



# Sustainable Waste Management Towards Energy Resilience in Jakarta

### SusHi Tech 2025

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TOKYO - 2025

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JAKARTA OVERVIEW & CHALLENGES

3

5

6

SUSTAINABLE WASTE MANAGEMENT REGULATION

JAKARTA SUSTAINABLE WASTE MANAGEMENT OVERVIEW

JAKARTA SUSTAINABLE WASTE MANAGEMENT FRAMEWORK

JAKARTA ENERGY RESILIENCE OVERVIEW

### STARTUP ECOSYSTEM IN JAKARTA

### Jakarta Today (1/2)



#### 69,53% 46.20% produced in Jakarta is 7.734 tons/day Number of Customers Demand 33 m<sup>3</sup>/se Source: DLH, 2024 948.594 33 m<sup>3</sup>/second 90% **Production Capacity** Supply 21.952 Lps transported 21.1 m<sup>3</sup>/second to TPST Bantar Pipe Length Gebang 12.195 km Source: PAM Jaya, Dec 2024 WASTEWATER **AIR QUALITY WWTP** Location Jakarta's air quality 1 (Setiabudi WWTP) Cubluk/ based on the Air Ħ With a capacity of 21,600 Latrine Quality Index (AQI) in m3/day and 1,851 house 2,4% Jakarta reached 82 connections (data on Monday, April Discharge to Ø 29.83% 28, 2025). surface water **On-progress JSS Zone 1** 9% Note: AQI data is real Updt Jan, 2025 time data that changes Grey water Septic Tank all the time 60% 83.7%

**WASTE MANAGEMENT** 

# The amount of waste 1977 1997 2017 2025

#### 200-300 neighborhoods average impact of flooding per year

The northern part of Jakarta has experienced **a decline** of 2.5 meters in the last ten years and continues to decline by 9 centimeters per year in certain areas such as the Muara Angke and Muara Baru.

Sumber: Andreas. 2016 and Jakarta Coastal Assessment Final Report, 2024

Source: ATLAS Bappenas, 2024

**CLEAN WATER** 

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Service Coverage

Jakarta Today (2/2)

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NRW Level

#### **FLOOD PRONE AREA**





2007

2050

### Jakarta's Future Challenges



international scale.

### **Sustainable Waste Management Regulations**



Realization of waste network **Environmental Affairs Waste** system, including: Policies and strategies for waste • construction and development Management Program, through: management: through of TPS: 1. Waste reduction at source • 30% reduction and 70% • development of landfills with 2. ITF development treatment of household waste appropriate technology, 3. Optimisation of TPST Bantar tested, and environmentally by 2025. Gebang friendly: Formulation of policy and BAUNAY provision of waste processing . strategy programs in the Target indicator: percentage of facilities that are segregated management of Household municipal waste reduction 26% and environmentally friendly in Waste and Household Waste. each connected urban village. PERGUB 25/2022 - RPD 2023-2026 PERDA 7/2024 - RTRW 2044 PERGUB 108/2019 - JAKSTRADA



#### PERDA 8/2024 - RPJPD 2025-2045

Transformation Policy Directions Related to Waste :

- 1. Collaborative reduction of urban waste generation at the source.
- 2. Sustainable waste management through the development and operation of waste infrastructure with environmentally friendly technology that supports the creation of a circular economy.
- 3. Provision of household hazardous waste treatment facilities and services.

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#### **Regional authority for:**

 Waste management policies and strategies based on national policies;

PERDA 4/2019 - Pengelolaan Sampah

- 2. Inter-regional cooperation, partnerships and networks ☑ including the involvement of business entities
- 3. Determining the location in the RDTR and conducting Monev of TPS, TPS 3R, FPSA, TPST in the RDTR
- 4. Waste Management Service Fee by Regional Government

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## – National Planning Document

HIGHLIGHTS THE POLICY DIRECTION IN QUALITY ENVIRONMENT

### Highlights on Long Term National Plan 2025 -2045

Controlling pollution and environmental damage to improve quality of life, productivity, and sustainable economic growth with policy directions:

- I. Changes in people's behavior towards lifestyle;
- II. Improved waste management B3 and medical waste;
- III. Improved quality and integrated management of marine and coastal ecosystems;
- IV. Improvement of water and air quality and waste management through the application of the latest and affordable technology;
- V. The application of the polluter pays principle as an instrument to calculate the value of environmental damage and the imposition of environmental recovery costs to businesses that cause environmental pollution.

### Highlights on Mid Term National Plan 2025 - 2029

- I. Behavior change and strengthening of waste governance;
- II. Improved waste collection and treatment as well as residue processing in final processing sites/residue landfills.

### - Regional Planning Document

HIGHLIGHTS OF POLICY DIRECTION IN THE IMPLEMENTATION OF THE SUSTAINABLE CITY

### Highlights on Long Term Regional Plan 2025 -2045

- I. Collaborative reduction of municipal waste generation at source.
- II. Sustainable waste management through the development and operation of waste infrastructure with environmentally friendly technology that supports the creation of a circular economy.
- III. Provision of household hazardous waste treatment facilities and services.
- IV. Waste management that is integrated with the development of coastal water areas.
- V. Development of waste water treatment facilities (rivers, lakes, ponds, reservoirs, situ, and bays).
- VI. Utilization of processed waste products into alternative energy sources through **cooperation with** industry/market suppliers (off takers).
- VII. Strengthening cooperation with stakeholders in improving environmental quality (water, sea, air, land cover and waste management) in Jakarta.

VIII.Improving smart and appropriate waste management through the concept of Reduce, Reuse, Recycle (3R).

IX. Implementation of urban development that adapts to the study of carrying capacity and environmental capacity.

### Jakarta Waste Management Overview (1/3)





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### – Jakarta Waste Management Overview (2/3)



### - Jakarta Waste Management Overview (3/3)



SARINGAN

SAMPAH CILIWUNG wajah baru penanganan

npah Jakarta

RDF Plant in Jakarta 2.500 ton/day RDF development in Rorotan (2024)





Increasing TPS to TPS 3R in 13 locations with a capacity of 25-100 tons/day and targeted at 44 subdistricts. \*Pembangunan TPS 3R dapat diduplikasi ke seluruh kecamatan yang ada di DKI Jakarta, sehingga dapat berdampak positif pada pengurangan pengangkutan sampah dan bisa memperpanjang masa pelayanan

Hingga detik ini, penanganan sampah masih tetap dan akan

🖉 🕞 dinaslhdiki 🗖 🛉 Dinas Lingkungan Hidup DKI Jakarta

ALC: NAME

n<mark>jutkan</mark> mengingat sampah yang terus berdatangan dikarenakan hujan yang masih turun hingga saat ini.

> penganangan pengangkatan sampan da bisa **nemperpanjang masa pelayanan** TPST Bantargebang," Heru Budi Hartono

rasi ke jakata h dan an

The Waste

**Filter has** 

processed approximatel

v 1300 tons of

waste

3R Facility at JI. Slaga, South Jakarta

Jakarta already has a Waste Management Division of 2,744 RWs.



Source: Jakarta Environmental Agency, 2024

RDF Plant & Landfill Mining processing waste up to 2.000 tons/day

Operationalization RDF and Landfill Mining Bantargebang

RDFJAKARTA



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### – Startup Collaborator for Waste Management





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### - Jakarta Energy Resilience



### Regional Energy Plan 2030-2050

#### Jakarta Energy Indicator Profiling & Projection

No	Indicator	2021	2025	2050
1	Energy Profile			
	a. Petroleum	25,3%	28%	15,4%
	b. Coal	40,8%	19,1%	17,9%
	c. Natural Gas	30,6%	48,6%	42,3%
	d. New and Renewable Energy	3,2%	4,4%	24,4%

Source: Perda Nomor 5 Tahun 2023 (Regional Energy Plan 2023-2050)



### - Jakarta Energy Resilience



#### Regional Energy Plan 2030-2050

New-Renewable Energy (EBT) Development

Types of	Existing	RUED Target (MW)			
Power Plants	2022	2025	2030	2050	
Solar Power Plant	16,57	20	30	200	
Waste Processing	10,4	25	35	100	
Wind Power Plant	0	0,5	-	2	
Hydrogen Power Plant	0	-	-	100	

**Transition to Electrical Energy** 

	Existing	RUED Target (%)			
	2022	2025	2030	2050	
Use of Electric Stove	-	-	-	50% Household	
Electric Vehicles	0,04% (12.356)	2% (527.410)	10% (2.637.053)	75% (19.777.901)	
Hydrogen Electric Vehicles	0	-	-	20%	

MW: Mega Watt

#### Notes:

Regional Energy Plan has not included the potential of blue energy as one of the opportunities for EBT development. In fact, 2/3 of the area of DKI Jakarta Province is water (Kepulauan Seribu).



### Jakarta Energy Resilience



#### **Renewable Energy**



### The Total Solar Panel Operated in 2024 34,38 MW



In 2024, the Minister of Energy and Mineral Resources issued a regulation (Ministerial Regulation No. 2 of 2024) that eliminates the export tariff for electricity fed into the grid. This has the potential to reduce interest in installing solar PV systems, particularly for households.

### Solar Panel Implementation on DKI Jakarta provincial Government owned buildings in total

# 164 Buildings / 4,0 MWp





### **Electrical Vehicle Ecosystem**





52%

2027

38%

2026

17%

2025

84%

2029

2030

72%

2028

### Public Electric Vehicle Charging Station (SPKLU)

**(Presidential Regulation No. 79 of 2023)** Battery-Based Electric Motor Vehicles for Road Transportation

#### FISCAL

Import duty incentives, tax incentives, SPKLU/SPBKLU construction incentives, financial support for SPKLU infrastructure development, etc. NON- FISCAL

Exceptions from road use restrictions, etc.

#### SPKLU CHALLENGES

- a. The cost of building/installing charging stations is still considered high;
- b. The lack of electric vehicles operating in Jakarta causes demand from charging stations (SPKLU);
- c. limited financing schemes and low banking sector confidence (loan interest is not yet competitive) in the electric vehicle ecosystem;
- d. there is no SPKLU available that can be used by the Transjakarta bus fleet when operating on routes other than SPKL on the operator;
- e. Limited assets (local government) that are ready to be cooperated.

became

100% in

2030

## - Future City Hub

"Go-to place for smart city innovation in Jakarta"



The Future City Hub is projected to become a meeting point between the Provincial Government of Jakarta as problem owner and the Pentahelix as problem solvers to solve Jakarta's urban problems together.



# Digital Ecosystem in The Making

Jakarta Smart City—through Future City Hub, maximizing the potential of collaboration by creating a sustainable, resilient, and seamless digital ecosystem.

