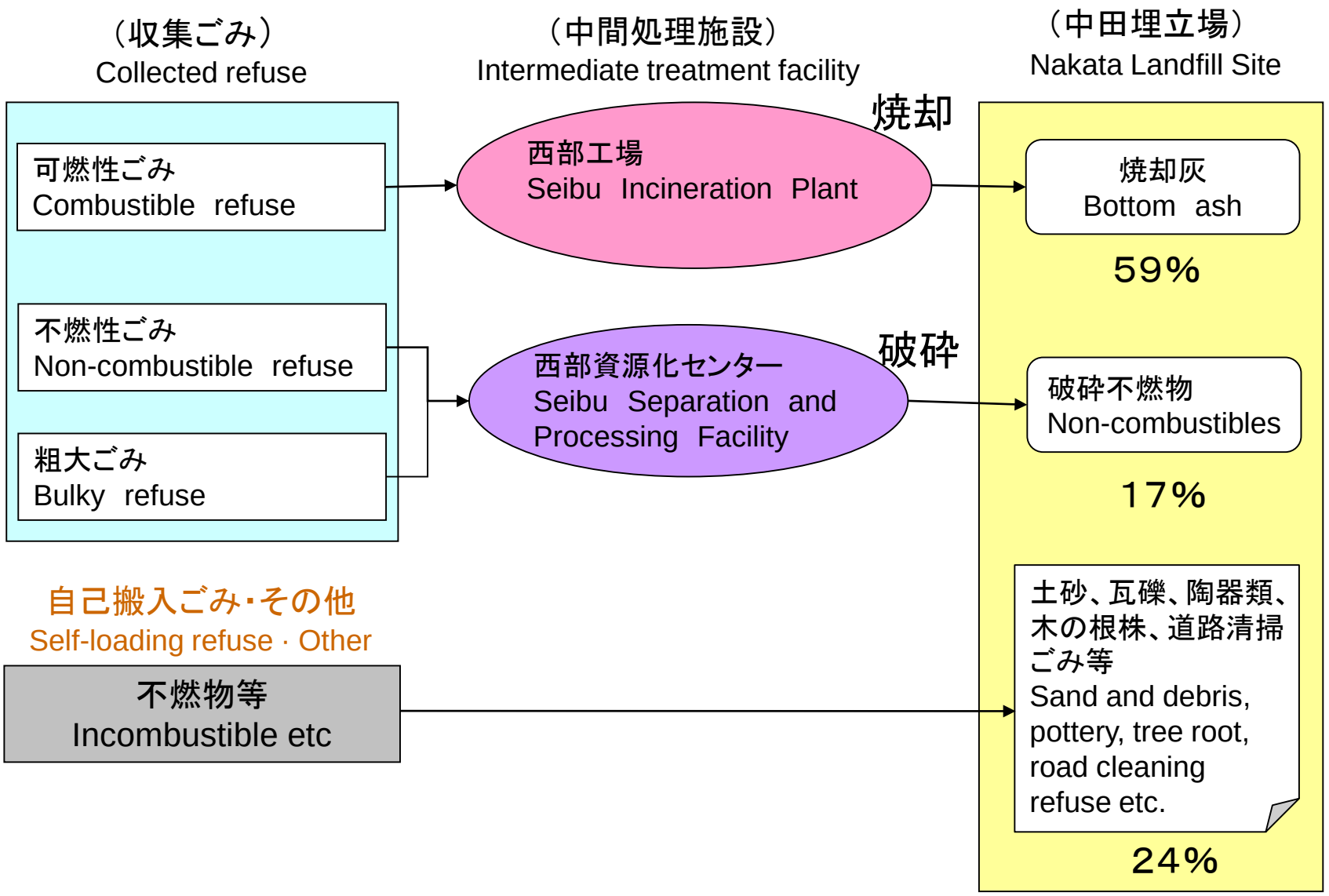
埋 立 ご み
Landfill refuse



※埋立量の割合は，埋立開始から2017（平成29）年度までの22年間の値

The Fukuoka Method

Development of the Fukuoka Method（Semi-Aerobic Landfill Structure)

Fukuoka City's landfill around 1970（Hatta Landfill ）

Until the 1960~70s、Japan, like many other Asian countries today, used anaerobic landfills

Lead to environmental problems such as toxic leachate and foul odor

The start of experiments to improve landfills, aiming to purify leachate

Experiments by Fukuoka City and Fukuoka University

A Test Plant was constructed at Hisayama Landfill in 1973
Left: Aerobic landfill experiment, Right: Improved anaerobic landfill experiment

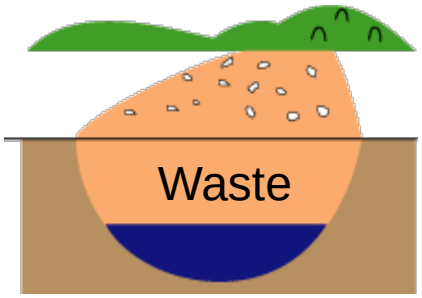
Example of the construction of Fukuoka Method Landfill: Fukuoka

Shinkamata Landfill, Fukuoka City

The first landfill in Japan which used the semi-aerobic landfill method (1975)

There are primarily 3 landfill methods

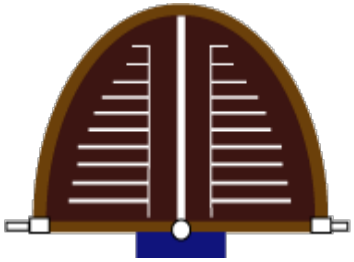
①Anaerobic



- High emissions of harmful substances such as CO2, methane, etc
- Waste is moistened in anaerobic condition

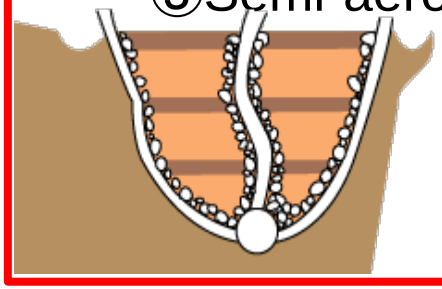
②Aerobic

(Cross-section)

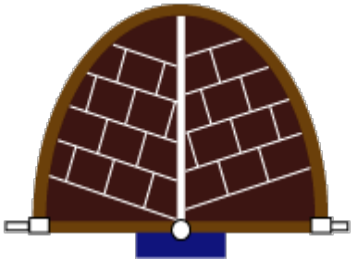


- Relatively less emission of harmful substances such as CO2, methane, etc
- Easy treatment of leachate
- **High cost of construction and maintenance**

③Semi-aerobic



（Cross-section)



Fukuoka Method

- Relatively less emission of harmful substances such as CO2, methane, etc
- Easy treatment of leachate
- **Low construction and maintenance costs**

Advantages of the Fukuoka Method

The Fukuoka Method:

An efficient landfill method（＝Semi-aerobic landfill structure）with low environmental impact, developed jointly by Fukuoka City and Fukuoka University

Key aspects

1 Advanced technology is not necessary

2 Low cost

3 Environmentally friendly

福岡方式
“The Fukuoka Method”

準好気性埋立構造のメカニズム Mechanism of the Semi-Aerobic Landfill Structure

管末は常時大気に開放
The Pipe End is Open to the Air at All Times

雨 Rain

CO_2 ガス抜き管 Gas Bleeder

Cover Soil 覆土

ごみ Waste

好気性バクテリアによる分解
Decomposed by Aerobic Bacteria
発酵熱 50~70℃
Fermentation Heat 50~70℃

浸出水 Leachate

O_2

Air 空気

有孔集排水管 Perforated Drainage Pipe

浸出水 Leachate

Leachate Storage Pond 浸出水調整池

処理施設 Treatment Plant

栗石(15~20cm) Cobble Stones

浸出水集排水管 Leachate Collecting Pipe

Water Barrier しゃ水工

Leachate 浸出水

空気の流通ゾーン Air Flow Zone

浸出水の流下ゾーン Leachate Flow Zone

基礎地盤 Foundation Ground

廃棄物の分解 Waste Decomposition → 発酵熱 Fermentation → 埋立地内外温度差 Inside/Outside Temperature Difference → 空気の流入 Air Inflow → 廃棄物の分解

Technical exchanges

Sent 129 engineers to 14 countries

Received 162 engineers from 24 countries

Overseas cases ： Myanmar

Improvement of Htein Bin Landfill by the Fukuoka Method

②Under construction（ February 2018 ）

跡地利用（今津埋立場）
Re-use of Completed Landfill Site （Imazu Landfill Site）