



# **JESC: Journeying with Japan's Waste Management History**



SINCE 1954

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- ***President of JESC***
- ***Former Administrative Vice Minister, Ministry of the Environment, Japan (MOEJ)***

- Japan Environmental Sanitation Center (JESC): a pioneer of environmental sanitation in Japan and an organization of technical specialists, which contributes to the solution of living environment-related issues on a local and global scale.
- It offers expertise in policy, planning, operations, and facility management.
- It focuses on capacity building through practical, hands-on training.
- It has conducted numerous domestic and international training programs tailored to local conditions.

It addresses a wide range of environmental issues by providing services to national and local governments, private companies, and other entities.

**Types of services:**

- Research and consulting
- Environmental measurement, analysis and inspection
- Human resource development and awareness-raising
- International cooperation

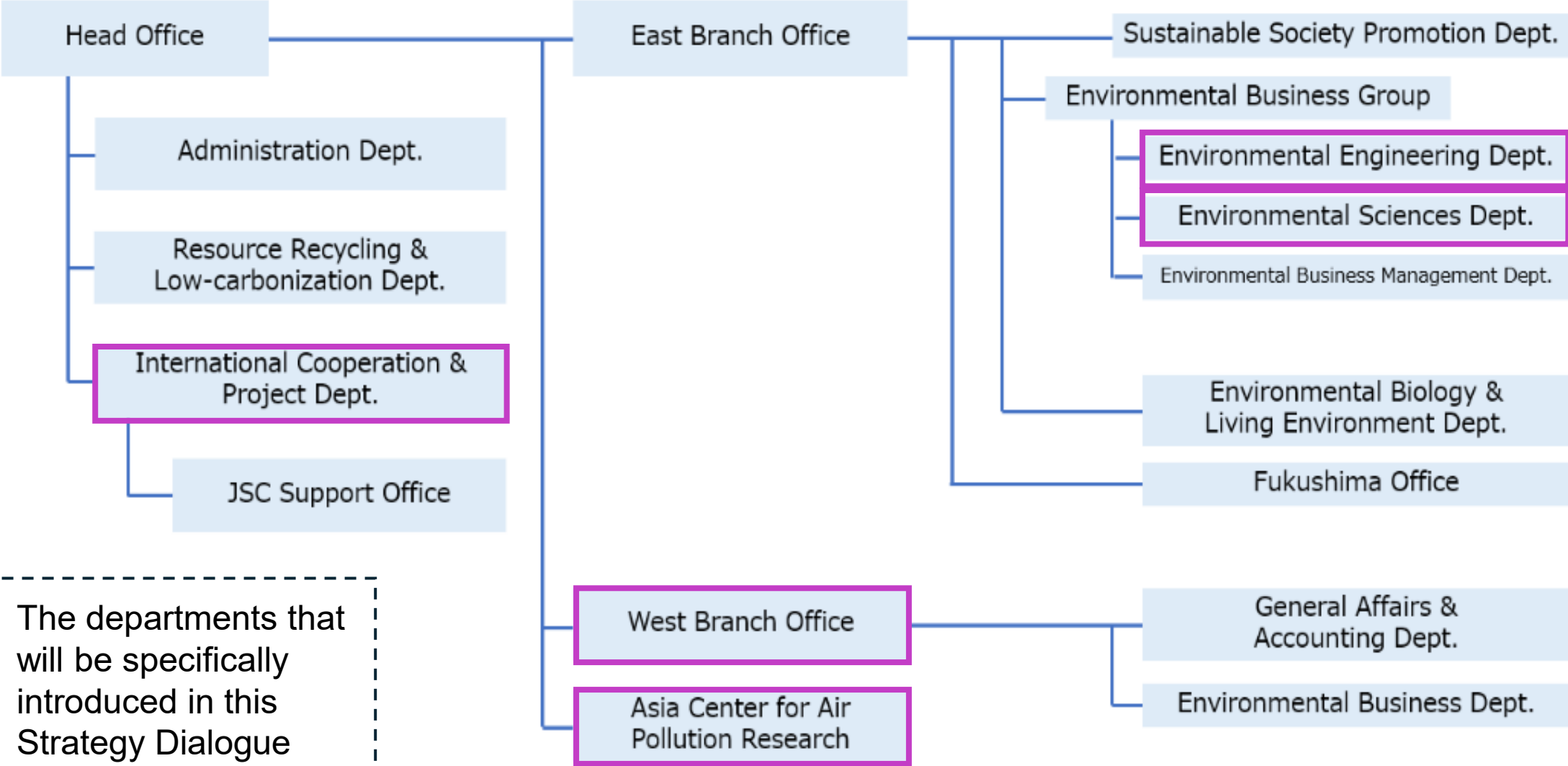
**Main clients:**

- Ministry of the Environment, Japan
- Prefectures and municipalities in Japan
- Private companies, including waste treatment plant manufacturers
- JICA

**Fields of service provision:**

- Waste management
  - Solid waste management
  - Faecal sludge management
- Environmental conservation
  - Air pollution
  - Chemical substances
  - Environmental impact assessment
- Environmental biology
  - Rodents and Sanitary Pests

# JESC Organization Chart



# Environmental Engineering Dept.

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# Environmental Engineering Dept.

— We provide consulting on waste treatment and recycling. —

Main clients:

## National Government (MOEJ)

- Develop concrete measures based on national policy
- Assess impacts

National policy

## Local Governments

- Planning based on national policy
- Review local status; study future direction
- Advise on implementation

Local planning

## Plant Manufacturers

- Diagnose defects/aging
- Review O&M; advise on optimal operation

Proper operation of municipal facilities



# Environmental Engineering Dept.

— We provide consulting on waste treatment and recycling. —

STEP  
01

## Research / Advisory

- Waste & resource market research
- Support studies aligned with policy and intent

STEP  
03

## Company Selection

- Company selection support (Public ownership/operation; PFI/DBO; long-term O&M outsourcing)

STEP  
02

## Planning

- Basic plan for municipal waste management
- Long-term integration/consolidation
- Waste management facility
  - Development / Life-extension / PFI feasibility study
- Plan for a Sound Material-Cycle Society
- Environmental Impact Assessment
- Resident consensus

STEP  
04

## Facility Development

- Construction oversight/support
  - Construction drawings, supervision, performance tests on handover, end-of-warranty inspection

STEP  
05

## Post-operation

- Detailed / periodic performance tests
- O&M monitoring

# Environmental Engineering Dept.

— We provide consulting on waste treatment and recycling. —

## Example of actual work:

Study on separate collection and recycling of plastic product waste

- Following enforcement of the Plastic Resource Circulation Act in Japan, this work examines recycling of plastic product waste.
- In FY2025, we estimated waste volumes and designed collection/recycling methods and the schedule. In FY2026, we run a pilot in model areas and provide support toward a FY2030 launch.

	FY2026		FY2027				FY2028				FY2029				FY2030	
Organizing information	Transfer facility study		Procedure organization				Bidding procedures organization				Final organization				<b>Start separate collection of plastic products</b>	
Implementation policy	Draft	Final														
Pilot project	Pilot project															
Council	Consultation → Recommendation															
Assembly		Proposal														
Public comment		Public comment														
Resident briefing											Information sessions and outreach workshops					
Cross-media outreach											Publicity					
Operator coordination	Coordination (acceptance conditions, unit cost, etc.)		Coordination based on concrete conditions				Bidding, decision, and contract									

# Environmental Engineering Dept.

— We provide consulting on waste treatment and recycling. —

We develop initiatives that bring together residents and businesses and explore waste management strategies integrated with positive community development.

Making regions sustainable

Regional Circular and Ecological Sphere



Reducing waste generation / Increasing the recycling rate

Reducing environmental impact

# Environmental Sciences Dept.

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We conduct research on the control of pollution caused by particulate matter and chemical substances, as well as environmental surveys, including the analysis of persistent organic pollutants (POPs) and specific chemicals such as CFCs.



# Research and Studies on Atmospheric Environment

## Particulate Matter

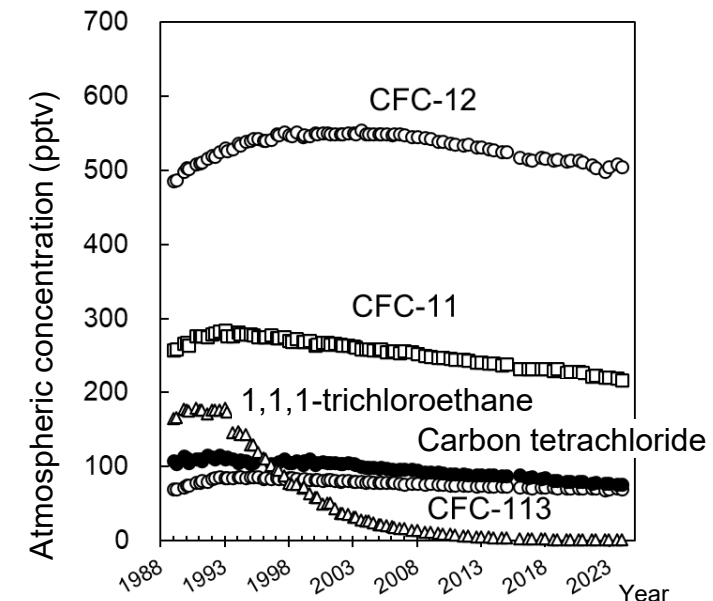
- We conducted extensive validation tests to develop Japan's PM<sub>2.5</sub> measurement and analysis methods and to support related countermeasures.
- The findings have been adopted in Japan's official PM<sub>2.5</sub> measurement methods and component analysis manuals.

### PM<sub>2.5</sub> Component Analysis Items

- Mass concentration
- Ionic components (Ion chromatography)
- Inorganic elements (ICP-MS)
- Carbon components (Carbon analyzer)

## Precise Measurement of Ozone-Depleting Substances

- Since 1991, we have conducted year-round urban monitoring of CFCs and 24 other substances for the Ministry of the Environment using our in-house automated system (on our rooftop).
- We have also conducted monitoring in a background area (Hokkaido) since 1989 (see right).



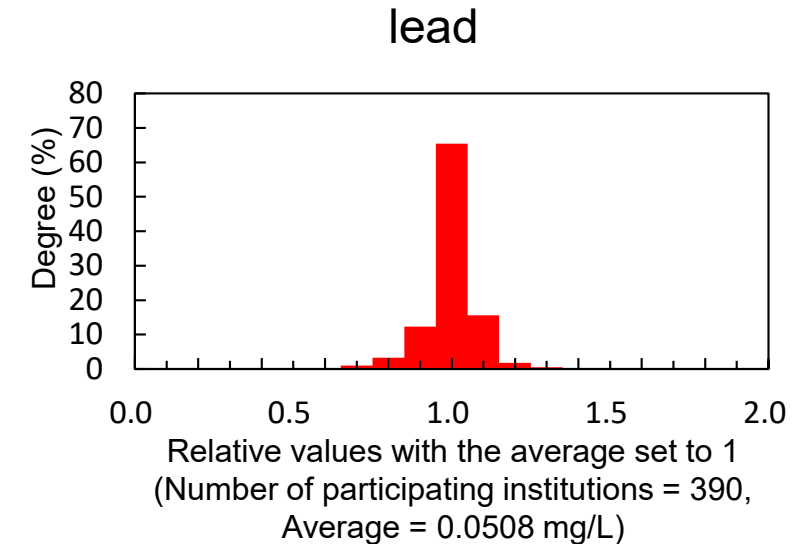
# Research and Studies on Chemical Substances

## Quality Control Survey on Environmental Measurement and Analysis

- This annual survey monitors pollutants such as metals (e.g., cadmium) and nitrogen compounds and has been conducted since 1975.
- The Ministry of the Environment conducts the survey nationwide, and our Center has managed and coordinated it since its inception.

## Environmental Survey and Monitoring of Chemicals

- This survey assesses chemical residues in the general environment.
- When no existing method achieves a sufficiently low detection limit, new analytical methods are developed.
- Method development is managed and coordinated by our Center.
- We also distribute standard solutions for monitoring, conduct interlaboratory comparison tests, and provide feedback on the results.



# International Technical Support

We provide international technical assistance in the field of environmental monitoring and analysis.

## Technical Support for Persistent Organic Pollutants (POPs) Monitoring

- Under the Stockholm Convention on POPs, Parties are required to eliminate and restrict listed chemicals and to establish monitoring systems.
- We actively participate in cooperation projects led by the Ministry of the Environment of Japan (MOEJ) and JICA, supporting POPs monitoring and strengthening monitoring and analytical capacity, particularly in East Asia.

Example: Ongoing technical support and capacity building for air sampling and POPs analysis at environmental research institutes in Thailand and the Philippines.

Participating Countries in the POPsEA Project(11 countries)



# International Cooperation & Project Dept.

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Project Highlights



# 1. Training Programs

## (1) JICA Knowledge Co-Creation : Design & Delivery

- Build practical capacity of central/local government officials
- Focus: water & air management (e.g., decentralized wastewater); solid waste management (e.g., Waste-to-Energy, data management); recycling policy design; marine litter
- Track record: 50+ years | 130 countries | 2,200+ alumni

## (2) Training Program Planning and Operation for Promoting the Commercialization of Japan's Circular Economy Industries Overseas (2012–2025)

- Promote understanding of Japan's waste policy/technology; develop human resources in developing countries
- Focus: waste management (Waste-to-Energy, landfill upgrades, e-waste); circular economy
- Track record: 35 countries | 1,000+ alumni



## 2. Technical Cooperation

### (1) JICA Technical Cooperation Projects

Varanasi Sanitation Improvement (India)

Greater Abidjan Solid Waste Management (Côte d'Ivoire)

Waste Management Capacity-Building Advisor (Bhutan)

—Includes field missions and Japan study tours



Côte d'Ivoire (Study Tour to Japan)

### (2) JICA's Grassroots Technical Cooperation

#### – JICA Partnership Program (JPP)

Thimphu (Bhutan): technology transfer for proper waste management

Bandung (Indonesia): waste management support for a sustainable resource-circulating society

— Field missions, workshops, Japan study tours, etc.



Varanasi Sanitation Improvement Project (Study Tour to Japan)

## 3. Japan–China Environmental Cooperation

China Ecological and Environmental Technology Transformation (CEETT)

Support to the China Council for International Cooperation on Environment and Development (CCICED): Annual General Meeting; Roundtables (Hainan, Chongqing)

Japan–China High-Level Roundtable Dialogue on the Environment

Trilateral Japan–China–Korea Joint Environmental Training (TJET)



Grassroots Technical Cooperation in Bandung

## 4. Research / Studies (MOEJ)

Survey on the advancement of disaster waste management (fieldwork, workshops)

Survey on the formation of a low-carbon society and inter-city Collaboration (across Asia)



Hearing

## 5. Academic Conference

### Expert Meeting on Solid Waste Management in Asia and Pacific Islands (SWAPI)

Continuous series: 2009–2019

Experts from Asia & small island states

Topics: 3R, waste treatment & Waste-to-Energy, disaster waste response, etc.



Workshop



The 18th SWAPI Meeting

## Strategic Priorities of the Dept.

- Strategically leverage the global alumni network built through trainings (130 countries | ~3,000 people)
- Capture policy needs and local realities via trusted ties with governments and research institutes
- Contribute to systems, projects, and capacity building in waste management, resource circulation, and low-carbon fields
- Link overseas networks with JESC expertise to drive international expansion

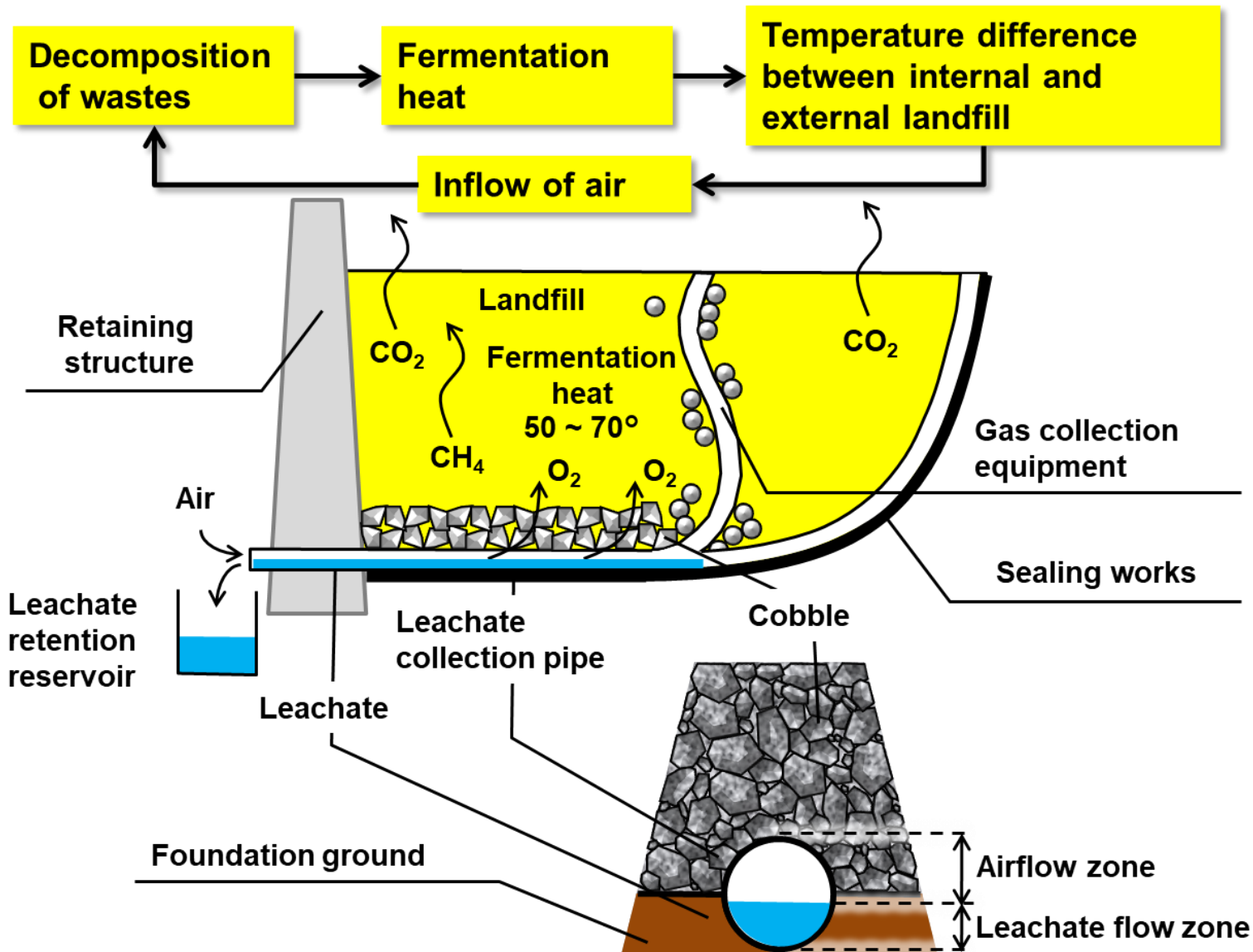
# West Branch Office

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Technical supports regarding the proper management of waste disposal site



# 1. Implementation of Fukuoka method to existing waste disposal sites






## What is Fukuoka Method ?

- ✓ its structure allows air to flow in naturally (Semi-aerobic)
- ✓ Japanese standard method from 1979
- ✓ significantly reduce the CH<sub>4</sub> gas generation
- ✓ aerobic degradation of waste can be accelerated





Since the Fukuoka method does not require advanced or expensive technology, there is a growing need for its implementation to open-dumping waste disposal sites in the Asian region to improve the waste management.

# 1. Implementation of Fukuoka method to existing waste disposal sites

Target Country (c/p) [Years]	 <b>Thailand</b> (PCD, MONRE) [2011-2023]	 <b>Bhutan</b> (DOE, Thimphu) [2012-2015]	 <b>Vietnam</b> (DOC, Hue) [2017-present]
Project proposed by	Fukuoka Prefectural Government	JESC own project	Fukuoka Prefectural Government
Scheme	FPG, JICA Partnership Program	JICA Partnership Program	FPG, JICA Partnership Program

### Contents

		
On-site survey	On-site training	3R leaflet
		
Seminar	Compost demonstration	Invitation training

Before (2012)	After (2019)
	
Open-dumping site	Semi-aerobic site
	
Uncontrolled	Controlled

# 2. [Ongoing project] Supporting the establishment of proper waste disposal processes in Hue City, Vietnam

Overall Goal	The Fukuoka method waste disposal technology is gaining recognition within Vietnam.
Project Purpose	The technical foundation necessary for the proper operation and maintenance of the Fukuoka method waste disposal site (Huong Binh waste disposal site) will be established.
Activities	<ul style="list-style-type: none"> <li>● Technical guidance regarding the operation and management of Huong Binh waste disposal site</li> <li>*<u>Operation and Maintenance of waste disposal site</u> <ul style="list-style-type: none"> <li>➤ Waste intake management (Recording of waste QQ etc)</li> <li>➤ Waste disposal operation management</li> <li>➤ Facility management</li> <li>➤ Environmental management</li> <li>➤ Other management (Safety management etc)</li> </ul> </li> <li>● Invitation training in Japan</li> </ul>
Indicators	<ul style="list-style-type: none"> <li>● Completion of the operation and maintenance manual</li> <li>● Results of the questionnaire survey on proficiency</li> </ul>



Huong Binh waste disposal site (under construction)



Discussions with c/p



Site visit (Invitation training)

### 3. Towards solving challenges in waste management (especially waste disposal) in the Asian region

- Proper maintenance of a disposal site requires not only ***the maintenance of the site itself***, but also ***the appropriate investigation and consideration of suitable site selection*** at the stage of site designing.
- In the Asian region such as Thailand and Vietnam, ***high temperatures, heavy rainfall and Regional characteristics of waste quality and composition*** can be common issues. Therefore, designs for regulating leachate generated during heavy rainfall must take such ***regional characteristics*** into consideration (Localizing of Fukuoka Method).
- While new technologies such as waste-to-energy generation (waste management + energy creation) are being introduced recently, there are challenges in managing and evaluation ***the risks associated with incineration residues***.
- To establish proper waste segregation practices from households, ***Environmental Education*** is just as important as institutional design.
- Leveraging the knowledge JESC has gained so far, JESC will continue to work on providing ***technical supports for proper management of waste disposal site*** and ***educational supports for waste segregation and recycling at the citizen level***.