Recommendations Concerning Promotion Measures of the Industrial Waste Management Industry

(Summary)

Committee on Discuss Promotion Measures of the Industrial Waste Management Industry

May 2017
# Table of Contents

1. Background and objective of recommendations concerning promotion measures

2. Social and economic trends relevant to the industrial waste management industry

3. Trends, status and activities of the industrial waste management industry

4. Business strategy for solving problems in the industrial waste management industry

5. Promotion measures of the industrial waste management industry
1. Background and objective of recommendations concerning promotion measures
1. Background and objective of recommendations concerning promotion measures

**Background of recommendations**

- Industrial waste treatment facilities are necessary for preserving the living environment and improving public health through proper waste treatment, and are indispensable infrastructure for building a sound material-cycle society. In addition, businesses related to the collection, transport and disposal of waste form an infrastructure in a broad sense, and its significance in society becomes greater year by year. However, waste treatment facilities are still perceived as a nuisance by citizens, and plans to build one tend to be opposed of industrial by local residents.

- Meanwhile, the number of industrial waste management businesses contributing to the creation of jobs, the development of the local economy, and the creation of a regional circular sphere in cooperation with the local communities has been gradually increasing. Facilitating such movement is important for raising the social status of the industrial waste management industry, promoting the building of necessary facilities, and constructing a sound material-cycle society.

**Objective of recommendations**

- “Promotion Measures of the Industrial Waste Management Industry” (hereinafter referred to as “Promotion Measures”) are formulated with the aim of setting the direction for sustainable development of the industrial waste management industry in coexistence with local communities as an indispensable infrastructure for Japan’s social and economic systems, and also presenting specific details of the support measures to facilitate the achievement of the industry’s sustainable development in cooperation with the national government, local governments, industrial waste generators and other related parties.
2. Social and economic trends relevant to the industrial waste management industry
2-1-1. Major trends affecting the future of the industrial waste management industry

- Population decline: The working-age population (15–64 years of age) started to decline after hitting a peak in 1995, and is estimated to decline from 77 million in 2015 to 73 million in 2020 and to 68 million (about 12% decrease) in 2030.

- Conversion to a stock-type society: Effective utilization of fixed assets developed during the period of rapid economic growth after WWII is progressing, and sales volumes of new durable consumer goods, etc., have been falling due to a decline in the sense of ownership and a decrease in demand. Construction waste is increasing due to the aging of social capital. New car sales and new housing starts, for example, have halved compared to 1990.

**Figure: Trends in Japan's aging and projection**

Source: Census until 2010, definitive value as of December 1 of the population estimate for 2013, and estimate result of "Population Projection for Japan (estimate as of January 2012)" with medium-fertility and medium-mortality assumption released by the National Institute of Population and Social Security Research in and after 2015

**Figure: Trends in new housing starts**

Source: Created based on "Statistics of Housing Starts" (updated on January 6, 2017) released by the Ministry of Land, Infrastructure, Transport and Tourism
2-1-2. Major trends affecting the future of the industrial waste management industry

- **Environmental constraints**: Final energy consumption in Japan is required to be reduced from 361 million kl in FY2013 to 326 million kl in FY2030, and the ratio of renewable energy to the total power generation is required to be increased from 10.7% in FY2013 to about 22–24% in FY2030.

- **Resource constraints**: Resource demand and waste generation are expected to increase as the world's population and economy grow. The amount of waste generation is estimated to increase from about 10.47 billion tonnes in 2010 to about 14.87 billion tonnes in 2025, boosting the demand for cyclical use. Furthermore, the importance of international resource circulation is increasing. In Japan, the import volume of specified hazardous waste under Basel Convention is increasing, mainly from electronic parts scrap, electric furnace dust, and metal-containing sludge.

### Table: Energy mix used to achieve greenhouse gas reduction targets

<table>
<thead>
<tr>
<th></th>
<th>FY2013</th>
<th>FY2030</th>
</tr>
</thead>
<tbody>
<tr>
<td>Final energy consumption</td>
<td>361 million kl</td>
<td>326 million kl</td>
</tr>
<tr>
<td>Total power generation</td>
<td>966.6 billion kWh</td>
<td>About 1,065.0 billion kWh</td>
</tr>
<tr>
<td>Renewable energy</td>
<td>10.7%</td>
<td>22%–24% (approx.)</td>
</tr>
<tr>
<td>Nuclear power</td>
<td>1.0%</td>
<td>22%–20% (approx.)</td>
</tr>
<tr>
<td>Coal</td>
<td>30.3%</td>
<td>26% (approx.)</td>
</tr>
<tr>
<td>LNG</td>
<td>43.2%</td>
<td>27% (approx.)</td>
</tr>
<tr>
<td>Oil</td>
<td>14.9%</td>
<td>3% (approx.)</td>
</tr>
</tbody>
</table>

Source: “Long-term Energy Supply-Demand Outlook” (July 2015) by the Ministry of Economy, Trade and Industry

### Figure: Trends in the amount of waste in the world (projection)

- **2010**: approx. 10.47
- **2025**: approx. 14.87
- **2050**: approx. 22.31

Source: “Annual Report on the Environment, the Sound Material-Cycle Society and Biodiversity in Japan FY2011” by the Ministry of the Environment
2-1-3. Major trends affecting the future of the industrial waste management industry

• Corporate Social Responsibility: The Sustainable Development Goals (SDGs) adopted by the United Nations General Assembly in September 2015 set out goals to “ensure sustainable production and consumption patterns” and goals for solving social issues including health, education, and widening disparities. Furthermore, regarding corporate activities, ISO 20400 (Sustainable procurement) will be issued in 2017. Regarding corporate social responsibility for sustainable development, supply chain management from a procurement perspective is expected to become more important.

SDGs

Examples of “Goal 12. Ensure sustainable consumption and production patterns”
12.1 Implement the 10-year framework of programs on sustainable consumption and production, all countries taking action, with developed countries taking the lead, taking into account the development and capabilities of developing countries
12.2 By 2030, achieve the sustainable management and efficient use of natural resources
12.3 By 2030, halve per capita global food waste at the retail and consumer levels and reduce food losses along production and supply chains, including post-harvest losses
12.4 By 2020, achieve the environmentally sound management of chemicals and all wastes throughout their lifecycle, in accordance with agreed international frameworks, and significantly reduce their release to air, water and soil in order to minimize their adverse impacts on human health and the environment
12.5 By 2030, substantially reduce waste generation through prevention, reduction, recycling and reuse
12.6 Encourage companies, especially large and transnational companies, to adopt sustainable practices and to integrate sustainability information into their reporting cycle
12.7 Promote public procurement practices that are sustainable, in accordance with national policies and priorities
12.8 By 2030, ensure that people everywhere have the relevant information and awareness for sustainable development and lifestyles in harmony with nature

Table: Example of standards for sustainable procurement

<table>
<thead>
<tr>
<th>General affairs</th>
<th>Compliance with laws and regulations / Ban on retaliatory actions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Environment</td>
<td>Energy savings / Use of low carbon/carbon-free energy / Reduction of greenhouse gas emissions by other means / Promotion of the 3Rs (”Reduce, Reuse, and Recycle”) / Reduced use of containers, packaging, etc. / Prevention of contamination, management of chemicals, and waste disposal / Collection of raw materials with consideration for resource conservation / Conservation of biodiversity</td>
</tr>
<tr>
<td>Human rights</td>
<td>Compliance with and respect for international human rights standards / Ban on discrimination and harassment / Ban on violation of the rights of local residents, etc. / Respect for children’s rights / Respect for the rights of social minorities</td>
</tr>
<tr>
<td>Labor</td>
<td>Compliance with and respect for international labor standards / Freedom of association and the right of collective bargaining / Ban on forced labor / Ban on child labor / Ban on discrimination in employment and careers / Wages / Ban on long working hours / Safety and hygiene of workplace / Foreign and migrant workers</td>
</tr>
<tr>
<td>Economy</td>
<td>Prevention of corruption / Fair business practices / Use of raw materials with no involvement with conflicts or crimes / Protection of intellectual property rights / Responsible marketing / Proper management of information / Invigoration of regional economies</td>
</tr>
</tbody>
</table>

2-2-1. Implications for the promotion of the industrial waste management industry

- The amount of industrial waste is decreased by factors including population decline and conversion to a stock-type society, and it is greatly affected by the financial situation of the national and local governments and changes in the international trade structure due to mega FTAs.

Table: Examples of social and economic trends and factors that affect the amount of industrial waste by resource type

<table>
<thead>
<tr>
<th>Resource type</th>
<th>Industry of major waste generators affected</th>
<th>Social and economic trends that affect</th>
<th>Factors affecting social and economic trends</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stone and clay resources</td>
<td>Government agencies, Electricity, gas, heat supply, waterworks, Construction, ceramic, stone and clay products manufacturing</td>
<td>Reduction of lifecycle cost to repair aging infrastructure, etc. Decrease in construction demand / regional concentration</td>
<td>Financial status of the national and local governments, Long-life technology/needs, Scale and frequency of disasters, Regulatory status of local governments, Transportation costs</td>
</tr>
<tr>
<td>Metal and fossil resources</td>
<td>Industrial machinery manufacturing, Durable consumer goods manufacturing, Process service industry including information communication, transportation, and finance</td>
<td>Progress of service economy, Decline in the sense of ownership</td>
<td>Changes in international trade structure due to mega FTAs, etc. Conversion to the generation with lower sense of ownership</td>
</tr>
<tr>
<td>Biomass resources (kitchen waste)</td>
<td>Agriculture, forestry and fisheries, Food processing, Distribution / food service, Other service industries</td>
<td>Reducing food loss, Increasing awareness toward safety</td>
<td>Changes in international trade structure due to mega FTAs, etc. Changes in eating habits</td>
</tr>
</tbody>
</table>
2-2-2. Implications for the promotion of the industrial waste management industry

- The amount of industrial waste is decreased by factors including population decline and conversion to a stock-type society. Meanwhile, in order to play a social role under environmental constraints and resource constraints, the industrial waste management industry is required to reduce greenhouse gas (GHG) emissions in the collection, transport and disposal process, establish technology and systems for processing new materials, and improve the cyclical use rate of circulative resources.

- The industry is also required to improve the reliability (enhance CSR) by contributing to CSR procurement and supply chain management in order to meet the social responsibilities and legal compliance of waste generators.

- Furthermore, in order to fulfill these roles, it is necessary to improve productivity to cope with increasing labor shortage and strengthen the management base in preparation for fluctuations in resource prices.

Social and economic trends
- Population decline
  - Declining working-age population
  - Decrease in demand for products, etc.
- Stock
  - Decrease in new demand
  - Aging of social capital and treatment of negative legacy
- Environmental constraints
  - Strengthening GHG emission reduction targets
  - Increasing the lineup of renewable energy and energy-saving products
- Resource constraints
  - Increase in international resource demand
  - Unstable resource prices
  - Waste reduction
- Corporate social responsibility
  - CSR procurement
  - Supply chain management

Suggestions for the industrial waste management industry
- Improvement of productivity in order to cope with increasing labor shortages
- Supply-demand gap of recycled materials and expansion of the use of construction waste for recycling
- Medium- to long-term reduction in waste generation by stock accumulation, etc.
- Reduction of GHG emissions in the collection, transportation and disposal of waste
- Establishment of technology and systems for processing new materials, etc.
- Improvement of cyclical use rate of circulative resources
- Strengthening of the management base in preparation for fluctuations in resource prices, etc.
- Improving reliability (enhancing CSR) that contributes to social responsibility and legal compliance of waste generators
3. Trends, status and activities of the industrial waste management industry
3-1-1. Current status of industrial waste management (final disposal amount and recycling rate)

- The final disposal amount decreased by about 85% from about 67 million tons in FY1997 to about 10 million tons in FY2014, but recently the rate has been flat.
- Meanwhile, the recycling rate has been rising steadily from FY1997 to FY2005, and has remained at a level over 50%.

Source: Ministry of the Environment
3-1-2. Current status of industrial waste management (illegal dumping)

- Both the cases and the amount of illegal dumping have decreased significantly after hitting a peak in FY1998–2001, and measures to prevent illegal dumping have been successful. However, illegal dumping has not yet been eliminated totally.

**Trends of the number of illegal dumping cases and the amount of waste dumped (newly found cases)**

Source: Ministry of the Environment
3-2-1. Facts and figures of the industrial waste management industry
(number of businesses)

- There are about 110,000 businesses with an industrial waste treatment permit, but the number of active businesses is about 60,000, about 60% of the total.
- The number of businesses mainly engaged in industrial waste management (meaning their sales ratio from industrial waste management is 50% or more of the total sales) is about 12,000, which is about 10% of the total. In addition, the number of businesses certified as excellent industrial waste management businesses is about 1,000, which is much smaller than the number of businesses mainly engaged in industrial waste management.

**Number of businesses engaged in industrial waste management**

- Number of businesses with permits: Approximately 110,000
  (Collection and transport: 100,000, intermediate treatment: 10,000, final disposal: 800)
- Number of active businesses: Approximately 64,000
  (Collection and transport: 55,000, intermediate treatment: 9,000, final disposal: 800)
- Number of businesses mainly engaged in industrial waste management: Approximately 12,000
  (Collection and transport: 9,000, intermediate treatment: 3,000, final disposal: 400)
- Number of businesses certified as excellent industrial waste management businesses: Approximately 1,000
  (Collection and transport: 359, intermediate treatment: 737, final disposal: 94)

Source: (Number of businesses with permits) Information Retrieval System of Industrial Waste Management Businesses of the Ministry of the Environment (January 19, 2017)
(Number of active businesses and businesses mainly engaged in industrial waste management) Estimate by Mizuho Information & Research Institute
(Number of businesses certified as excellent industrial waste management businesses) Provided by the Japan Industrial Waste Management Foundation
3-2-2. Facts and figures of the industrial waste management industry (size of the domestic market)

• The size of the domestic industrial waste management market is estimated to be approximately 5.3 trillion yen.

3-2-3. Facts and figures of the industrial waste management industry (number of employees)

Number of employees of businesses mainly engaged in industrial waste management:

- For businesses engaged in collection and transport only, about half of the businesses have four or less employees, and only 1% of the businesses have 100 or more employees.
- For businesses engaged in intermediate treatment, the proportion of businesses with a large number of employees is high. However, the proportion of businesses with 100 or more employees is 2.1% of the total, meaning that the overwhelming majority have less than 100 employees.

### Average number of employees of businesses mainly engaged in industrial waste management

<table>
<thead>
<tr>
<th>Industry</th>
<th>Average number of employees</th>
</tr>
</thead>
<tbody>
<tr>
<td>Collection and transport only</td>
<td>9</td>
</tr>
<tr>
<td>Intermediate treatment</td>
<td>20</td>
</tr>
<tr>
<td>Final disposal</td>
<td>9</td>
</tr>
<tr>
<td>Intermediate treatment and final disposal</td>
<td>29</td>
</tr>
</tbody>
</table>

3-2-4. Facts and figures of the industrial waste management industry (sales)

- For businesses doing only collection and transport among businesses mainly engaged in industrial waste management, the proportion of businesses with sales of one billion yen or more is only 2.1%. For businesses doing intermediate treatment and final disposal, the proportion of businesses with high volumes of sales is higher than that of businesses doing collection and transport only. Overall, the proportion of businesses with one billion yen or more sales is less than 10%, but there are some businesses with sales of more than 10 billion yen.

Sales of businesses mainly engaged in industrial waste management

<table>
<thead>
<tr>
<th>Industry</th>
<th>Average sales</th>
</tr>
</thead>
<tbody>
<tr>
<td>Collection and transport only</td>
<td>162.67 million yen</td>
</tr>
<tr>
<td>Intermediate treatment</td>
<td>417.36 million yen</td>
</tr>
<tr>
<td>Final disposal</td>
<td>328.45 million yen</td>
</tr>
<tr>
<td>Intermediate treatment and final disposal</td>
<td>669.77 million yen</td>
</tr>
</tbody>
</table>

3-2-5. Facts and figures of the industrial waste management industry (high-ranking businesses in the domestic market)

- Looking at the top 10 companies, their sales volume is between 11 to 27 billion yen. (Sales volume on a non-consolidated basis)

### Top 10 companies in the domestic industrial waste management market by sales

<table>
<thead>
<tr>
<th>Company</th>
<th>Sales (Unit: million yen)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECO-SYSTEM JAPAN CO., LTD.</td>
<td>27,423</td>
</tr>
<tr>
<td>Daiseki Co., Ltd.</td>
<td>26,459</td>
</tr>
<tr>
<td>Daiei Kankyo</td>
<td>23,129</td>
</tr>
<tr>
<td>Izak Co., Ltd.</td>
<td>18,861</td>
</tr>
<tr>
<td>JFE Kankyo</td>
<td>17,519</td>
</tr>
<tr>
<td>SINCERE Corporation</td>
<td>13,249</td>
</tr>
<tr>
<td>Mie Chuo Kaihatsu</td>
<td>13,083</td>
</tr>
<tr>
<td>Takeei Corporation</td>
<td>12,678</td>
</tr>
<tr>
<td>Miyama, inc.</td>
<td>12,159</td>
</tr>
<tr>
<td>Oono Associates</td>
<td>11,419</td>
</tr>
</tbody>
</table>

Note: The Osaka Bay Regional Offshore Environmental Improvement Center is excluded as it is funded by local governments.

Data source: Teikoku Databank (industrial waste treatment industry, FY2014 results)
3-2-6. Facts and figures of the industrial waste management industry (major businesses)

- Combined sales of the top 10 domestic companies are on the rise, reaching approximately 175.9 billion yen in 2014.

Sales trends of 10 major industrial waste disposal companies in Japan

Sales of major U.S. and European companies (millions of yen)

- Waste Management (United States)
- VEOLIA (France)
- Suez Environnement, SITA (France)
- REMONDIS (Germany)
- Sims Metal Management (Australia)
- Umicore (Belgium)

Total of 10 domestic sales companies in terms of sales: 175,979

Note: The Osaka Bay Regional Offshore Environmental Improvement Center is excluded as it is funded by local governments.

Data source: Teikoku Databank (industrial waste treatment industry, FY2014 results)

Note: In Europe and the United States, companies that have posted sales of over one trillion yen on a non-consolidated basis through aggressive M&A are creating an oligopoly market.
3-3. Trends in activities of individual companies

- Major activities taken by individual businesses featured in industry journals and magazines in the past 10 years can be categorized into the following six themes based on their aims and social implications.

<table>
<thead>
<tr>
<th>Theme</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strengthening / expansion of business foundation</td>
<td>◆ Efforts to strengthen competitiveness through strengthening and expanding the business foundation by taking such actions as the provision of safety and security to discharge companies by introducing a traceability system, advancement of small household appliance recycling systems in collaboration with home delivery service providers, establishing methane fermentation power generation facilities that achieve both food recycling and renewable energy supply, and listing stocks on the stock market.</td>
</tr>
<tr>
<td>Business collaboration / business alliance / M&amp;A</td>
<td>◆ Efforts to secure position in the industry through such measures as the integration of sales divisions to provide total solutions, cost saving through collaboration with scrap processors, and M&amp;A aimed at simultaneous acquisition of facilities and permits in new sales areas.</td>
</tr>
<tr>
<td>Market expansion</td>
<td>◆ Efforts to expand the market in anticipation of shrinking of the existing domestic market due to a decrease in industrial waste generation in the future, including entry into the business of generating fuels from waste plastic in cement manufacturing outside Japan, and entry into PFI projects for the construction of waste treatment facilities / DBO projects for operation management.</td>
</tr>
<tr>
<td>Coexistence with local communities</td>
<td>◆ Efforts to eliminate negative perception of waste treatment facilities as a nuisance while raising evaluations from local communities, including entering the agricultural businesses in ways such as greenhouse cultivation utilizing energy generated in the incineration process, donating offset credits obtained from biomass power generation to local governments, and establishing a cooperation system to support disaster waste management in an emergency.</td>
</tr>
<tr>
<td>Developing/ securing human resources</td>
<td>◆ Efforts to secure and develop the human resources necessary for stable and sustainable development of companies through such measures as the promotion of evaluations, training and networking of excellent businesses by private companies, introduction of educational programs on waste treatment and recycling by private companies and industry groups, and participating in business training for management.</td>
</tr>
<tr>
<td>CSR activities</td>
<td>◆ Efforts to promote the three pillars of economy and management, environmental conservation activities, and social contribution activities in a well-balanced manner and to improve the image of the industry through efforts close to people such as the creation of CSR procurement guidelines, training on corporate activities that respect human rights, and the expansion of diversity in employment for women, handicapped people, and senior employees.</td>
</tr>
</tbody>
</table>
3-4. Initiatives developed by waste generators and the industrial waste management industry

- In its “Voluntary Action Plan for Establishing a Sound Material-Cycle Society,” Keidanren set targets to reduce the final disposal amount of industrial waste by about 70% in FY2020 compared to FY2000. (The target was achieved ahead of schedule, with about a 73.4% reduction in FY2015.) In addition, to improve the quality of resource circulation, each industry has set unique targets under the initiative of Keidanren and is advancing efforts.

- On the other hand, its implementation body, the Japan Federation of Industrial Waste Management and Recycling Associations, also presented its policy of moving “from waste treatment and disposal as a recipient to an industry that produces resources and energy as a creator” and formulated the industry policy “Action Plan for Low-Carbon Society,” aligning its stance with the expectations of waste generators.


<table>
<thead>
<tr>
<th>Category</th>
<th>Target fiscal year</th>
<th>Quantitative target (Base year: FY2010)</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Greenhouse gas emissions by the member companies of the Japan Federation of Industrial Waste Management and Recycling Associations</td>
<td>2020</td>
<td>±0%</td>
<td>• Evaluated based on the average emissions for the five years from FY2018 to FY2022</td>
</tr>
<tr>
<td></td>
<td>2030</td>
<td>−10%</td>
<td>• Evaluated based on the average emissions for the five years from FY2028 to FY2032</td>
</tr>
<tr>
<td>Fuel economy of the collection and transportation businesses</td>
<td>2030</td>
<td>10% improvement</td>
<td></td>
</tr>
<tr>
<td>For incineration in the intermediate treatment businesses</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Power generation amount</td>
<td>2030</td>
<td>Two times</td>
<td></td>
</tr>
<tr>
<td>Heat consumption amount</td>
<td>2030</td>
<td>Two times</td>
<td></td>
</tr>
</tbody>
</table>

Data source: “Action Plan for Low-Carbon Society” by the Japan Federation of Industrial Waste Management and Recycling Associations
4. Business strategy for solving problems in the industrial waste management industry
4-1. Issues in the industrial waste management industry

- Competition within the industry is intensifying, and securing human resources is becoming even more difficult. In addition, polarization among businesses is progressing in terms of the treatment amount. Employment conditions in the industry are not favorable, as the minimum wage is less than 1,000 yen for about 64% of the total businesses.

**Problem awareness in the industrial waste management industry**

- Fierce competition in the industry: 45.6%
- Difficult to secure human resources: 38.3%
- The amount of waste is decreasing: 34.4%
- Maintaining and continuing technological capabilities: 26.7%
- Waste generators are not very aware: 16.0%
- Not being able to meet the needs of waste generators and society: 14.3%
- Large price fluctuations in the resource market: 13.4%
- Lack of final disposal sites or difficulty in securing them: 12.9%
- Relationship with the waste generators (image toward the industry, business practices, etc.) remains unchanged: 10.0%
- Insufficient understanding of the industry by local communities and society: 9.9%
- Not being able to build relationships with the national and local governments sufficiently: 4.6%
- Not being able to obtain an understanding of recycled materials from manufacturers, users, etc.: 3.2%
- Other: 5.9%

**Changes in waste treatment amount compared with 10 years ago**

- Increased: 47.7%
- No change: 28.7%
- Decreased: 23.6%

N = 677

**Minimum wage in the industrial waste management industry**

- 1,000 yen or less: 64.3%
- 1,500 yen or less: 27.6%
- 1,500 yen or more: 8.1%

N = 471
4-2. Requests for the national and local governments

- The strongest request for the national and local governments include creating a system to appropriately evaluate excellent industrial waste management businesses and thoroughly informing waste generators about their responsibility. Furthermore, there are requests to support the promotion of sound recycling and the provision of opportunities for human resource development as well as the enhancement of the qualification system.

<table>
<thead>
<tr>
<th>Request</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Creating an evaluation system for industrial waste management businesses and disseminating information</td>
<td>52.3%</td>
</tr>
<tr>
<td>Making the responsibility of waste generators widely acknowledged</td>
<td>49.5%</td>
</tr>
<tr>
<td>Support for promoting sound recycling</td>
<td>35.3%</td>
</tr>
<tr>
<td>Providing a place for human resource development and enhancing the qualification system</td>
<td>31.3%</td>
</tr>
<tr>
<td>Support for community and social contribution activities</td>
<td>12.4%</td>
</tr>
<tr>
<td>Exchange of opinions with the national and local governments</td>
<td>10.8%</td>
</tr>
<tr>
<td>Enriching support menu for the analysis of management problems, formulation of management strategies, etc.</td>
<td>9.9%</td>
</tr>
<tr>
<td>Support for technology development, feasibility studies, demonstrations in society, etc.</td>
<td>7.8%</td>
</tr>
<tr>
<td>Strengthening measures against climate change</td>
<td>7.1%</td>
</tr>
<tr>
<td>Support for utilizing information, such as IoT, that contributes to enhancing productivity and services</td>
<td>6.6%</td>
</tr>
<tr>
<td>Support for employment of people with disabilities, the elderly, and overseas nationals</td>
<td>4.6%</td>
</tr>
<tr>
<td>Support for overseas expansion</td>
<td>1.9%</td>
</tr>
<tr>
<td>Other</td>
<td>6.2%</td>
</tr>
</tbody>
</table>

N = 677
4-3. Risks faced by the industrial waste management industry

- Without a proper evaluation axis, the industry may face price competition under the intensifying competition within the industry and changes in the external environment requiring new roles. In addition, with the improvement of the employment situation nationwide, various existing problems, such as low wages and a negative image, have come to the surface. Immature competitive environment, worsening working environment and the outflow of human resources increase the risk that the industry may revert to one where “the bad money drives out the good.”
4-4. Growing out of family businesses

- Risks associated with socio-economic trends have come to the surface, and if nothing is done, industrial waste management companies may fall into a scenario where they fail to become aware of the need to change, and slowly lose their business foundation if they continue with the existing business management. They are required to grow and raise their level of business as enterprises.

Past
Vested interests protected by entry barriers ◇ Family business operated by owners ◇ Segregation within the industry ◇ Profit expansion with economic growth ◇ Industry structure mainly composed of small and medium-sized enterprises

Present
Risk of going back to the industry where ”the bad money drives out the good”

Future
Growing and raising the level of business as an enterprise
Business strategy that contributes to growth
1) Strengthening and expansion of business foundation
2) Business tie-up, business alliance and M&A
3) Market expansion
Business strategy that contributes to raising the level
4) Coexistence with local communities
5) Securing and training human resources
6) CSR activities

A “boiling frog” scenario
◆ Slow decline to the end of a business as an extension of accepting the current situation (loss of customers, selection due to outflow of human resources)
4-5. Necessity of achieving both growth and raising the level

In order for the industrial waste management industry to raise its level, it must achieve a healthy sales increase in order to secure the necessary resources. As in other industries, they should create a virtuous cycle as a private company by effectively utilizing the resources acquired through growth to raise the level and contribute to the development of infrastructure for further growth.

**Securing resources for raising the level through growth**

**Efforts that contribute to raising the level (examples)**
- Outgrowing low wage structure
- Thorough payment of social insurance premiums
- Training that contributes to the improvement of skills
- Thorough management of occupational safety
- Active information disclosure about the acquisition of excellent certification and other topics
- Hiring more aged workers and handicapped people
- Providing learning programs on the environment for local residents
- CSR activities in collaboration with local communities

**Efforts that contribute to growth (examples)**
- Reducing carbon emissions by improving efficiency in collection and transport
- Improving the cyclical use rate by expanding capital investment
- Promoting digitization and improving efficiency by introducing IT
- Acquisition of ISO14001 and other certifications
- Utilizing unused resources such as timber offcuts (for biomass)
- Promoting the wider area recycling (such as solar panels)
- Entry into businesses other than those with waste treatment licenses
- Developing overseas markets utilizing excellent environmental technologies, etc.

Establishing the foundation for growth through raising the level
4-6. Direction of business strategy that the industrial waste management industry should pursue

The directions that companies engaged in industrial waste management should take can be broadly divided into two: **business strategies for growth** and **those for raising the level**. Companies are required to introduce appropriate measures in consideration of the business form, business scale, and the role played in local communities.

**Growth**

- Strengthening/expanding the business foundation
  - Adding value to the main business by improving the cyclical use rate and reducing GHG emissions
  - Securing traceability
  - Labor saving / unmanned operation
  - Establishment of a company’s unique PDCA cycle, etc.

- Business collaboration / business alliance / M&A
  - Creating synergistic effects
  - Improved reliability from the perspective of the waste generator
  - Promoting cooperation between arterial and venous industries
  - Strengthening functions as a local industry (raising the level of the local communities with core companies taking the lead), etc.

- Market expansion
  - Widening of collection area
  - Entry into businesses other than those with waste treatment licenses
  - Expansion into overseas markets
  - Entry into local-based industries
  - Market expansion utilizing unique technology, etc.

**Raising the level**

- Coexistence with local communities
  - Promotion of hiring more aged workers and handicapped people
  - Information disclosure on facilities and other topics
  - Contribution to regional economic development
  - Support for disaster waste management in local communities, etc.

- Securing and training human resources
  - Improving working conditions, including wages
  - Improving the working environment
  - Enhancing skills and techniques of workers
  - Introducing equipment that contributes to avoiding overtime, etc.

- CSR activities
  - Effective PR of management attitude
  - Strengthening brand power (Avoid easily causing price competition)
  - Become a workplace where employees can work with pride
5. Promotion measures of the industrial waste management industry
5-1. Expectations for the development of the industrial waste management industry

- The industrial waste management industry is a social infrastructure that takes on a significant mission: to protect the environment, support the whole industry including the material industry, and help waste generators to fulfill their management responsibilities. It assumes the heavy responsibility of promoting proper treatment and building a sound material-cycle society. It is also required to play new roles including the supply of circulative resources and renewable energy while being active as a local industry.

<table>
<thead>
<tr>
<th>Expectations for the development of the industrial waste management industry: Social infrastructure that supports people’s lives</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>[1] Mission of industrial waste management businesses</strong></td>
</tr>
<tr>
<td>◇ The industrial waste management industry is a social infrastructure that takes on a significant mission: to protect the environment, support the whole industry including the material industry, and plays an important role for waste generators to fulfill their treatment responsibilities. It is also responsible for the promotion of proper management of waste and establishing a sound material-cycle society.</td>
</tr>
<tr>
<td><strong>[2] New roles required to play</strong></td>
</tr>
<tr>
<td>◇ Businesses need to establish themselves as environmental businesses that supply circulative resources and renewable energy, strengthen competitiveness as a growth industry that will contribute to the expansion of Japan’s GDP, and play a role as a green innovation promoter aiming to enhance resource productivity and the recycling rate.</td>
</tr>
<tr>
<td><strong>[3] Presence as a local industry</strong></td>
</tr>
</tbody>
</table>
| ◇ Unlike the manufacturing industry, which can improve productivity through production in the optimal location in or outside Japan for maximum efficiency, industrial waste management industry is a local industry that should seek coexistence by gaining the understanding of local residents. **Coexistence with the local communities is a requirement for existence.**  
  ◇ It is desirable to proactively disclose information and engage in social contribution activities as a member of the local community, while reducing the potential environmental load generated by the accumulation of vehicles and operation management of the treatment facilities. |
5-2. Pillars of promotion measures to support the industrial waste management industry

The industrial waste management industry is indispensable for ensuring the livelihood of people and the development of the local economy. The pillars of promotion measures to support it include: [1] building excellent advanced companies, [2] raising the awareness of waste generators, [3] establishing a system to support motivated companies, and [4] PR and dissemination of information on best practices. These pillars should be achieved with the cooperation of all stakeholders.

Business strategy for industrial waste management businesses that aims to achieve both growth and raising the level

Pillars of promotion measures to support the industrial waste management industry as a social infrastructure

[1] Building excellent advanced companies
[2] Raising the awareness of waste generators
[3] Establishing a support system for motivated companies
[4] PR and dissemination of information on best practices

Ensuring a healthy and cultural life for the entire nation and developing local economies
5-3. Toward the sustainable development of the industrial waste management industry

- To support the growth of the industrial waste management businesses, it is necessary to establish a competitive environment where the good money drives out the bad by setting an appropriate evaluation axis through building and expanding excellent advanced companies, and by raising the awareness of waste generators. Furthermore, the industrial waste management industry can achieve sustainable growth if it can enhance its attractiveness as an industry by improving the work environment, developing human resources through establishing a support system for motivated companies, and PR and dissemination of information on good practices.
5-4-1. Recommendations on promotion measures for the national government

<table>
<thead>
<tr>
<th>Pillars of the promotion policy</th>
<th>Details of the policy</th>
<th>Roles of the national government</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Building excellent advanced companies</strong></td>
<td>[1] Strengthening and effectively using the certification system for excellent industrial waste management companies</td>
<td>• Drastic rethink including increasing advantages of acquiring certification</td>
</tr>
<tr>
<td></td>
<td>[2] Dissemination of electronic manifests</td>
<td>• Improving convenience of the system and enhancing functions • Expanding PR activities targeting waste generators and management companies • Obligation based on the management situation • Consideration of the use of electronic manifest information including integration with paper manifest information as well as the problems of, and support measures for, local governments establishing an electronic application system</td>
</tr>
<tr>
<td></td>
<td>[3] Support for creating advanced projects</td>
<td>• Development of a system that contributes to the establishment of a hazardous substance management system and the promotion of optimizing transboundary movement of waste • Support for the introduction of advanced technology, state-of-the-art technology (including IoT/AI) and business models • Building a framework for standards and certification aimed at promoting cyclical use of recycled products • Support for capacity building and financing through cooperation between governments in overseas expansion and international cooperation • Promotion of environmentally rated loan programs for capital investment and technology development aimed at promoting the effective use of resources and reducing GHG emissions</td>
</tr>
<tr>
<td></td>
<td>[4] Support for promoting the reduction of GHG emissions in the waste sector</td>
<td>• Financial support for efforts to reduce GHG emissions through energy saving and renewable energy supply during the operation of waste treatment facilities and recycling facilities • Measures to reduce administrative burden when renewing facilities • Enriching statistical data</td>
</tr>
<tr>
<td></td>
<td>[5] Raising the awareness of waste generators</td>
<td>• Making the responsibility of the waste generators widely known</td>
</tr>
<tr>
<td></td>
<td>[6] Enhancing the efficiency of permission procedures</td>
<td>• Providing opportunities to exchange opinions with local governments and businesses • Promoting the use of electronic applications</td>
</tr>
<tr>
<td></td>
<td>[7] Support for improving skills related to waste treatment and recycling</td>
<td>• Support for technology improvement in the waste management businesses</td>
</tr>
<tr>
<td></td>
<td>[8] Promotion of environmentally friendly contracts and procurement</td>
<td>• Promoting the introduction of environmentally-conscious contracts with businesses certified as excellent in public procurement • Promoting the establishment and use of quality standards for recycled materials in collaboration with waste management businesses and the users of recycled materials</td>
</tr>
<tr>
<td></td>
<td>[9] Securing and training human resources</td>
<td>• Support for human resource development by industry groups</td>
</tr>
<tr>
<td></td>
<td>[11] Disseminating information on best practices</td>
<td>• Providing incentives for waste management businesses using the award system and dissemination of information through the media • Enhancing PR activities by using pamphlets and websites, organizing events, etc.</td>
</tr>
</tbody>
</table>
### 5-4-2. Recommendations on promotion measures for local governments

<table>
<thead>
<tr>
<th>Pillars of the promotion policy</th>
<th>Details of the policy</th>
<th>Roles of local governments</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Promotion measures for growth</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| **Building excellent advanced companies** | [1] Strengthening and effectively using the certification system for excellent industrial waste management companies | • Appropriate operation of the certification system  
• PR activities related to the certification system |
| | [2] Dissemination of electronic manifests | • Expanding PR activities targeting waste generators and management companies  
• Developing procedures for submitting the electronic data of status reports on issuance of paper manifests |
| | [3] Support for creating advanced projects | • Support through institutional and operational considerations for the introduction of advanced technologies and business models  
• Support for capacity building and financing through cooperation between local governments in overseas expansion and international cooperation |
| | [4] Support for promoting the reduction of GHG emissions in the waste sector | • Utilizing industrial waste tax revenue to reduce GHG emissions |
| **Raising the awareness of waste generators** | [5] Raising the awareness of waste generators | • Improving instructions to waste generators |
| | [6] Enhancing the efficiency of permission procedures | • Clarifying the interpretation of regulatory operations through dialogue with the national government and waste management businesses  
• Promoting the use of electronic applications |
| | [7] Support for improving skills related to waste treatment and recycling | • Cooperation by industry groups to support enhancing technical skills |
| | [8] Promotion of environmentally friendly contracts and procurement | • Promoting the introduction of environmentally-conscious contracts with businesses certified as excellent in public procurement  
• Promoting the establishment and use of quality standards for recycled materials in collaboration with waste management businesses and the users of recycled materials |
| | [9] Securing and training human resources | • Support for human resource development by industry groups |
| | [10] Support for promoting coexistence with local communities | • Concluding disaster waste management agreements with industrial waste treatment companies and industry groups to be prepared for large-scale disasters |
| **Establishing a support system for motivated companies** | [11] Support for contributions to local communities by industrial waste management businesses | • Utilizing industrial waste treatment facilities in the region as a place for environmental education and learning |

**Roles of local governments**

- Appropriate operation of the certification system
- PR activities related to the certification system
- Expanding PR activities targeting waste generators and management companies
- Developing procedures for submitting the electronic data of status reports on issuance of paper manifests
- Support through institutional and operational considerations for the introduction of advanced technologies and business models
- Support for capacity building and financing through cooperation between local governments in overseas expansion and international cooperation
- Utilizing industrial waste tax revenue to reduce GHG emissions
- Improving instructions to waste generators
- Clarifying the interpretation of regulatory operations through dialogue with the national government and waste management businesses
- Promoting the use of electronic applications
- Cooperation by industry groups to support enhancing technical skills
- Promoting the introduction of environmentally-conscious contracts with businesses certified as excellent in public procurement
- Promoting the establishment and use of quality standards for recycled materials in collaboration with waste management businesses and the users of recycled materials
- Support for human resource development by industry groups
- Concluding disaster waste management agreements with industrial waste treatment companies and industry groups to be prepared for large-scale disasters
- Utilizing industrial waste treatment facilities in the region as a place for environmental education and learning
5-4-3. Recommendations on promotion measures for industrial waste management organizations

<table>
<thead>
<tr>
<th>Pillars of the promotion policy</th>
<th>Details of the policy</th>
<th>Roles of industrial waste management organizations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Building excellent advanced companies</td>
<td>[1] Strengthening and effectively using the certification system for excellent industrial waste management companies</td>
<td>• Active PR activities to increase certified businesses</td>
</tr>
<tr>
<td></td>
<td>[2] Dissemination of electronic manifests</td>
<td>• Expanding PR activities targeting waste management companies and waste generators</td>
</tr>
<tr>
<td></td>
<td>[3] Support for creating advanced projects</td>
<td>• Establishing a system to accept overseas human resources for training in Japan aimed at international cooperation</td>
</tr>
<tr>
<td></td>
<td>[4] Support for promoting the reduction of GHG emissions in the waste sector</td>
<td>• Setting low-carbon goals for the industry and creating a concrete roadmap to achieve the goals</td>
</tr>
<tr>
<td>Raising the awareness of waste generators</td>
<td>[5] Raising the awareness of waste generators</td>
<td>• PR activities to make the responsibility of the waste generators widely acknowledged</td>
</tr>
<tr>
<td>Establishing a support system for motivated companies</td>
<td>[7] Support for improving skills related to waste treatment and recycling</td>
<td>• Support for the dissemination and expansion of technologies and equipment to improve work efficiency and thorough occupational safety management</td>
</tr>
<tr>
<td></td>
<td>[9] Securing and training human resources</td>
<td>• Enhancing human resource development programs and expansion of the applicable human resources</td>
</tr>
<tr>
<td></td>
<td>[10] Support for promoting coexistence with local communities</td>
<td>• Concluding disaster waste management agreements with local governments to be prepared for large-scale disasters</td>
</tr>
<tr>
<td></td>
<td>[11] Disseminating information on best practices</td>
<td>• Both offering incentives for waste management businesses by establishing an award system and disseminating information through the media</td>
</tr>
<tr>
<td></td>
<td>[12] Support for contributions to local communities by industrial waste management businesses</td>
<td>• Introducing activities including environmental events organized by industrial waste management businesses</td>
</tr>
</tbody>
</table>
## 5-4-4. Recommendations on promotion measures for waste generators and local residents

<table>
<thead>
<tr>
<th>Promotion measures for growth</th>
<th>Details of the policy</th>
<th>Roles of waste generators</th>
<th>Roles of local residents</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Building excellent advanced companies</strong></td>
<td>[1] Strengthening and effectively using the certification system for excellent industrial waste management companies</td>
<td>• Prioritized selection of certified businesses</td>
<td></td>
</tr>
<tr>
<td></td>
<td>[2] Dissemination of electronic manifests</td>
<td>• Promoting utilization as a means to ensure efficient fulfillment of the responsibility of the waste generators</td>
<td></td>
</tr>
<tr>
<td></td>
<td>[3] Support for creating advanced projects</td>
<td>• Collaboration with waste management businesses as the bearer of proper waste treatment and sophistication of recycling</td>
<td></td>
</tr>
<tr>
<td></td>
<td>[4] Support for promoting the reduction of GHG emissions in the waste sector</td>
<td>• Selecting businesses that also contribute to the promotion of generators’ GHG emissions</td>
<td></td>
</tr>
<tr>
<td><strong>Raising the awareness of waste generators</strong></td>
<td>[5] Raising the awareness of waste generators</td>
<td>• Selecting appropriate businesses based on the evaluation of added value, such as promotion of resource circulation and reduction of GHG emissions</td>
<td>• Priority procurement of recycled products, etc.</td>
</tr>
<tr>
<td><strong>Establishing a support system for motivated companies</strong></td>
<td>[6] Enhancing the efficiency of permission procedures</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>[8] Promotion of environmentally friendly contracts and procurement</td>
<td>• Prioritized selection of certified businesses • Priority procurement of recycled products, etc.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>[10] Support for promoting coexistence with local communities</td>
<td>• Recognition of the effect of community involvement achieved through the promotion of environmental education by human resource development in the local communities</td>
<td></td>
</tr>
<tr>
<td><strong>PR and disseminating information on best practices</strong></td>
<td>[12] Support for contributions to local communities by industrial waste management businesses</td>
<td>• Building communication with waste management businesses • Participation in education and events on the environment</td>
<td></td>
</tr>
</tbody>
</table>