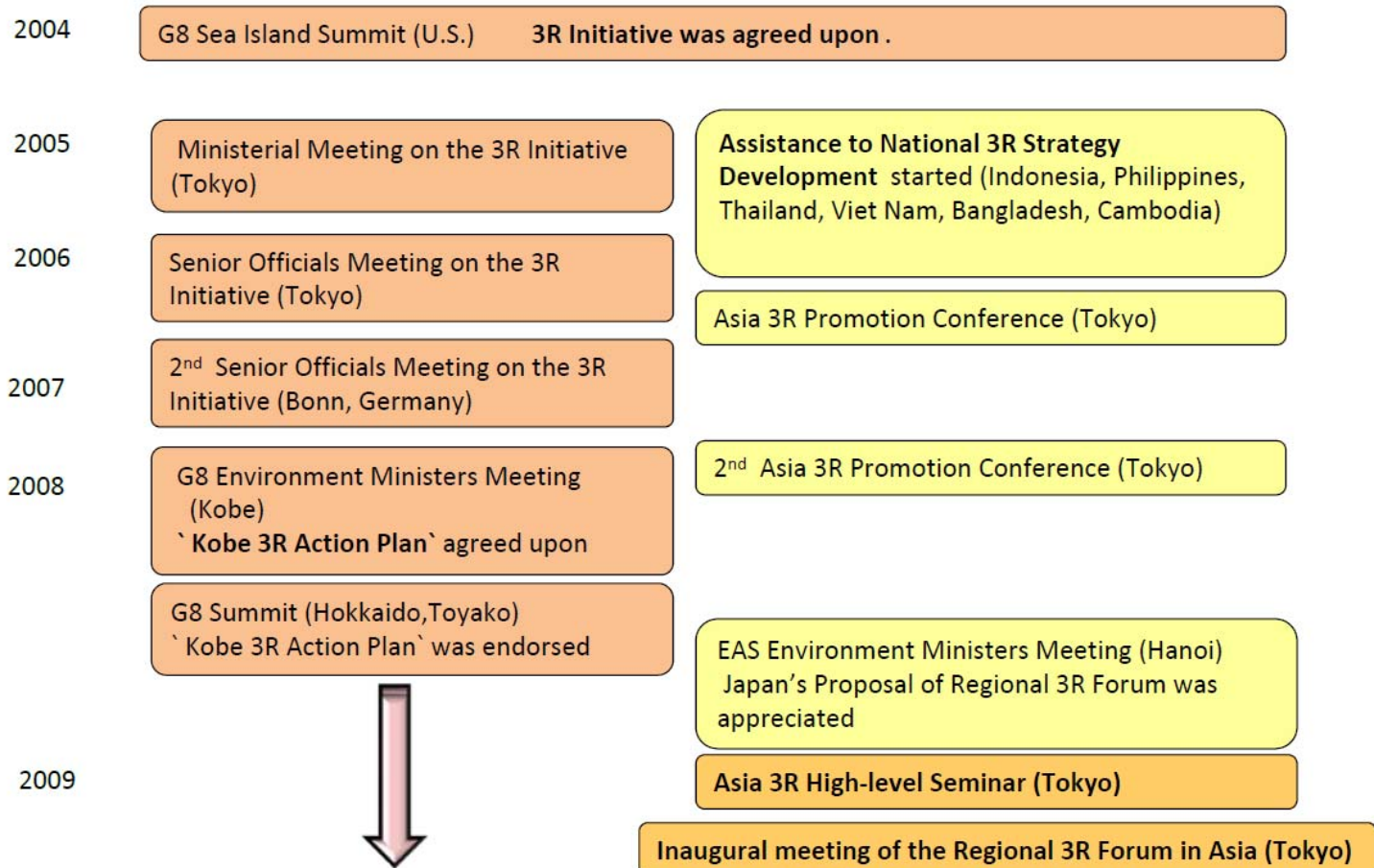
Quantitative targets for Japan's 3R Policy for 2000–2010

Item	2000 Indicator	2010 Target
Resource productivity	280 000 yen (US\$2 500) per tonne	390 000 yen (US\$3 500) per tonne (40% improvement)
Target for cyclical use rate	10%	14% (40% improvement)
Target for final disposal amount	56 million tonnes	28 million tonnes (50% reduction)





Japan's 3Rs Initiative



G8 will follow up their progress in 2011



Source: Nitta, Akira. (2009) "Promotion of the 3Rs in Asia," Presentation at Consultation Workshop on Waste Management Partnership in Geneva, Switzerland, November 2009



UNEP initiatives for solid waste management

- UNEP, in partnership with international, national and local organizations, is intensifying and strengthening its activities in the field of waste management.
- The waste programme is led by UNEP's International Environmental Technology Centre in Japan, and focuses on capacity building and support for technology identification, assessment and implementation at national/local level.
- UNEP's waste programme is built around two main areas.
 - Integrated solid waste management
 - Management of specific waste streams



Way forward

- Making waste management and resource recovery a high level national priority.
- Formulating and enforcing comprehensive national and local policies on waste management covering all types of wastes and all aspects of waste management.
- Strengthening policy frameworks to support resource recovery from waste.
- Taking waste as a potential resource and intensive efforts to promote reuse and recycling, leading to recovery of useful materials and energy need to be made.



Way forward

- Intensifying capacity building on waste management in national/local governments, institutions and other stakeholders.
- Increasing donor funding to support development and implementation of ISWM Plans.
- Establishing regional and global networks/platforms on waste management to share experiences and strengthen North-South/South-South cooperation.
- Promoting green economy initiatives in waste management.



Way forward

Enforcing major MEAs on waste management

1. Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal – regulates the transboundary movements of hazardous and other wastes
2. Stockholm Convention on Persistent Organic Pollutants (POPs) – requires Parties to take measures to eliminate or reduce the release of POPs into the environment.
3. Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade – promotes shared responsibilities in relation to importation of hazardous chemicals



For more information

- UNEP DTIE IETC <http://www.unep.or.jp/>
- UNEP DTIE Sustainable Consumption and Production Branch <http://www.unep.fr/scp/>
- UNEP DTIE Chemicals Branch <http://www.chem.unep.ch/>
- Basel Convention <http://www.basel.int/>
- UNEP - The Green Economy Initiative <http://www.unep.org/greeneconomy/>
- World Bank - Urban Solid Waste Management <http://www.worldbank.org/solidwaste>
- UNIDO - Cleaner Production <http://www.unido.org/index.php?id=o4460>
- EU - waste related site <http://ec.europa.eu/environment/waste/index.htm>
- OECD - waste related site http://www.oecd.org/topic/0,3373,en_2649_34395_1_1_1_1_37465,00.html