

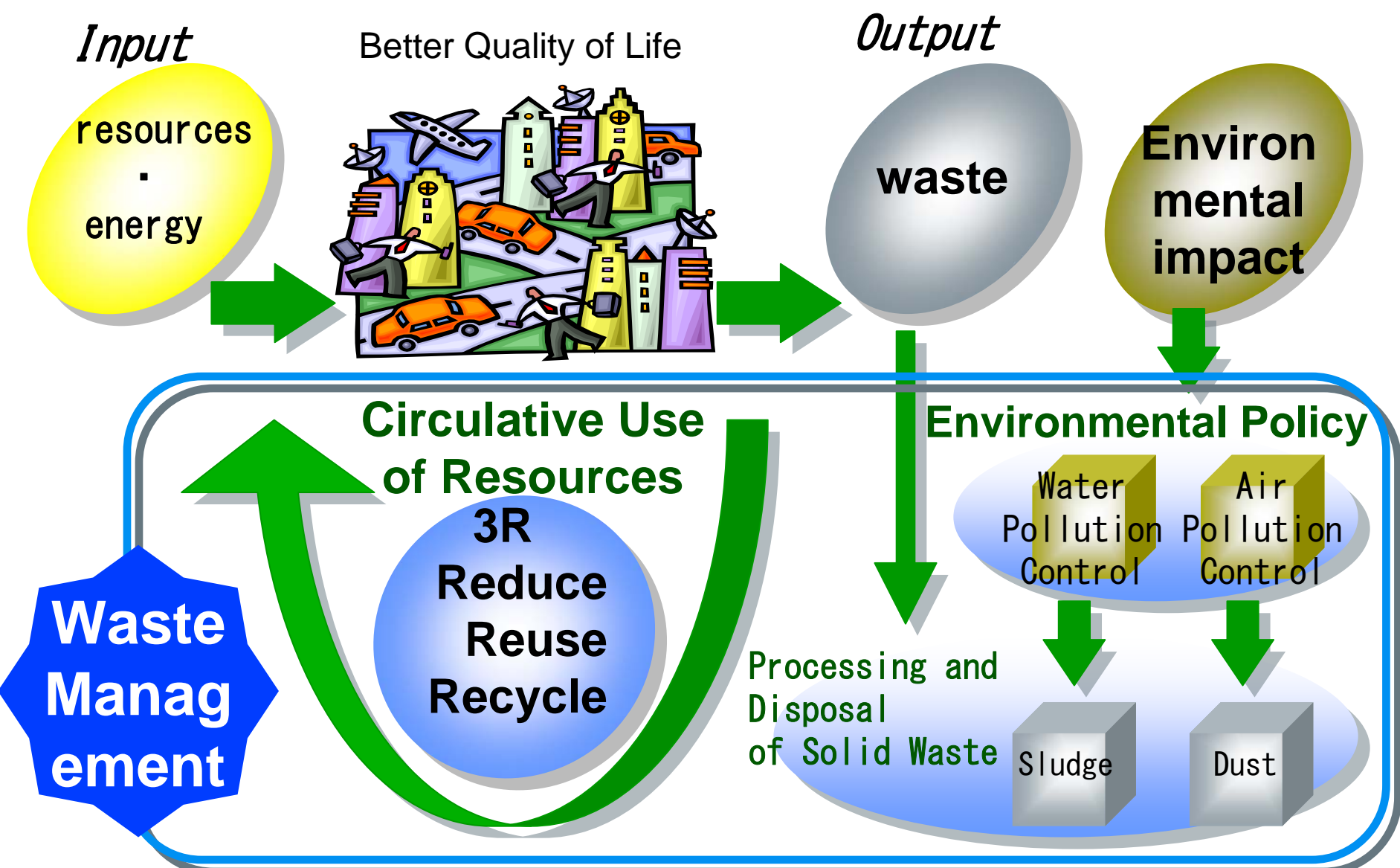
**Preparatory Meeting for the Inaugural Meeting of
The Regional 3R Forum in Asia
Tokyo, Japan
June 29, 2009**

Strategic Improvement of Municipal Solid Waste Management

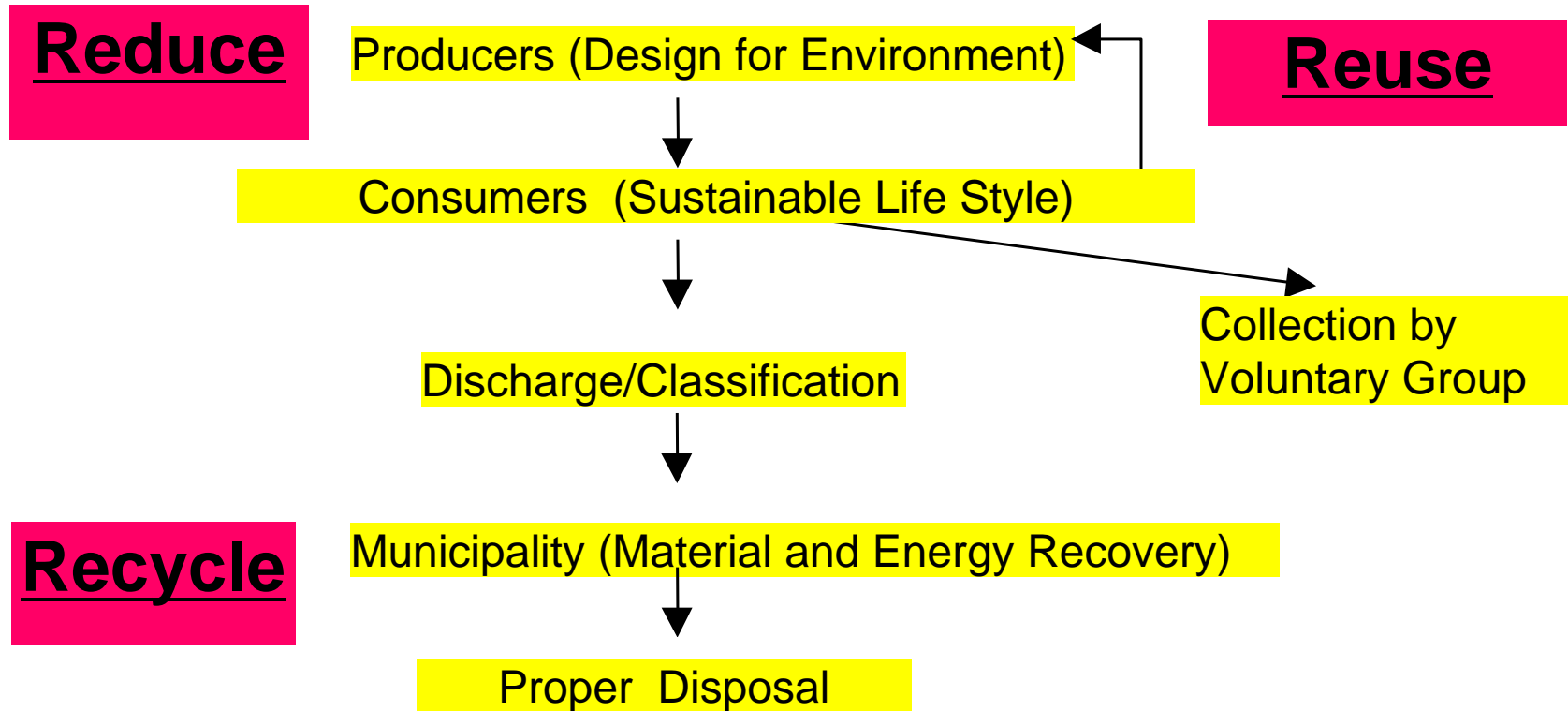
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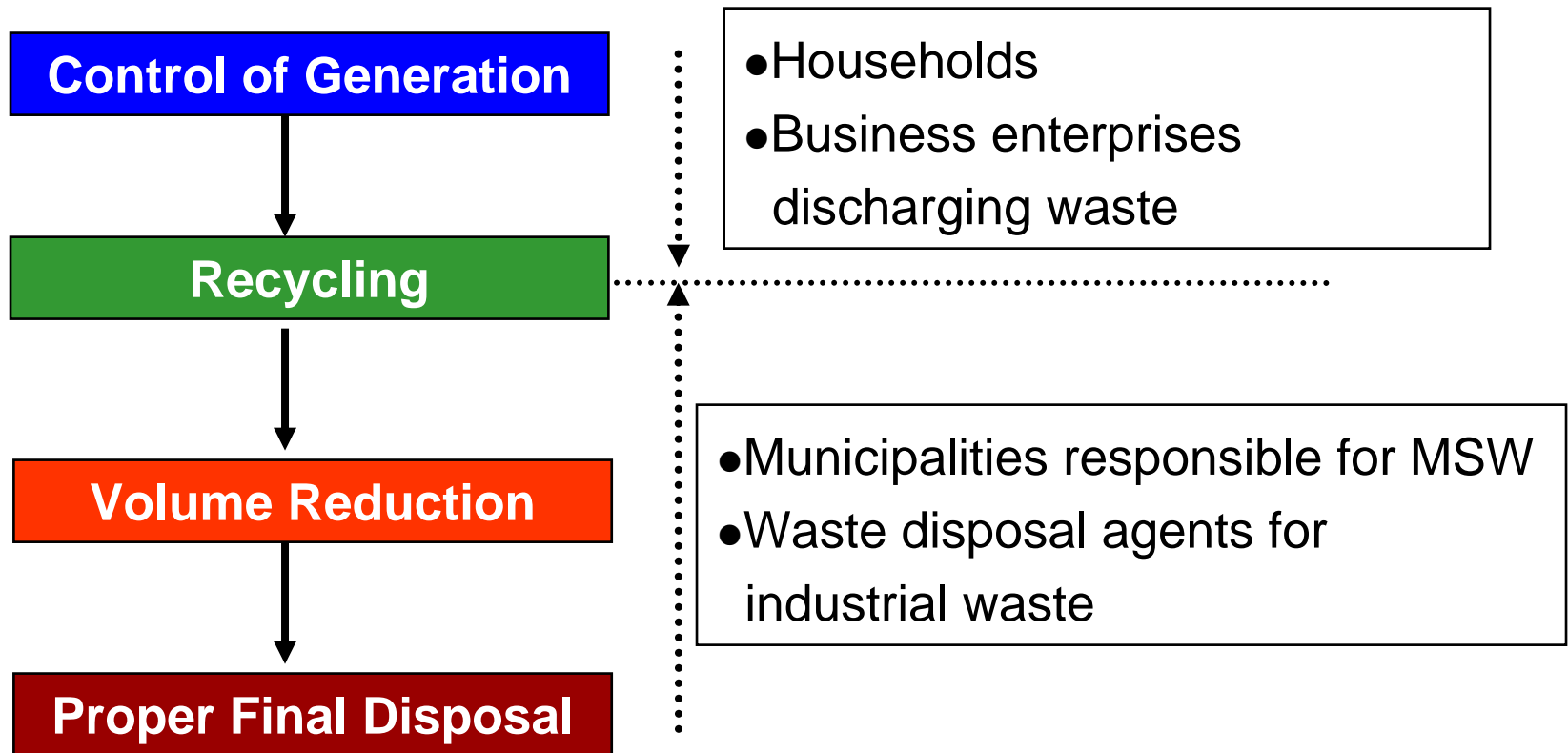
Sustainable Society and Waste Management

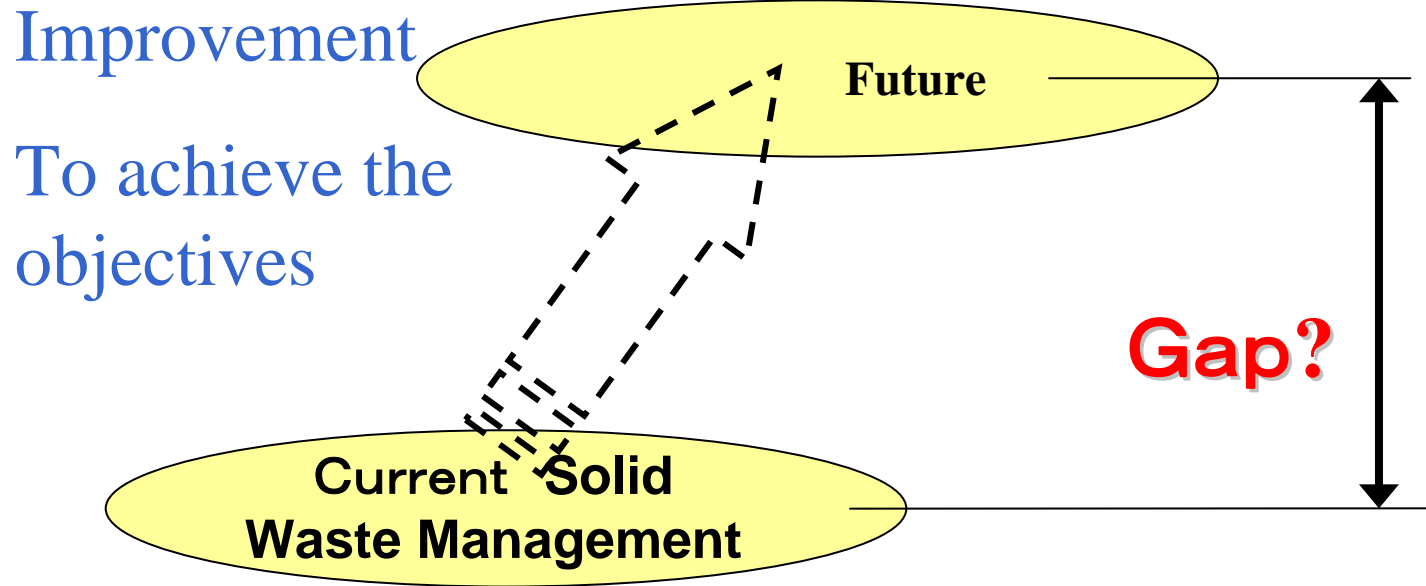


Basic Principle of Waste Management (3R Principles)



Basic Principle Underlying Waste Disposal





Unsanitary Condition, Low public Health Level
By Open Dumping, Open Burning and Scattered Waste

Improvement of waste management

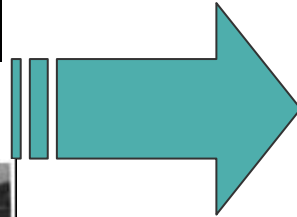
- Introduction of continuous-operational furnaces in waste incineration facilities contributed to reducing gas emission
- Liner sheet and effluent treatment facilities are utilized in sanitary landfill sites



1960s



1970s



Present



Present

Improvement toward Better Waste Management

Refuse Collection Coverage ↗



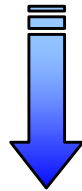
Open Dumping



Sanitary Landfill ↗



Incineration Rate for Combustible Waste ↗



➤ **Landfill Disposal Rate** ↘

➤ **Recycling Rate** ↗

➤ **Waste Generation Rate** ↘

Objectives of MSW Management

- Improvement of Public Health Level
- Protection of Living Environment
- Conservation of Natural Resources
- Creation of Sustainable Society

Constraints

- Limited Budget (Efficiency)
 - Limited Man Power
 - Limited Equipment
 - Limited Facilities
 - Limited Landfill Space ··· (Volume Reduction)
 - No Environmental Impact ··· (Risk Management)
 - No Health Impact
 - Natural Resource Conservation ··· (Recycling)
-
- The diagram groups the constraints into three categories:
- A bracket on the right side of the first three items (Limited Budget, Limited Man Power, Limited Equipment) is connected by a dotted line to a single dotted line.
 - A bracket on the right side of the last three items (Limited Landfill Space, No Environmental Impact, No Health Impact) is connected by a dotted line to a single dotted line.
 - A dotted line is positioned to the right of the last item (Natural Resource Conservation).

Cost-Benefit Analysis

Cost

$$\text{Budget} = C1 + \Delta C1$$

- Waste Management Budget \uparrow

For Human resource development

And to buy Advanced facilities

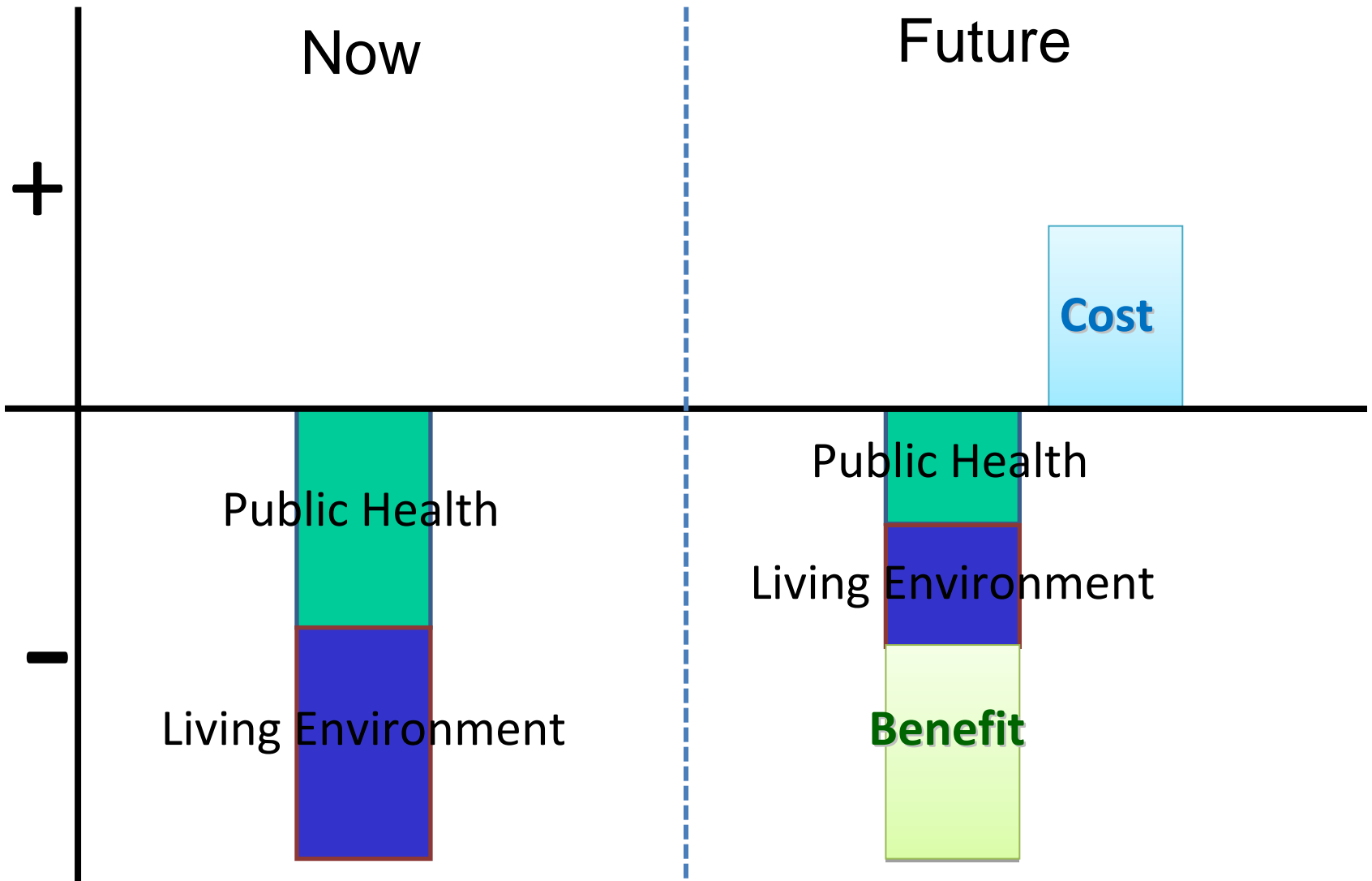
Benefit

$$\text{Public Health} = B1 + \Delta B1$$

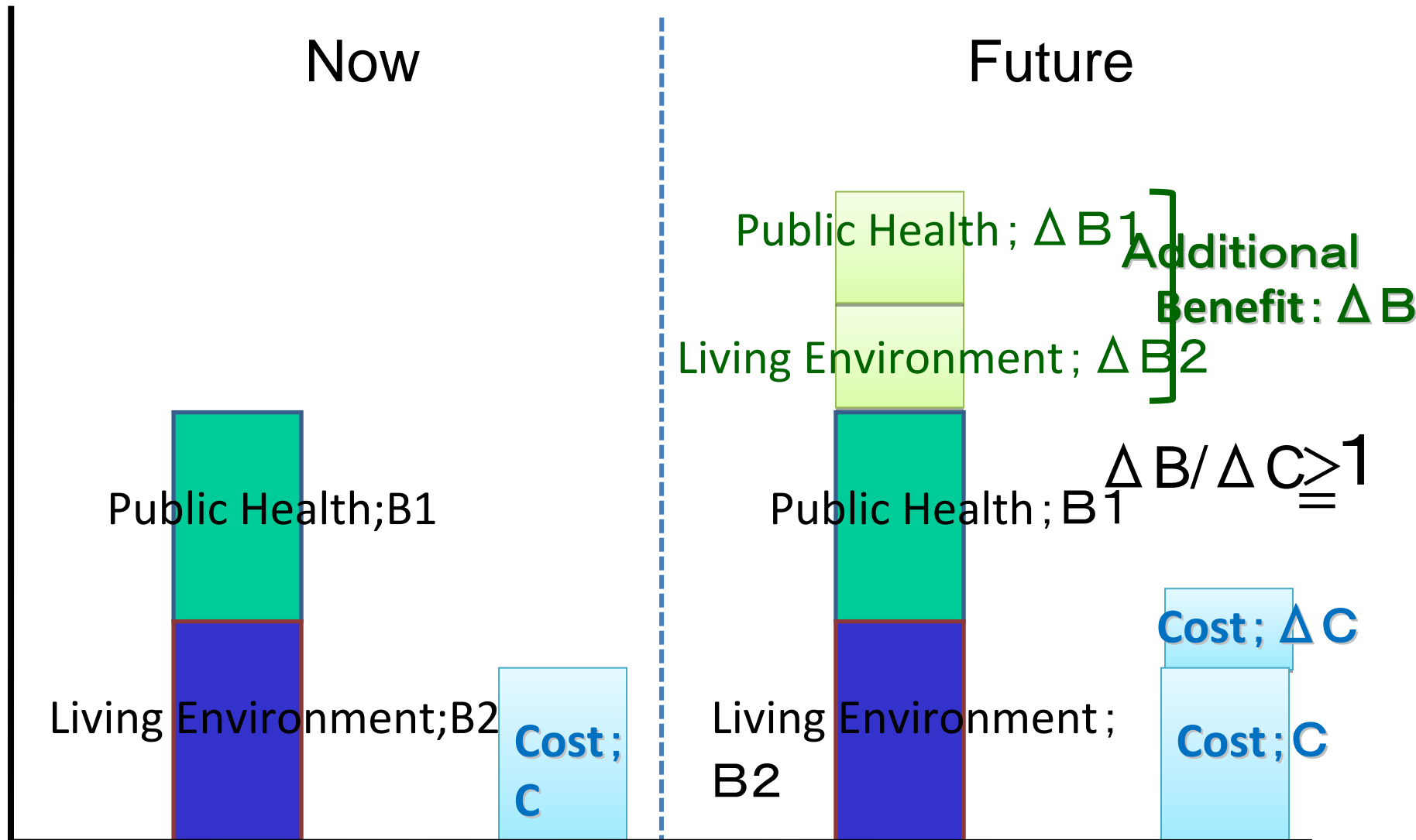
$$\text{Living Environment} = B2 + \Delta B2$$

$$\frac{\Delta B1 + \Delta B2}{\Delta C1} \geq 1$$

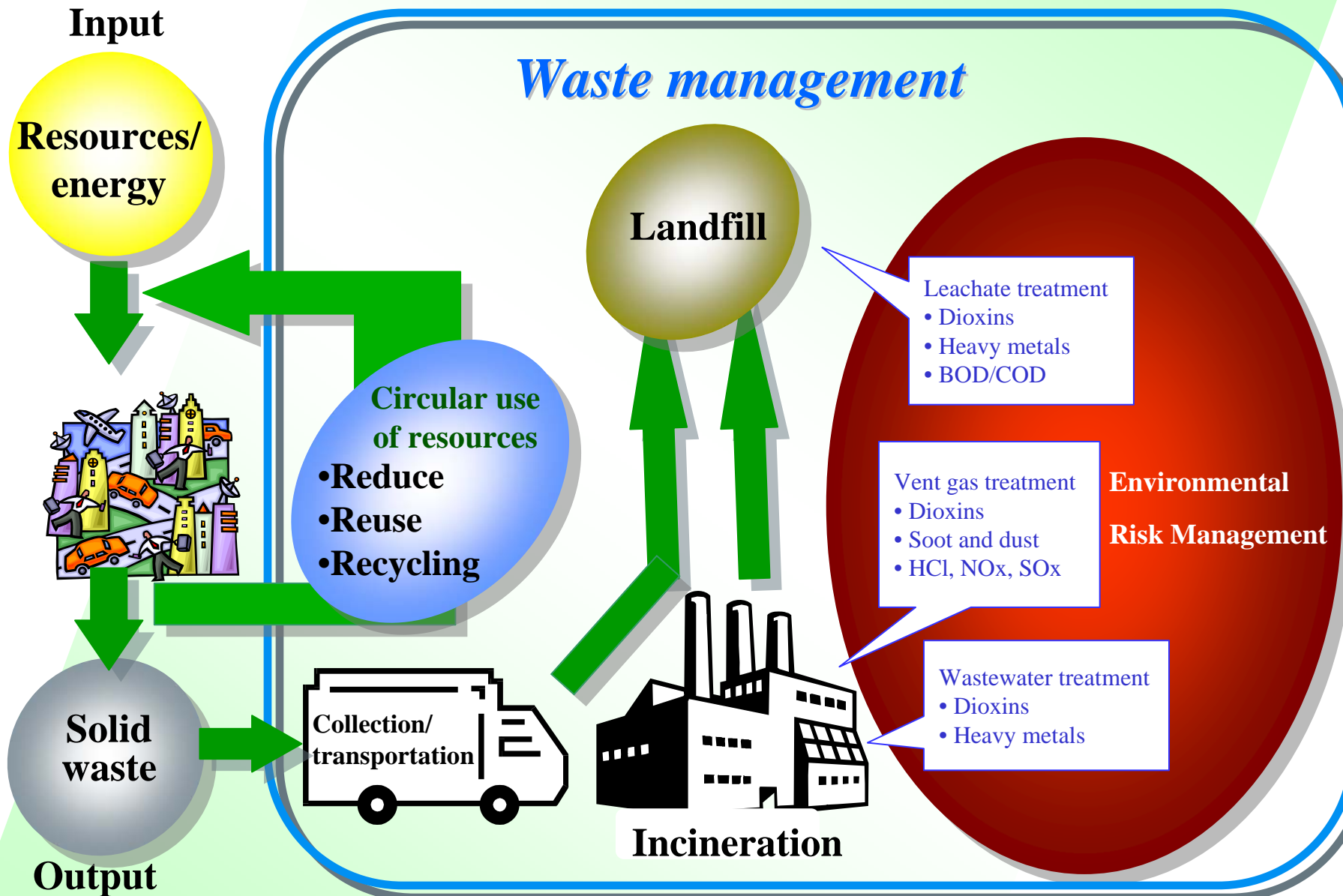
Cost-Benefit Analysis

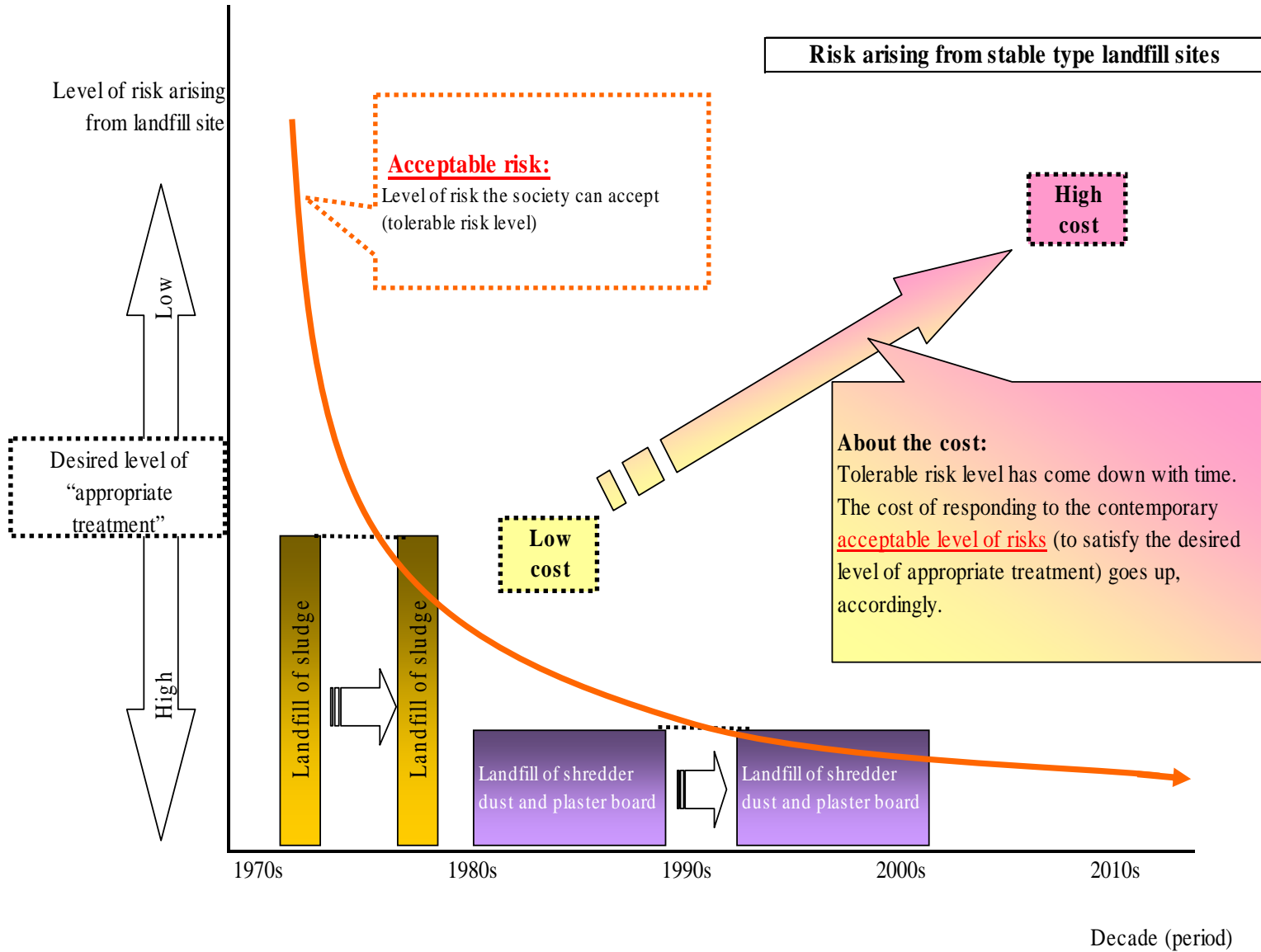


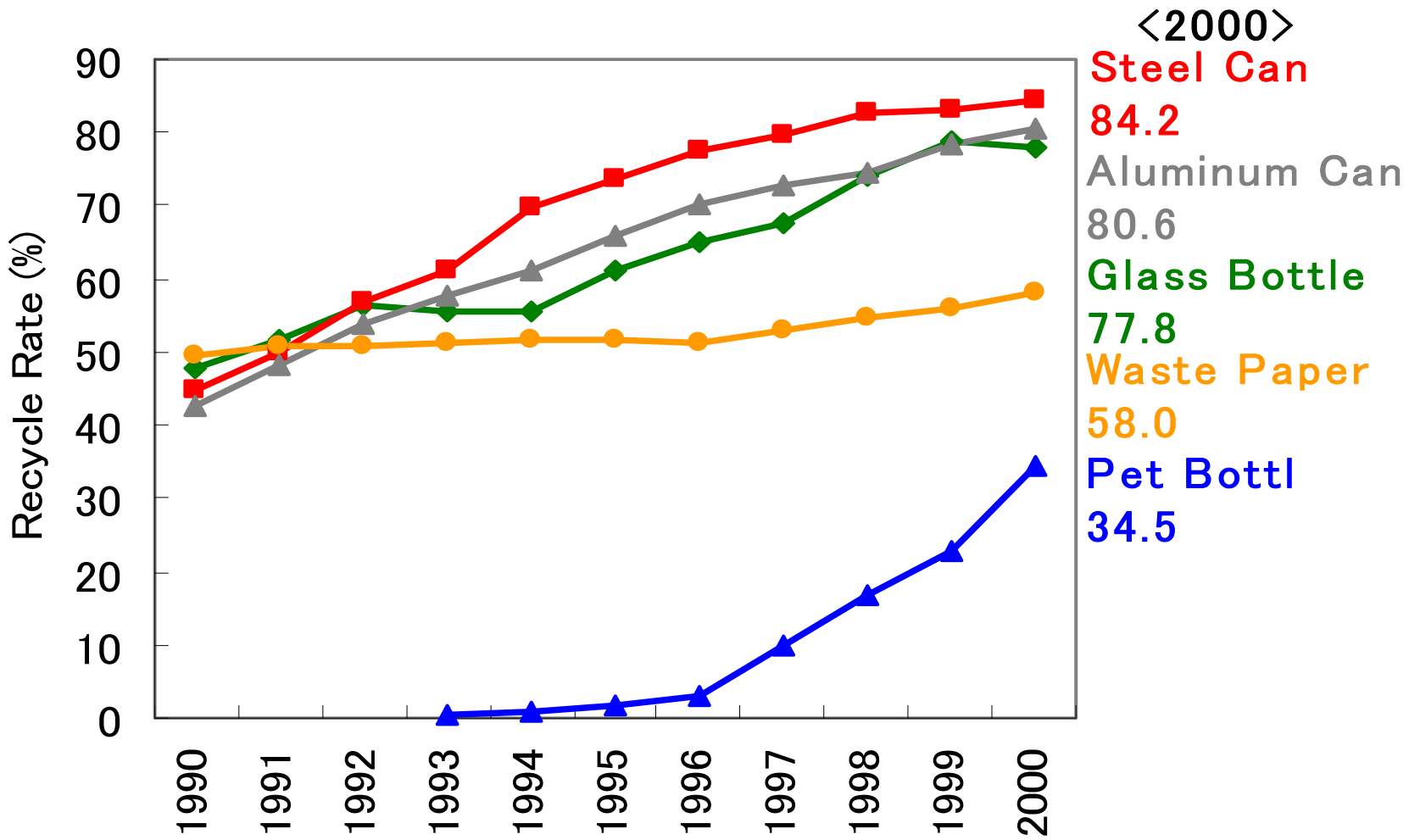
Cost-Benefit Analysis



Waste Management and Environmental Risk Management







Recycle Rate of Paper, Cans and Bottles

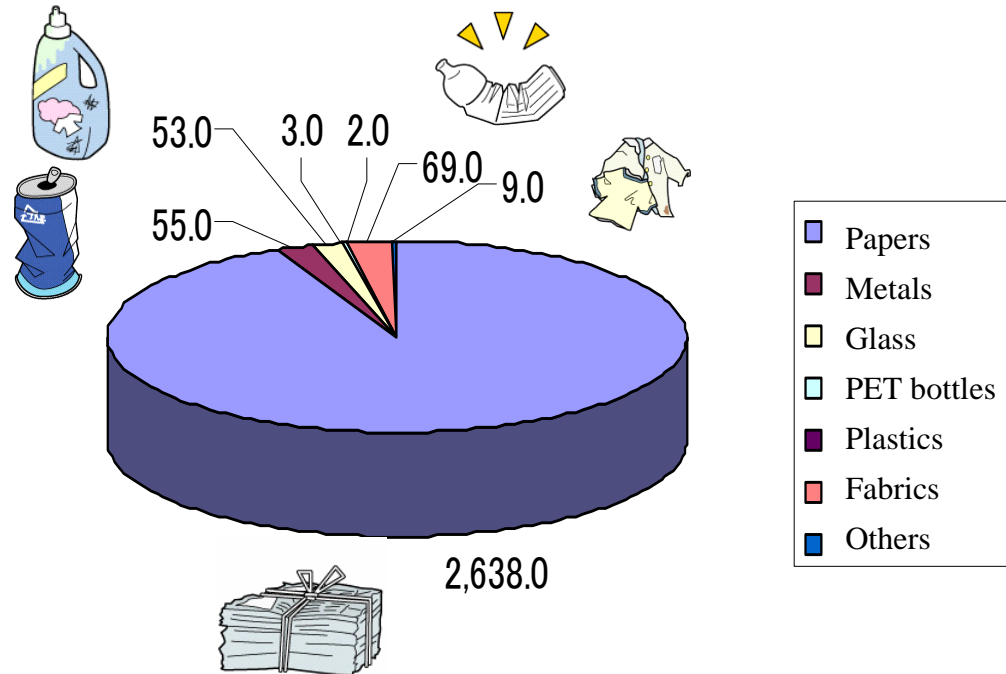
Promotion of a regional 3RSociety in collaboration of the local governments and NGOs/NPOs



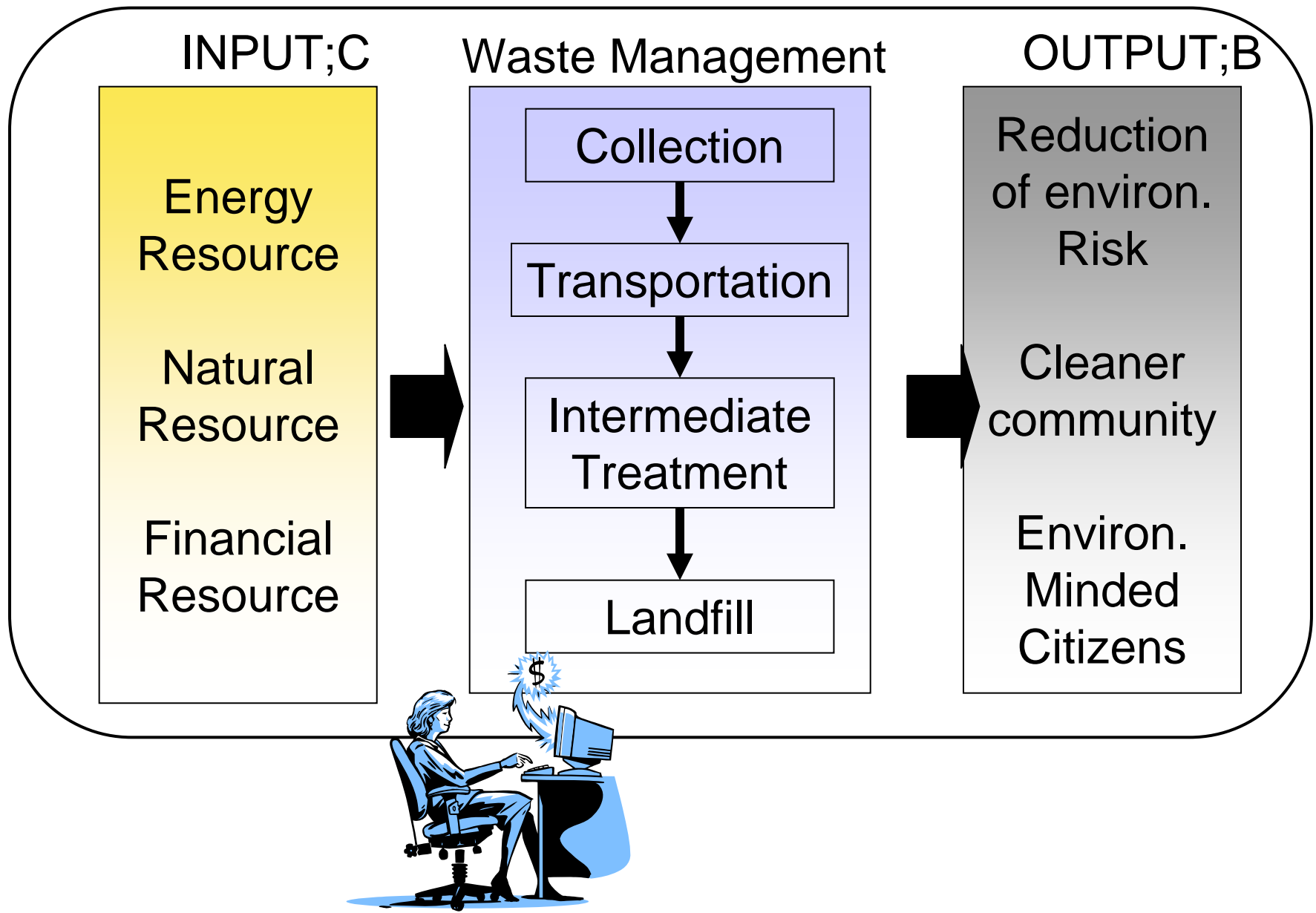
Group collection of recyclable waste

- Local governments support activities to collect used papers, used magazines, used clothing, etc. by citizens' groups, NGOs/NPOs, etc. (group collection)
- ¥1 ~4/kg of collected recyclables are subsidized.
- About 3,000 tons/year of solid waste are recycled through this group collection

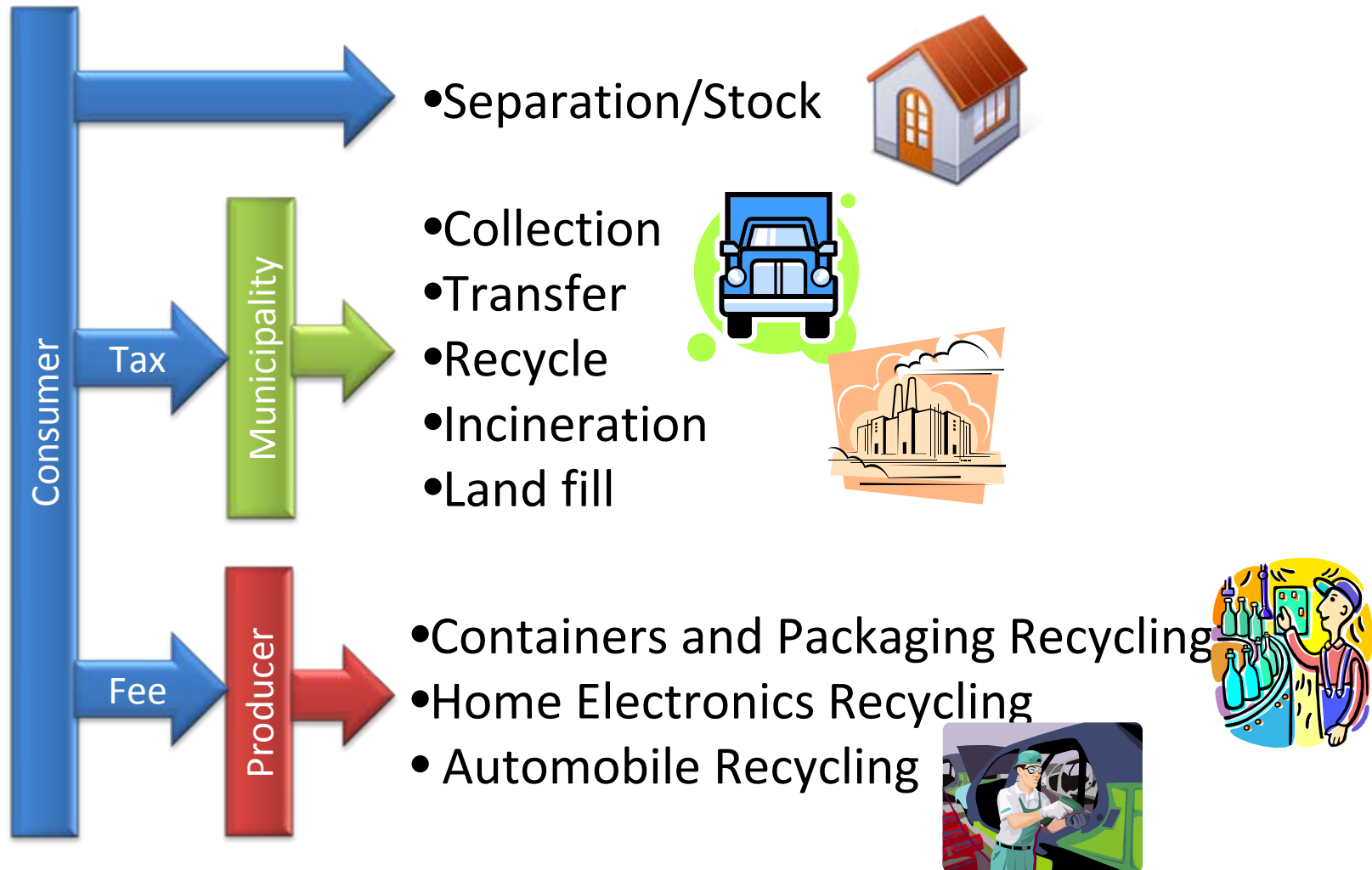
[Details of waste by group collection in Japan (thousand tons)]



1. Development of WLCA Tool



Cost payer of MSW Management



1. Development of WLCA Tool

