1. Framework of national guideline and local solid waste management plan in Japan
Responsibilities of stakeholders for promoting sound waste management and recycling

National government
1. To prepare a guideline for local governments to develop their local solid waste management plan
2. To collect information/data about waste
3. To develop a policy/regulations based on the collected data
4. To promote technology development for waste treatment and recycling
5. To provide technical and financial assistances (e.g. subsidy) to the municipalities etc.

Local municipality
1. To develop a plan of local solid waste management
2. To promote citizens’ voluntary activities with regard to the waste reduction
3. To take necessary measures for proper treatment of waste
4. To make efforts toward efficient operation in the implementation of waste management
   (e.g. capacity building of staffs, consolidate treatment/disposal facilities, develop operation techniques)

Citizens
1. To reduce waste generation (waste prevention)
2. To implement source separation for waste disposal
3. To promote reuse of waste
4. To contribute to the reduction of waste and its proper treatment managed by municipalities

Business and Industries
1. Disposer’s responsibility to properly treat on the disposer’s responsibility
2. Extended Producer Responsibility to improve the design of products, containers, etc. and to take-back and properly treat their end-of-life products

(Source: Waste Management and Public Cleansing Law in Japan)

Structure of national regulations associated with waste management and 3Rs in Japan

- The Basic Environment Law
- The Basic Law for Establishing the Recycling-based Society
- Law for the Promotion of Effective Utilization of Resources
- Containers and Packaging Recycling Law
- Home Appliance Recycling Law
- Small WEEE Recycling Law
- Construction and Demolition Waste Recycling Law
- End-of-life Vehicle Recycling Law
- Food Waste Recycling Law
- Green Purchasing Law (Public procurement)
- National Guideline for development of a Municipal Solid Waste Management Plan
- Municipal Solid Waste Management Plan (10~15yr)
- Action Plan of Solid Waste Management (Every year)
- National Plan
- Basic Plan for Establishing a Sound Material Cycle Society (revised every 5 yrs)
- Basic Environmental Plan
- The Basic Law for Establishing the Recycling-based Society
- Waste Management and Public Cleansing Law
- Waste Management and Public Cleansing Law
- Development Plan of Waste Treatment Facility
- Waste Management Plan of Provincial Govt.
- Advice/guidance submit the Municipal SWM Plan
National target of 3Rs in Japan
set in the 2nd Basic Plan for Establishing a Sound Material-cycle Society (2008~: 5 years)

**Effort Indicators (target year: FY2015)**

1. **Numerical targets**
   - Reduction of municipal solid waste
     - Total waste generation per capita/day: 10% reduction in 2005 from 2000 level
     - Household waste generation per capita/day: 20% reduction
     - Waste generation from business sector: 20% reduction
   - Final disposal amount of industrial waste
     → Reduction by 60% comparing to FY2000 level (e.g. 47% reduction in 2005)
   - Citizens' awareness of and behavior concerning 3Rs
     → Awareness: approx. 90%, Behavior: approx. 50%
   - Promotion of recycling businesses
     → Market-size will be doubled from FY2000 level (e.g. 1.3 times in 2005)

2. **Other indicators monitoring a progress made by individual stakeholders**
   - Percentage of customers not taking plastic shopping bags,
   - High-ranked (awarding) municipalities in terms of 3R efforts, and other indicators

**Source:** Ministry of Environment Japan

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Municipal Solid Waste Management Plan in Japan


  **Chapter 2: Municipal Solid Waste Management**

  **Municipal Solid Waste Management Plan**

  **Article 6**

  The municipalities shall specified forth a definite plan for management of municipal solid waste in their respective administrative areas (hereinafter referred to as a "municipal solid waste management plan"). The municipal solid waste management plan shall include the following matters in regard to the management of municipal solid waste in their administrative areas according to the Ordinance of the Ministry of the Environment.

  **Components included in a Municipal Solid Waste Management Plan:**
  1. Estimate of the volume of municipal solid waste to be generated and that to be managed
  3. Categories of municipal solid waste for separate collection.
  4. Basic matters of sound treatment of municipal solid waste and the authorities/persons carrying out such management.
  5. Matters concerning the improvement or construction of municipal solid waste treatment facilities.
  6. Other matters necessary for the management of municipal solid waste.
**Basic concept of a Municipal Solid Waste Management Plan in Japan**

- **Hierarchy of waste management options**
  - 1st: Prevention of waste generation at source (Reduce); 2nd: Reuse; 3rd: Recycle; 4th: Thermal recycle; 5th: Sound disposal of waste

- **Promote regional (area-wide) waste treatment**
  - Lower construction and maintenance costs due to an intensification of waste treatment facilities (e.g. waste collection/treatment beyond the border)

- **Components to be assessed in the development of a MSW Management Plan**
  - **Overall condition of the municipality:** demographics, industrial trend, a relationship with the development plan of the municipality
  - **Current conditions and issues of waste management:** waste flow, responsible stakeholders, performance of waste management and its evaluation, understanding the challenges.
  - **Trend of other municipalities and central and provincial governments**

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**Guideline for a Municipal Solid Waste Management Plan in Japan: Contents (No.1)**

1. **Basic Principle**
   - Objective, relationships with other plan/regulation, targeted area

2. **Target year**
   - time period (10~15 years, the mid-term evaluation in every 5 years)

3. **Data management on waste generation and composition**
   - collect the current data on waste generation and composition
   - estimate the amount of waste generation per a person a day depending on population projection and future trend of industrial/business activities

4. **Roles of each responsible actors**
   - Local authority:
     - waste collection charge, introduction of source separation, promoting env. education and public awareness, instruction to large-volume generator, green purchasing etc.
   - Residents:
     - community-based collection system for recyclables, reduction of waste packaging etc.
   - Business entities:
     - prevention of waste generation at source (e.g. prevent excess packaging) etc.
5. Waste treatment planning
   5.1 Plan for waste reduction (prevention) and recycling
   5.2 Plan for waste collection and transportation
   5.3 Plan for intermediate treatment
   5.4 Plan for final disposal

6. Categorization of a source separation
   • categorize waste for separate collection
   • keep residents informed to clean and separate recyclables

7. Waste treatment facility improvement and establishment
   • setting a treatment capacity and a treatment method for each facility
   • utilizing a subsidy for establishing the facility, promoting PFI etc.

8. Others
   • Public awareness, education to residents on source separation, relationships with other municipal development plan etc.

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Guideline for a Municipal Solid Waste Management Plan in Japan: Contents (No.2)

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Municipal Solid Waste Management Plan: Case in City of Kitakyushu

Population: about 1 million

1. Basic principle:
   • Promoting recycle-based society (integration of 3Rs and green procurement)

2. Target year: 2001~ (10 years, reviewed in every 5 years)

3. Data management
   • Target: waste generation (keep constant level of 49 million ton/year), waste reduction (-5%), recycling rate (13% → 25%)

4. & 5. Measurements
   • Development of recycle systems for
     - waste papers,
     - food waste,
     - package waste,
     - home appliances,
     - green waste.
   • Promotion of reuse
     - exchange program for used books and clothes etc.
   • Promotion of green purchasing (e.g. public procurement)
6. Categorization of a source separation and separate collection
   • Regular separate collection with designated bags:
     1) Combustibles,
     2) Cans and glass bottles,
     3) PET bottles,
     4) Plastic containers and packages
   • Station collection:
     Cartons, trays, fluorescent tubes, metals (pan, pot etc.)
   • Community-based collection:
     waste paper (newspaper, card boxes, magazines)

7. Waste treatment facilities
   • Incinerations (3),
   • Landfill site (1),
   • Recycling facilities (waste sorting for cans and bins: 3)

8. Promoting efficiently and satisfaction of residences
   • Announcement of annual waste management costs, reduction of waste collection costs

9. Environmental Education
   • Establishing Env. Education center,
   • Env. Education at school, etc.

Source: Kitakyushu City
### Indicators to evaluate the waste management performance

<table>
<thead>
<tr>
<th>Category</th>
<th>Objective to be measured</th>
<th>Indicator</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Establishing recycling-based society</td>
<td>Waste generation</td>
<td>Waste generation per person\cdot day</td>
<td>kg/person\cdot day</td>
</tr>
<tr>
<td></td>
<td>Recycling rate</td>
<td>Recycling rate from waste</td>
<td>% (ton/ton)</td>
</tr>
<tr>
<td></td>
<td>Thermal recycle</td>
<td>Energy recovery from waste</td>
<td>MJ/ton</td>
</tr>
<tr>
<td></td>
<td>Final Disposal</td>
<td>Proportion of waste sent to landfill-site</td>
<td>% (ton/ton)</td>
</tr>
<tr>
<td>Prevention of global warming</td>
<td>GHGs emission</td>
<td>GHGs emission per a person a day</td>
<td>kg/person\cdot day</td>
</tr>
<tr>
<td>Public service</td>
<td>Residents’ satisfaction for waste treatment</td>
<td>Degree of Satisfaction of residents</td>
<td>—</td>
</tr>
<tr>
<td>Economy</td>
<td></td>
<td>Cost-effectiveness</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Annual waste treatment cost per a person</td>
<td>JPN yen/ year</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Cost of recycling</td>
<td>JPN yen/ton</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Cost of thermal recycling</td>
<td>JPN yen/MJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Cost associated with waste reduction service</td>
<td>JPN yen/ton</td>
</tr>
</tbody>
</table>

**Initial set of data to be managed**

**Data collection/management**

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### Relationship between National and Local Government in Japan

**Local Government**

**Plan**
- Data collection
- Develop a Basic Plan/Action Plan on MSW management

**Implementation**
- Develop a waste treatment facilities
- Implement waste reduction measures

**Submission of waste-related data**

- Survey of actual situation of MSW by MOEJ
- Exchange human resources

**National Government**

**Plan**
- Collecting data from local governments
- Develop a Policy/Plan/Strategies etc. based on the data collected from local governments

**Provision of subsidy on a development of waste treatment facilities (1/3)**
(1/2 if high efficiency WtE facility)
2. Framework of national guideline and local solid waste management plan in the Philippines

**Philippines 3R Strategy and Experience: National and Local government relationship**

**Ecological Solid Waste Management Act of 2000 (R.A. 9003)**

*Article 1: Section 16. Local Government Solid Waste Management Plans*

The province, city or municipality, through its local solid waste management boards, shall prepare its respective 10-year solid waste management plans consistent with the national solid waste management framework…… shall be reviewed and updated every year by the provincial, city or municipal solid waste management board.

**Expected role**

- Approve, review, and monitor Local Solid Waste Management Plans (LSWMP)
- Develop a model provincial, city, and municipal SWMP etc.
- Develop a Provincial Solid Waste Management Plan from the submitted solid waste management plans of the respective city and municipality.
- The Provincial Solid Waste Management Plan shall be submitted to the Commission for approval.
- Review every 2 years etc.

- Develop the City and Municipal Solid Waste Management Plan.
- Monitor the implementation of the City or Municipal Solid Waste Management Plan.
- Review every 2 years etc.

844 municipalities (52%) have submitted (as of 2014).
### Framework of 10-year Solid Waste Management Plan

**Ecological Solid Waste Management Act of 2000 (R.A. 9003)**

#### Section 17. Components of the Local Government Solid Waste Management Plan

<table>
<thead>
<tr>
<th>Component</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. City or Municipal Profile</td>
<td>Background information on the city/municipalities</td>
</tr>
<tr>
<td>2. Waste characterization</td>
<td>Population, map, solid waste generation by source, inventory of existing facilities and capacities</td>
</tr>
<tr>
<td>3. Collection and Transfer</td>
<td>Provision of properly designed containers, segregation, hauling, transfer, enforcement, training officers</td>
</tr>
<tr>
<td>4. Intermediate Treatment methods and facilities</td>
<td>Methods and facilities</td>
</tr>
<tr>
<td>5. Source Reduction</td>
<td>Program and economic incentives to reduce non-recyclable materials, replace disposable materials, reduce packaging, etc.</td>
</tr>
<tr>
<td>6. Recycling</td>
<td>Types of materials to be recycled, methods for determining the category of waste to be recycled, new facilities and expansion of existing facilities needed to implement the recycling.</td>
</tr>
<tr>
<td>7. Composting</td>
<td>Types of materials to be composted, methods for determining the category of waste to be composted, new facilities and expansion of existing facilities needed to implement the composting.</td>
</tr>
<tr>
<td>8. Final disposal</td>
<td>Projection of the amount of disposal capacity needed to accommodate the solid waste generated.</td>
</tr>
<tr>
<td>9. Education and public information</td>
<td>Educate and inform citizens about the source reduction, recycling and composting programs</td>
</tr>
<tr>
<td>10. Special waste (household hazardous wastes)</td>
<td>Waste (household hazardous wastes)</td>
</tr>
<tr>
<td>11. Resource requirement and funding (finance)</td>
<td>Description of the project costs, revenues, and source of funds</td>
</tr>
<tr>
<td>12. Privatization of solid waste management projects</td>
<td>Indicate specific measures to promote the participation of the private sector.</td>
</tr>
<tr>
<td>13. Incentive program</td>
<td>Providing incentives, cash or otherwise, shall encourage the participation of concerned sectors.</td>
</tr>
</tbody>
</table>

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### 10 Year Solid Waste Management Plan: Case of Cebu City

**Population:** about 866,000 (2010)

1. **Basic principle:**
   - Promoting ecological, integrated and sustainable solid waste management (integration of 3Rs and green procurement)

2. **Target year:** 2012 – 2020 (10 years, reviewed in every 5 years)

3. **Data management**
   - Target: waste generation (reduction of landfill by 25% in 2020)

4. & 5. **Measurements**
   - Promotion of waste separation at source
   - Enforcement of no segregation and no collection policy
   - Establish a Material Recovery Facility at barangay
   - Promote recycling businesses through PPP
   - Establish environmental education
   - Strengthening institutional framework and capacity building

6. **Waste treatment facility**
   - Landfill site (1)
   - Central treatment facility (1)

Source: Cebu City
Thank you.

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