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NATIONAL WASTE MANAGEMENT REFORM

EMISSION REDUCTION IN CITIES
THROUGH IMPROVED WASTE
MANAGEMENT PROJECT (ERiC - DKTI)



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OVERVIEW OF COOPERATION FOR WASTE MANAGEMENT REFORM

EMISSION REDUCTION IN CITIES THROUGH IMPROVED WASTE MANAGEMENT COOPERATION PROJECT

In order to strengthen the implementation of RPJMN 2020-2024 related to waste management, the Government of Indonesia collaborates with the Government of Germany with the implementation by GIZ in the **Emissions Reduction in Cities through Improved Waste Management Project - ERiC DKTI**.

PROJECT OBJECTIVES

Support the planning and development of waste management systems by improving enabling conditions at the national and city levels, including measures to improve technical, institutional, funding and financing aspects, as well as gender equality and social inclusion, as an effort to reduce Greenhouse Gas (GHG) emissions.

PROJECT OUTPUTS

The outputs of this project are directed to become inputs for the preparation of waste management planning and policies at the national and regional levels. Activities carried out include the preparation of policy studies and recommendations, technical assistance, and the implementation of pilot projects.

STEERING COMMITTEE



Ministry of National Development Planning/National Development Planning Agency



Ministry of Environment and Forestry



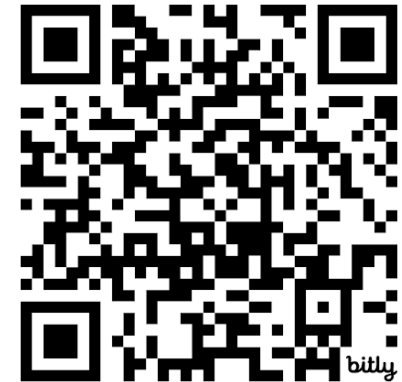
Ministry of Home Affairs



Ministry of Public Works



"Project Summary"



FUNDING SOURCE

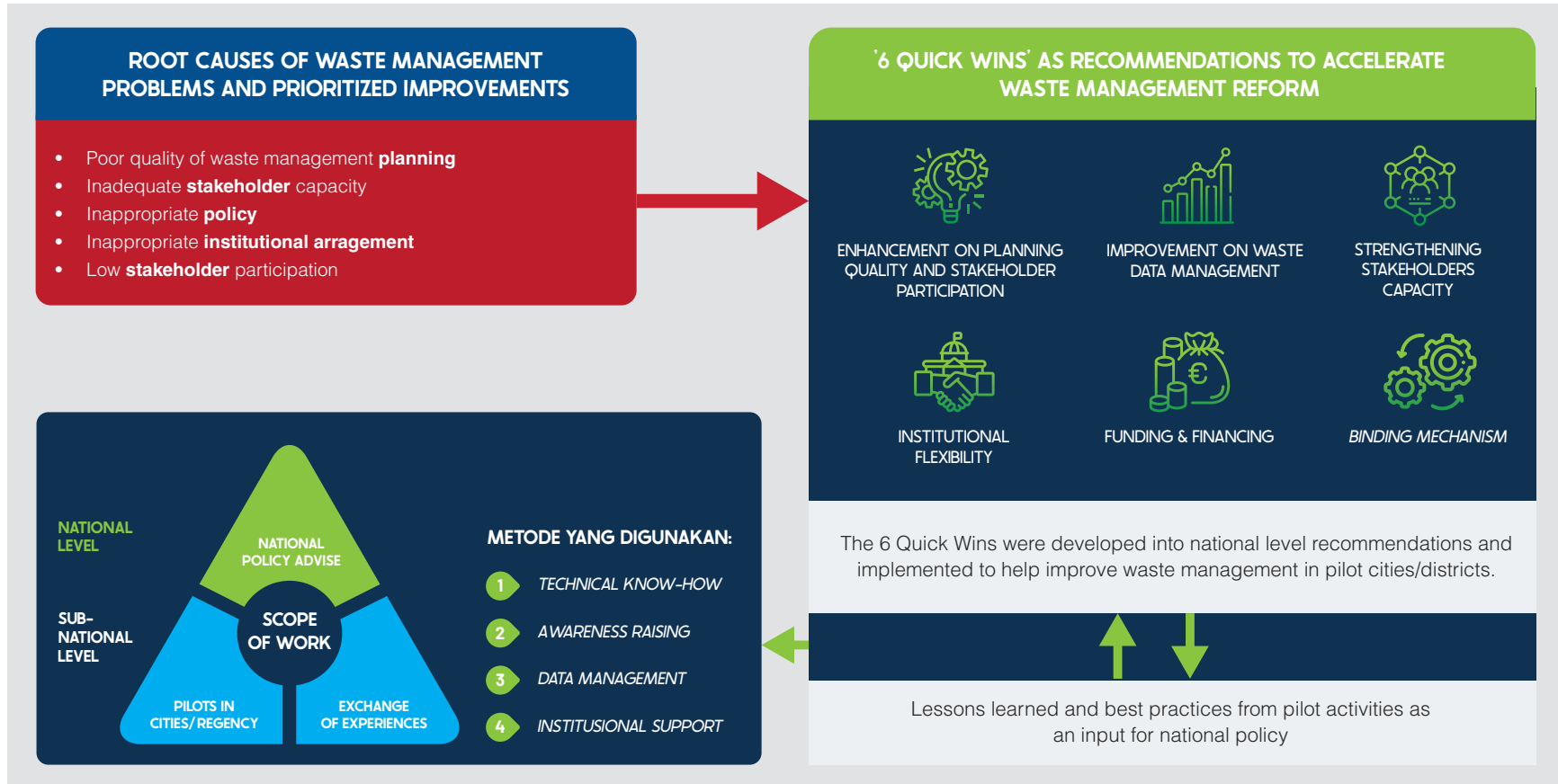
Federal Ministry of Economic Cooperation and Development, Government of the Republic of Germany



PROJECT SCOPE

National (Indonesia) and Subnational (6 cities/districts)

PROJECT FRAMEWORK



THE PROJECT INTERVENTION AREAS FOCUS ON 3 OUTPUTS, NAMELY: PLANNING INSTRUMENTS; DATA MANAGEMENT; FINANCING/FUNDING CAPACITY.

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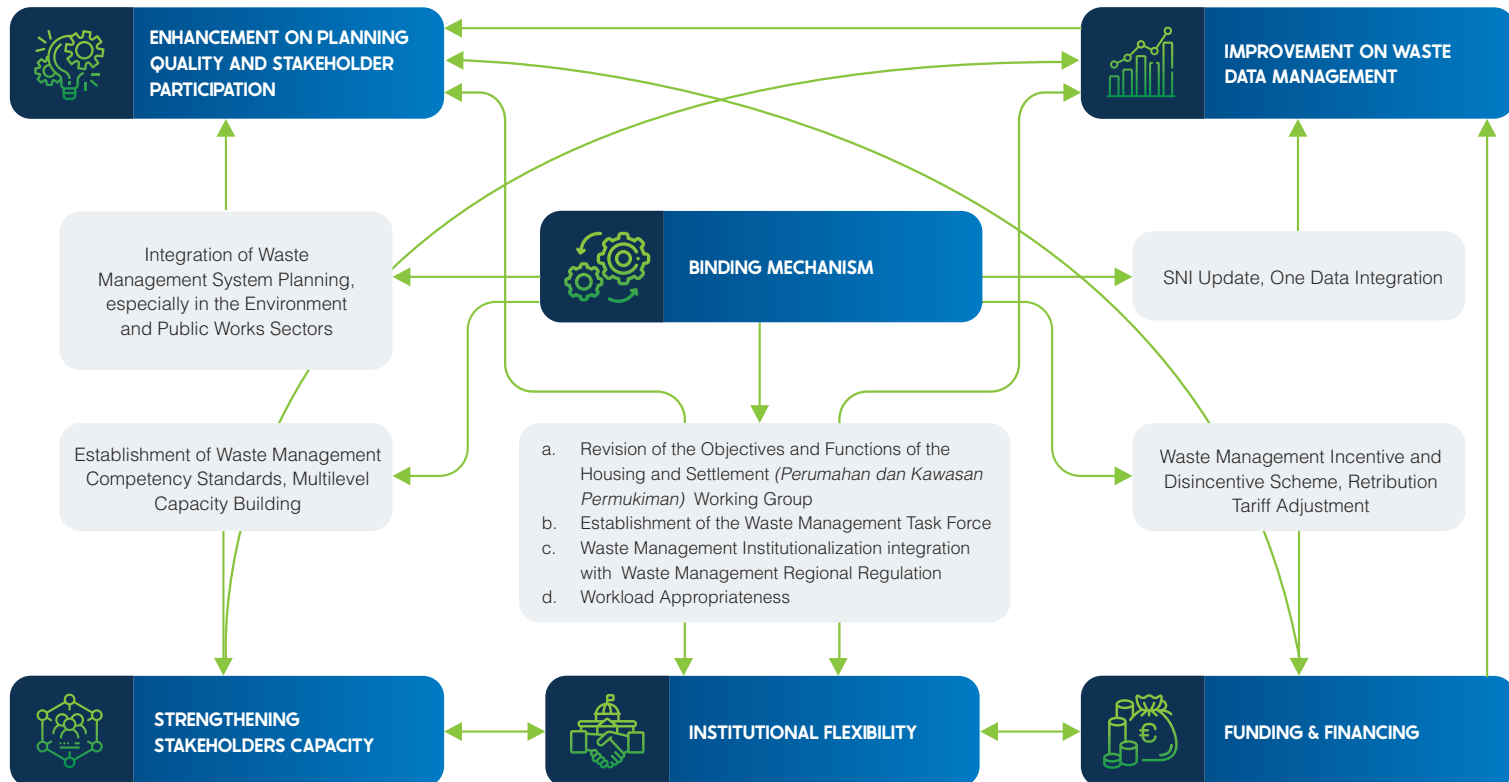


WASTE MANAGEMENT REFORM

A CLOSER LOOK AT WASTE MANAGEMENT REFORM '6 QUICK WINS'

The six proposed Quick Wins are **interrelated and contribute to each other**. This holistic recommendation is formulated as a reinforcement for reforms to improve waste management in Indonesia.

The integration of each Quick Wins illustrates that to achieve a goal of improving waste management, it cannot be done partially, but is a collaboration of various parties and integration of various important aspects of waste management.



INTERVENTION OF WASTE MANAGEMENT REFORM IN THE ERIC DKTI PROJECT PILOT AREA

PREPARATION OF WASTE MANAGEMENT MASTER PLAN (RIPS):

Waste & Climate related Data **Collection & Calculation**

Capacity Development for Cost Calculation, Waste Retribution Tariff, and Development of Financing Model

Pilot Measure for Waste Value Chain improvement



- 1 BUKITTINGGI CITY
- 2 JAMBI CITY
- 3 BOGOR REGENCY
- 4 CIREBON CITY
- 5 MALANG CITY
- 6 DENPASAR CITY



Watch Video "Waste & Climate Data"



Watch Video "Waste Cost & Retribution Calculation"



Watch Video "Pilot Activities in Jambi City"



ENHANCEMENT ON PLANNING QUALITY AND STAKEHOLDER PARTICIPATION



IMPROVEMENT ON WASTE MANAGEMENT DATA



STRENGTHENING STAKEHOLDERS CAPACITY



INSTITUTIONAL FLEXIBILITY



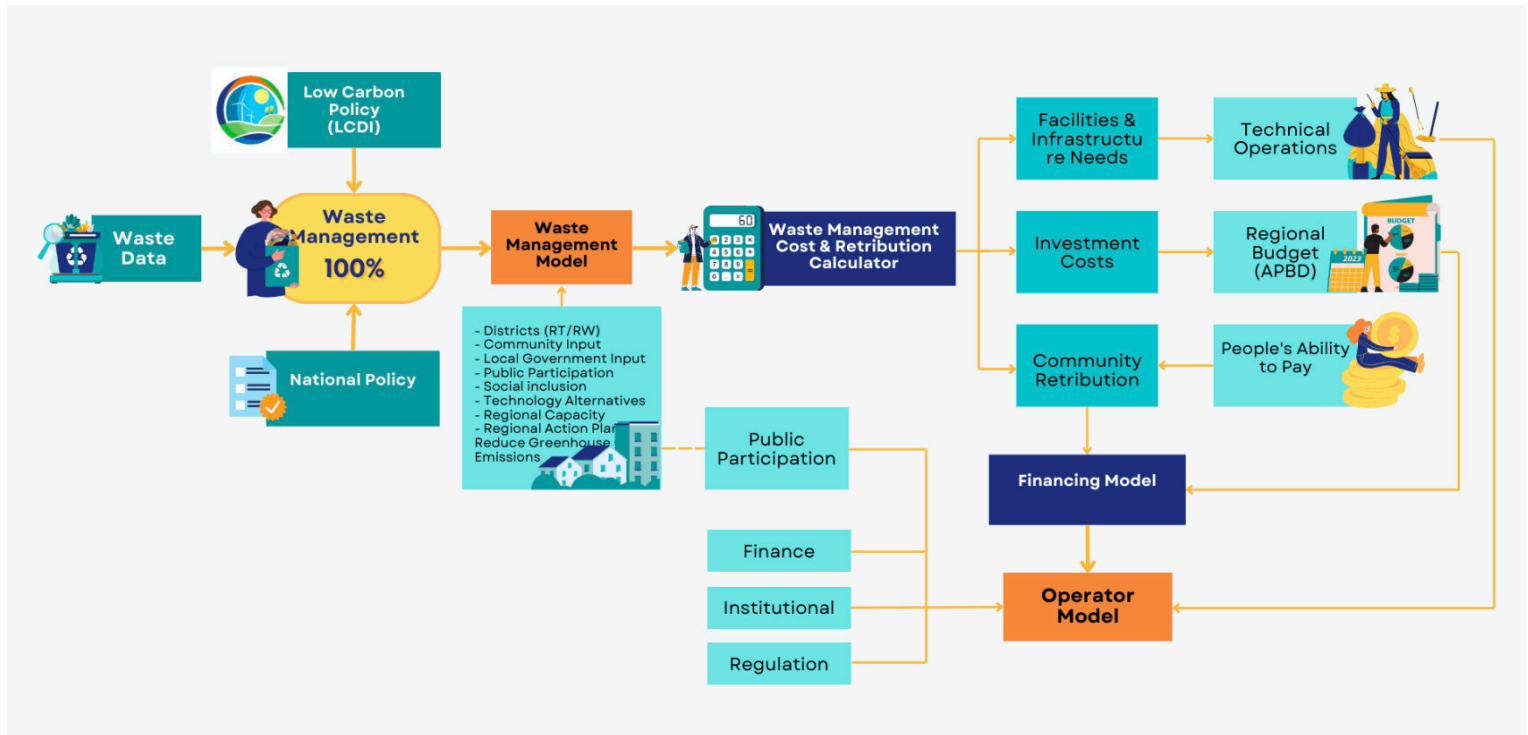
FUNDING AND FINANCING



BINDING MECHANISM

PREPARATION OF A COMPREHENSIVE WASTE MANAGEMENT MASTER PLAN

The **Solid Waste Management (SWM) Masterplan** (*Rencana Induk Pengelolaan Sampah/RIPS*) was developed with strong consideration of key aspects including technical, institutional, regulatory, financial, public participation, and linkages to the environment and greenhouse gas emission reduction.



The development of waste management master plan was carried out by the municipalities working group consisting representatives of cross agencies with intensive assistance from ERiC DKTI project experts. The process of preparing RIPS involves input from relevant stakeholders, both from government and non-government parties so as to produce recommendations for Solid Waste Management (SWM) System that are in accordance with the capacity, needs, and characteristics of each region.

ENHANCEMENT ON PLANNING QUALITY AND STAKEHOLDER PARTICIPATION



IMPROVEMENT ON WASTE DATA MANAGEMENT



STRENGTHENING STAKEHOLDERS CAPACITY



INSTITUTIONAL FLEXIBILITY



FUNDING AND FINANCING



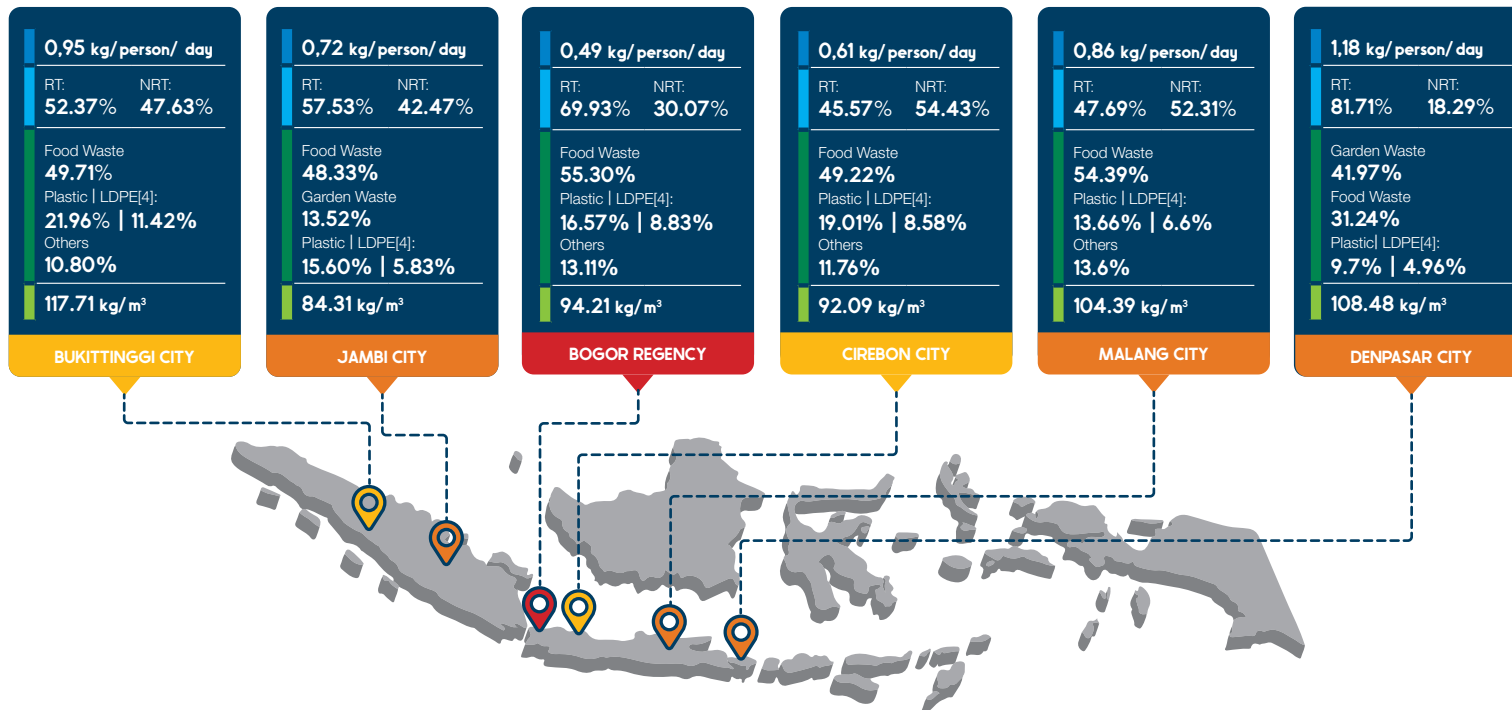
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THE USE OF PRIMARY WASTE DATA

Technical Aspects:
Waste Generation & Composition Data

WASTE DATA

Waste generation and composition are important components in waste management planning. In the preparation of RIPS, primary sampling of waste generation and composition in the Project area was conducted to obtain accurate and up-to-date data. The data is used to create a waste flow diagram from waste source to landfill. Through the waste flow diagram, the local government can identify the waste leaking points to the environment and formulate appropriate measures to prevent waste leakage and implement 100% waste management.



The waste generation rate per capita is not always proportional to the population of the city/district but is more influenced by local socio-economic and cultural factors such as expenditure per capita rate and the economic growth rate of the local area.

- ENHANCEMENT ON PLANNING QUALITY AND STAKEHOLDER PARTICIPATION
- IMPROVEMENT ON WASTE DATA MANAGEMENT
- STRENGTHENING STAKEHOLDERS CAPACITY
- INSTITUTIONAL FLEXIBILITY
- FUNDING AND FINANCING
- BINDING MECHANISM

Technical Aspects: Waste Generation & GHG Emission Projections

DETERMINATION OF WASTE MANAGEMENT MODEL

WASTE MANAGEMENT MODEL SIMULATION IN ONE OF THE PILOT CITIES FOR THE PLANNING PERIOD 2025-2045

Referring to the waste flow diagram that has been generated, a specific waste management model is selected for each pilot city/district. This model selection considers the characteristics, needs, and suitability with the Spatial and Regional Plan (RTRW) in each region. As a first step, waste generation projections and Greenhouse Gas (GHG) emission calculations were carried out according to the RIPS planning period.

ENHANCEMENT ON PLANNING QUALITY AND STAKEHOLDER PARTICIPATION



STRENGTHENING STAKEHOLDERS CAPACITY



STAKEHOLDER CAPACITY BUILDING



INSTITUTIONAL FLEXIBILITY

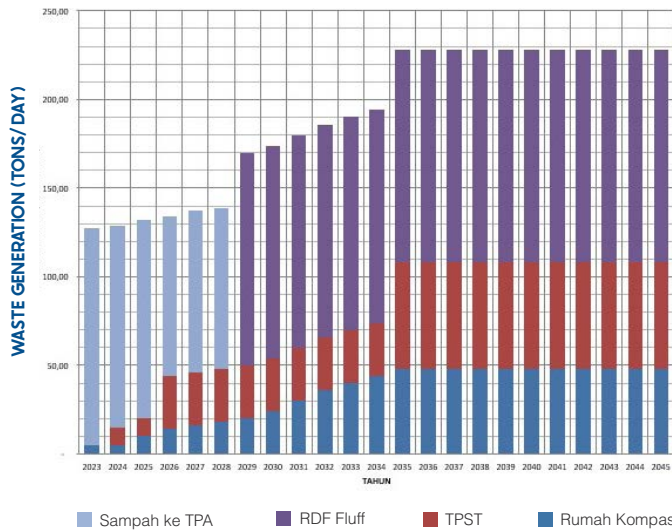


FUNDING AND FINANCING

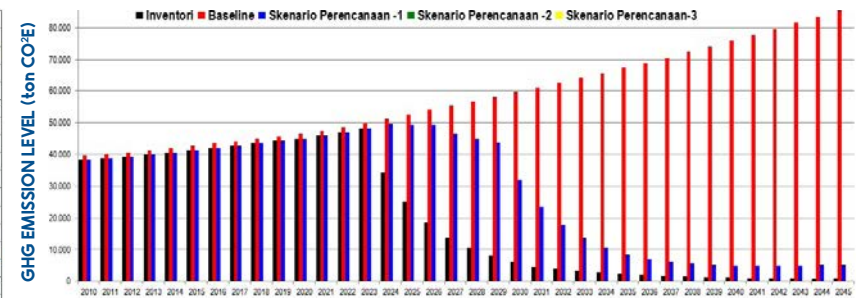


BINDING MECHANISM

SIMULATION OF WASTE MANAGEMENT MODEL IN ONE OF THE CITIES IN THE PROJECT AREA FOR THE PERIOD 2025-2045



PROJECTED TRENDS OF EMISSION LEVELS FOR INVENTORY, BASELINE, AND PLANNING SCENARIO

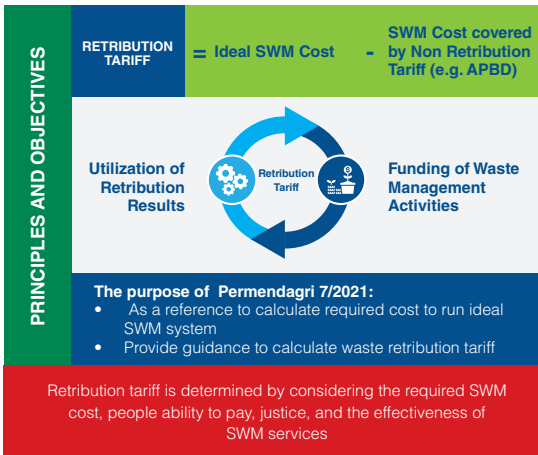


STRENGTHENING WASTE FINANCING AND FUNDING CAPACITY

Financing & Funding Aspects

SWM COST CALCULATION

Based on the Waste Management Model that has been determined, the Waste Management Cost is calculated by referring to the Regulation of the Minister of Home Affairs No.7/2021 on the Procedures for Calculating Retribution Tariff in Waste Handling. The calculation includes the cost of collection to final processing.



RETRIBUTION TARIFF CALCULATION

Waste Management Cost Data becomes an input for the calculation of the Waste Retribution Tariff. The determination of the tariff considers the allocation of the Regional Budget (APBD) as well as the Willingness and ability of the community to pay. Improvement of retribution tariff is carried out in stages, adjusting the capacity and needs of the region.

Supports Pay Polluter Principal with equitable tariff setting, tariff recommendations are available in several options: flat tariff (Rp/ KK), mass-based (Rp/kg), volume-based (Rp/ m3). Cross-subsidization is also applied by a number of cities/districts to strive for tariffs that are in line with the capacity of each retribution payer.

DEVELOPMENT OF SWM FINANCIAL MODEL

To be able to implement the waste management model that has been designed, a reliable Waste Management Financial Model is needed. Starting with the identification of the initial condition of regional finances in handling waste to see the financing gap as the basis for preparing the financial model for each stage of the RIPS planning period.

An analysis of the financial and economic feasibility of long-term waste handling is also carried out to ensure the capacity of the region to carry out the financial model that has been designed. Some regions also require an analysis of alternative financing sources to close the financing gap that arises. In the final stage, financial and economic waste management programs and activities are prepared as part of the planning in the RIPS.

POLICY RECOMMENDATIONS RELATED TO FINANCING/ FUNDING ASPECTS OF WASTE MANAGEMENT:

Wider dissemination of Permendagri 7/2021 for better implementation of financing planning and waste retribution tariff. This also supports the implementation of the HKPD Law 1/2022.

Further development of the calculation method in Permendagri 7/2021 to be able to consider calculation parameters that are more accurate and in accordance with the needs of the waste management model in the regions.

Improved regional asset management for cost-efficient waste management.



ENHANCEMENT ON PLANNING QUALITY AND STAKEHOLDER PARTICIPATION



IMPROVEMENT ON WASTE MANAGEMENT DATA



STRENGTHENING STAKEHOLDERS CAPACITY



INSTITUTIONAL FLEXIBILITY



FUNDING AND FINANCING



BINDING MECHANISM

INSTITUTIONAL DEVELOPMENT OF WASTE MANAGEMENT

MODEL OPERATOR CONCEPT

The development of institutional arrangements for the Waste Management System is directed at **regulating the division of roles of each actor involved, including local government, community, private sector, and informal sector.** Not only separating the roles of regulators and operators, the concept proposed in this assistance adopts the concept of the Operator Model, to separate the roles of **Planner, Client, Revenue Collector, Operator, Regulator, and Policy Maker.** With this division of roles, it is expected that each actor can carry out their functions more purposefully and effectively.

PLANNER

Responsible for strategic planning strategic planning, determining the physical investment, operator model, and non-technical measures required for integrated upstream to downstream waste management.

POLICY MAKER

Regulations and policies set at the National level and implemented at Regional and local levels

REGULATOR

Policy makers, supervisors, and enforcer of compliance with applicable legal norm standards relating to waste management

CLIENT

Responsible for ensuring the provision of a reliable waste management system that meets the required standards.

REVENUE COLLECTOR

Collecting revenue/levies for waste management, ensuring that the funds collected actually go to the service provider.

OPERATOR

Responsible for technical waste management services in the field



BEST PRACTICE OPERATOR MODEL CONCEPT

Jambi City implements an institution that places DLH as the regulator and third parties as operators of waste management service providers from upstream to downstream. Community based facility and the informal sector become operators at the sub-district and village levels. A Regional-Owned Enterprise (BUMD) is planned to function as the operator.

INCREASING PUBLIC PARTICIPATION & SOCIAL INCLUSION

ACTIVE PARTICIPATION FROM CROSS AGENCIES

Involvement of relevant agencies, sub-districts, and villages in the City/District to develop the concept of waste management and ensure that socialization activities to the community can be carried out in an integrated manner in supporting waste management in accordance with applicable local regulations.

- 1 Health Agency
- 4 Agriculture Agency
- 2 Education Agency
- 5 Community and Village Empowerment Agency
- 3 Social Agency

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ENHANCEMENT ON PLANNING QUALITY AND STAKEHOLDER PARTICIPATION
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IMPROVEMENT ON WASTE MANAGEMENT DATA
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STRENGTHENING STAKEHOLDERS CAPACITY
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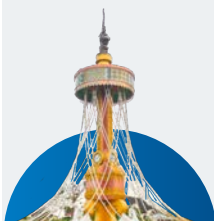
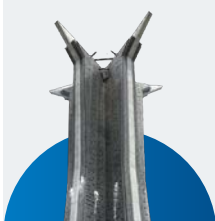

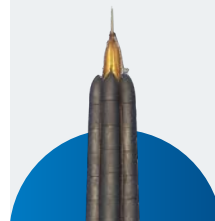
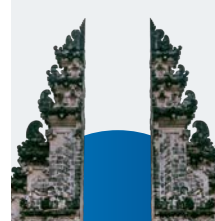
INSTITUTIONAL FLEXIBILITY
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FUNDING AND FINANCING
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BINDING MECHANISM

PILOT MEASURE WITH LOCAL NON-GOVERNMENTAL ORGANIZATIONS (NGOS)

The pilot measure activities in 6 cities/districts aim to ensure community participation in supporting improved waste management in the pilot areas. Improved governance is carried out in several waste processing facilities in the region such as: TPS3R, PKD, Waste Bank, Maggot House and Compost.

BUKITINGGI	JAMBI	BOGOR	CIREBON	MALANG	DENPASAR
					
<p>WALHI SUMBAR</p>	<p>JAMBI ENVIRO</p>	<p>BUMI WINAYA LESTARI</p>	<p>GREENERATION CIREBON</p>	<p>SIMTESIS</p>	<p>YAYASAN GRINGGO</p>
<p>Pilot Measure Area: Maggot House & Composting House Kel. Bukit Apit Puhun</p>	<p>Pilot Measure Area: TPS3R Sulur Berkah and TPS3R Gading</p>	<p>Pilot Measure Area: RW 10 Puspanegara and Sukaesmi Village, Kec. Megamendung</p>	<p>Pilot Measure Area: RW6 Simaja Utara, Kel. Drajat and RW10 Kalijaga Housing, Kel. Kalijaga</p>	<p>Pilot Measure Area: PKD Tlogomas and TPS3R Buring</p>	<p>Pilot Measure Area: Banjar Badak Sari, Desa Sumerta Kelod</p>
<p>April-Oct 2023</p>	<p>Feb-Agustust 2023</p>	<p>May-Nov 2023</p>	<p>June 2023-Jan 2024</p>	<p>Dec 2022- June 2024</p>	<p>June- Dec 2023</p>
					



ENHANCEMENT ON PLANNING QUALITY AND STAKEHOLDER PARTICIPATION



IMPROVEMENT ON WASTE MANAGEMENT DATA



STRENGTHENING STAKEHOLDER CAPACITY



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FUNDING AND FINANCING



BINDING MECHANISM



IMPACT STORIES: JAMBI CITY

IMPACT STORY - TPS3R SULUR BERKAH

WASTE SEGREGATION AT SOURCE

A total of 70 households were intervened in the selected RTs/ Neighborhood Unit (RT 16 and 17) to sort waste from the source with a scheduled pick-up system for 2 weeks (Week 1 RT 16, Week 2 RT 17) every Saturday at 15.00. During the 3 months of implementation, the total segregated inorganic waste reached 1,000kg of waste with 53.5% paper, 28.1% metal, and 18.5% plastic. Segregated waste pickup is still ongoing.

54 households registered as female

16 households registered as male

COMMUNITY ROLE

The community actively participated in conducting education so that 9 environmental cadres were formed in 2 selected RTs accompanied by 2 facilitators who conducted door to door socialization and invited other communities to actively sort waste from the source.

9 female cadres

2 male facilitators

GHG EMISSIONS

Potential GHG emissions avoided from 787.90 kg/day composting activities amounted to **458.25 ton CO₂e/year**

OPERATIONAL MANAGEMENT

Integration of TPS3R Sulur Berkah and Waste Bank Sulur Berkah in the waste sorting program at the source level. so that as many as **70 households who sort waste** are made customers of the Waste Bank so that the management of the waste bank becomes more active.



ENHANCEMENT ON PLANNING QUALITY AND STAKEHOLDER PARTICIPATION



STRENGTHENING STAKEHOLDERS CAPACITY



INSTITUTIONAL FLEXIBILITY



STAKEHOLDER CAPACITY BUILDING



FUNDING AND FINANCING



BINDING MECHANISM

IMPACT STORIES: JAMBI CITY



IMPACT STORY - TPS3R GADING

OPERATIONAL MANAGEMENT

Operational managerial improvement through:

- Additional personnel in the form of admins who conduct daily data collection and monitoring, as well as one-door financial management through the admin with the approval of the KSM chairman
- ntegration of the informal sector (illegal motorized carts) into formal waste pickup operators at TPS3R Gading
- Adjustment of working hours from only 3 hours per day (10.00-13.00), to Monday - Saturday with 8 working hours (08.00-17.00).

NUMBER OF CUSTOMERS

Increased number of TPS 3R Gading customers **about 46% from 323 families to 473 families**

WASTE SEGREGATION AT SOURCE

A total of 38 households (out of 80 households intervened) in 2 selected blocks sorted waste from the source with a scheduled pick-up system every 2 weeks. After 1 month of implementation the total segregated inorganic waste from this program was 130 kg with paper 37.2%, metal 28.5%, and plastic 34.4%.

15 households registered as female

23 households registered as male

GHG EMISSIONS

Potential GHG emissions that can be avoided from optimizing 45 kg/day composting activities and 41.6 kg/day maggot cultivation is **51.94 ton CO²eq/year**

WASTE REDUCTION

Increased percentage of waste reduction to landfill **from 1% to 5%**.

COMMUNITY ROLE

The community actively participated in conducting education so that 5 environmental cadres were formed in 2 selected blocks accompanied by 2 facilitators who conducted socialization and invited other communities to actively sort waste from the source.

2 female cadres

3 male cadres

2 male facilitators



ENHANCEMENT ON PLANNING QUALITY AND STAKEHOLDER PARTICIPATION



IMPROVEMENT ON WASTE MANAGEMENT DATA



STRENGTHENING STAKEHOLDERS CAPACITY



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FUNDING AND FINANCING



BINDING MECHANISM



IMPACT STORIES: MALANG CITY

IMPACT STORY - KOLAB PKD TLOGOMAS

SOCIAL

- 11 out of 12 cafes in Begawan Apartment are actively involved in waste segregation from January-present
- 50 PKD employees are involved in developing the waste data collection format
- 3 NGOs, 3 private sectors, 1 educational institution, and 1 government institution are involved in the initiation of waste forum cross-sector

TECHNICAL

- Technical study on guidelines for responsible waste management in the commercial sector in Malang City has been prepared
- 2.16 tons of organic waste prevented from entering the landfill and avoided potential emissions of **20.25 ton CO₂eq/year**
- Scheduling of organic waste transportation at 07.00 a.m.
- SOP for composting process at PKD house has been developed and implemented

INSTITUTIONAL

- Data collection format used by DLH Malang City to optimize SIPSN report data collection
- 5 collaborations established between SIMTESIS and institutions/NGOs/Private Sector to support the sustainability of the program.



ENHANCEMENT ON
PLANNING QUALITY
AND STAKEHOLDER
PARTICIPATION



IMPROVEMENT ON WASTE
MANAGEMENT DATA



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MECHANISM

IMPACT STORIES: MALANG CITY



IMPACT STORY - KOLAB TPS 3R BURING

SOCIAL

- 160 households in RW/Community Unit 02 Kelurahan Buring were actively involved in waste segregation during the 2 months of program implementation with a collection schedule of every 2 days.
- 45 PKK/Family Welfare members were actively involved in taking care of the plants as a result of the workshop on the role of women in food security and waste management.
- 34 carters were involved in free health checks and data collection was successful for the establishment of a data base and carters' identity cards.
- 11 community members (6 women, 5 men) were actively involved as environmental cadres.

TECHNICAL

- Waste Flow Diagram has been prepared
- Potential GHG emissions avoided are **197.97 tons CO2eq/year**
- Large increase in waste reduction in Buring Village from **0% to 3.2%**
- **67% or 2.3 tons of waste was successfully recycled** in RW 02 with a waste composition of 55% food waste, 30% garden waste, 1.3% textiles, 4% plastic waste, and 0.3% metal waste
- Addition of BSF waste processing capacity of 100 kg/day and compost of 275 kg/day
- Addition of Urban Farming and Fish Farming units to support the circularity of processed waste products (BSF and Compost)

REGULATION

- Initiate the drafting of village-scale regulations to optimize service areas with carters and RWs.

INSTITUTIONAL

- SOPs for waste processing, cash flow formats, and financial reports at TPS 3R Buring have been established 1 Farmer Group to support the urban farming program has been established.
- TPS 3R Forum in Malang City was successfully initiated
- Integration of carts into the urban village system was initiated.
- CSR cooperation with 2 companies successfully established
- Program cooperation with DLH and the Department of Agriculture and Food Security has been successful

REGULATION

- TPS 3R Buring business proposal successfully drafted
- KPP Bangkit has been able to sell BSF and compost products



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MECHANISM



IMPACT STORIES: BUKITTINGGI CITY

IMPACT STORY - MAGGOT AND COMPOSTING HOUSE - KELURAHAN BUKIT APIT PUHUN

WASTE SEGREGATION AT SOURCE

- A total of 49 households (out of 100 households intervened) in RW/Community Unit 4 Bukit Apit Puhun conduct organic waste sorting from the source routinely with a pick-up schedule three times a week (Tuesday, Thursday and Saturday). At 08.00 a.m. during the 4 months of implementation (August-November).
- Participate household: 45 head of households registered as female & 4 head households registered as male

GHG EMISSION

- Potential GHG emissions that can be avoided from organic waste sorting activities are **5.48 ton CO₂eq/year**

OPERATIONAL MANAGEMENT

- Group of cadres of Sejati Maggot House administrators has been formed in Bukit Apit Puhun, who will manage the urban agriculture demonstration plot and inland fisheries demonstration plot in Bukit Apit Puhun.



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BINDING
MECHANISM

IMPACT STORIES: KABUPATEN BOGOR



IMPACT STORY - WASTE BANK RW 10 PUSPANEGARA

WASTE SEGREGATION AT SOURCE

- Waste reduction until October : **11,431 Kg / 1.4 ton** > > Waste reduction per day 76.2 kg
- Waste sorting activities from selected household sources with :
 - Waste Bank > 201 customers spread across 4 RTs
 - 40 units composter > used by 134 households
 - 40 units Maggot bucket > used by 23 households -
 - 22 units Ecoenzyme bin > centralized process

COMMUNITY PARTICIPATION

- Waste bank administrators, Facilitators of PKK/ Family Welfare Movement are active in educating, socializing and inviting selected households to sort waste from the source according to the place and benefits.
- Support from local policy makers RT/ RW (Neighborhood unit/Community unit) on the program to ensure sustainability.
- The emergence of innovations from the community, for example: making simple tools for leaf shredding machines
- Establishment of a waste bank at the RW level as an effort to increase the selling value of waste sorted at the RT Unit Waste Bank
- Cooperation with UPK SS45 (Koperasi Sawargi Sadaya Empat Lima) for RDF management

GHG EMISSIONS

- Potential GHG emissions that can be avoided from organic waste sorting activities are **18.97 ton CO2eq/year**



ENHANCEMENT ON PLANNING QUALITY AND STAKEHOLDER PARTICIPATION



IMPROVEMENT ON WASTE DATA MANAGEMENT



STRENGTHENING STAKEHOLDER CAPACITY



INSTITUTIONAL FLEXIBILITY



FUNDING AND FINANCING



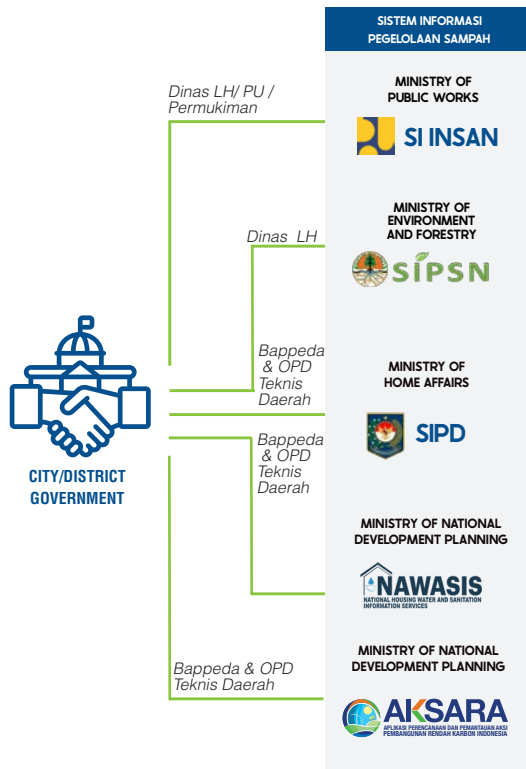
BINDING MECHANISM

WASTE MANAGEMENT REFORM INTERVENTIONS AT THE NATIONAL LEVELL

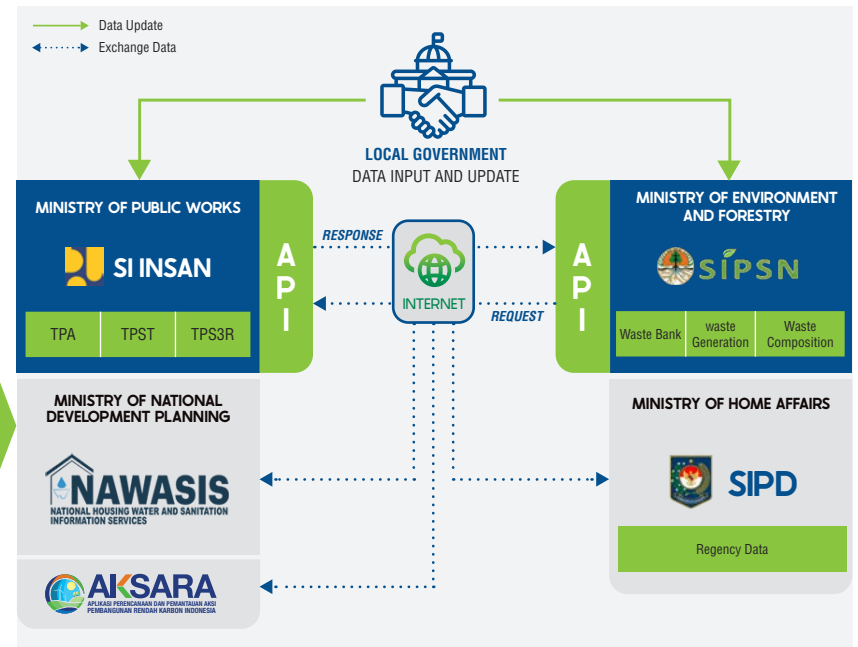
1. INITIATION OF ONE DATA INTEGRATION IN WASTE SECTOR

Currently, there are at least 5 (five) information systems related to waste management in the ministries with different data standards and values, namely: **SIPSN (Ministry of Environment and Forestry)**, **SI INSAN (Ministry of Public Works and Housing)**, **SIPD (Ministry of Home Affairs)**, **NAWASIS (Ministry of National Development Planning/Bappenas)**, and **AKSARA (Ministry of National Development Planning/Bappenas)**.

EXISTING CONDITION OF WASTE-RELATED DATA MANAGEMENT



DATA INTEROPERABILITY - ONE DATA INTEGRATION IN WASTE SECTOR



- The implementation of data interoperability in the waste sector enables more efficient input data so that cities/districts only need to input one type of data into one reporting platform.
- This concept will encourage the integration of data in waste sector that is more accurate, actual for the basis of planning, and can be shared.

ENHANCEMENT ON PLANNING QUALITY AND STAKEHOLDER PARTICIPATION

IMPROVEMENT ON WASTE MANAGEMENT DATA

STRENGTHENING STAKEHOLDERS CAPACITY

INSTITUTIONAL FLEXIBILITY

FUNDING AND FINANCING

BINDING MECHANISM

TO ACHIEVE INTEGRATED WASTE DATA, EFFORTS TO IMPROVE DATA GOVERNANCE IN THE WASTE SECTOR CARRIED OUT IN THIS PROJECT, AMONG OTHERS:

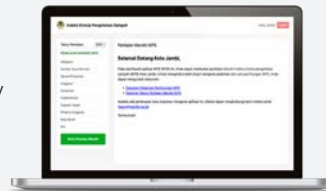
NATIONAL LEVEL:

- **Data warehouse** development on the National Waste Management System Platform (SIPSN) (<https://sipsn.menlhk.go.id/sipsn/home/dw>), as a digital infrastructure supporting the implementation of one waste sector data that allows data sharing or interoperability mechanisms between information systems.

- Preparation of **Data Interoperability Technical Guidelines** in the waste sector (including the Indonesian Waste Code Catalog), as a reference for data standards and data interoperability mechanisms between information systems that contain waste-related data. Implementation of interoperability can simplify input data at the city/district level and avoid data duplication.



- Development of a **digital calculator for calculating the Waste Management Performance Index (IKPS)** (<https://ikps.menlhk.go.id/>) on the SIPSN Platform. This calculator is a tool for the Government to quickly calculate the IKPS of an area and is also a leverage for increasing data filling in SIPSN.



- Policy Brief Transforming Waste Data Quality for Effective and Efficient Waste Management. This Policy Brief contains recommendations for improving the quality of waste data in the form of recommendations for update the standard sampling method and encouraging local governments to collect waste generation data primarily.



CITY/DISTRICT LEVEL:

- Development of a format for recording and reporting waste management data at the waste management facility level in the form of a logbook. This logbook adapts the data fields in SIPSN and AKSARA (national low carbon action plan planning and monitoring application). The logbook is expected to help cities/districts in reporting and monitoring waste management data.

- Capacity building for local governments to record and report data to SIPSN and AKSARA as well as Greenhouse Gas calculations.



ENHANCEMENT ON PLANNING QUALITY AND STAKEHOLDER PARTICIPATION



IMPROVEMENT ON WASTE MANAGEMENT DATA



STAKEHOLDER CAPACITY BUILDING



INSTITUTIONAL FLEXIBILITY



FUNDING AND FINANCING



BINDING MECHANISM

2. SUPPORT FOR WASTE MANAGEMENT FUNDING IMPROVEMENT

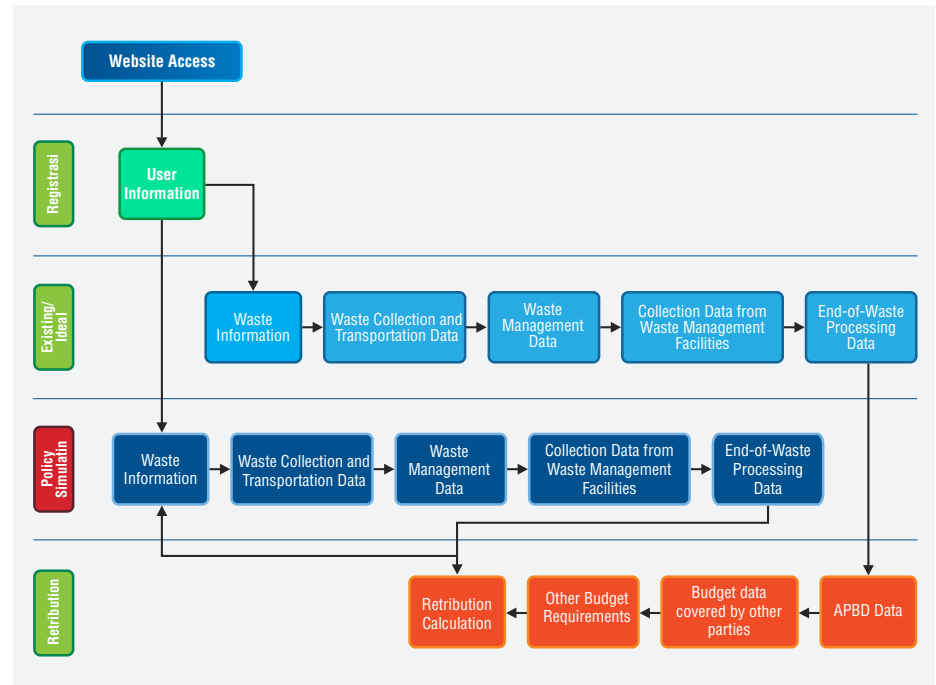
DEVELOPMENT OF A DIGITAL CALCULATOR FOR CALCULATING WASTE MANAGEMENT COSTS AND RETRIBUTION TARIFF



This product is a digitization of the Permendagri 7/2021 calculator which was further developed by considering input from stakeholders at the national level, learning from mentoring in the ERiC DKTI pilot cities/districts, and trial results involving the Local Government.

This digital calculator is expected to be a tool that help stakeholders to calculate the cost of waste management and the retribution fees easier for existing conditions and planning scenarios.

CALCULATION PROCESS IN DIGITAL CALCULATOR (FULL SCENARIO)



Advantages of digital calculator in supporting the implementation of Permendagri No. 07/2021 for retribution tariff calculation adjustment

- Online access and easier usage
- Calculation results are stored in the database and can be downloaded
- Can calculate with multi-scenarios Existing Inventory, Existing Ideal

ENHANCEMENT ON PLANNING QUALITY AND STAKEHOLDER PARTICIPATION

STRENGTHENING STAKEHOLDERS CAPACITY

STAKEHOLDER CAPACITY BUILDING

INSTITUTIONAL FLEXIBILITY

FUNDING AND FINANCING

BINDING MECHANISM

3. POLICY ANALYSIS SUPPORT THROUGH STUDIES AT THE NATIONAL LEVEL

REPORT 1 | INSTITUTIONAL ANALYSIS, PLANNING, AND FINANCING/FUNDING OPTIONS



EXECUTIVE SUMMARY

This study mapped 203 existing waste management issues in Indonesia and the causal relationships between them. Network analysis with data triangulation of pilot cities/districts was used to formulate priority issues that need to be addressed. The analysis was prepared by referring to the Integrated Sustainable Waste Management (ISWM) concept and the Operator Model (OM) which is carried out in a continuous improvement cycle.

The main recommendations of this study are presented in “6 Quick Wins for Waste Management Reform” which are complemented by a list of **action plans for the short, medium, and long term periods** for each key stakeholder.

SCAN TO READ



ENHANCEMENT ON PLANNING QUALITY AND STAKEHOLDER PARTICIPATION



IMPROVEMENT ON WASTE MANAGEMENT DATA



STRENGTHENING STAKEHOLDERS CAPACITY



INSTITUTIONAL FLEXIBILITY



FUNDING AND FINANCING



BINDING MECHANISM

REPORT 2 | WASTE DATA SAMPLING IN 6 PILOT CITIES/DISTRICTS



EXECUTIVE SUMMARY

This study identified data on waste generation and waste composition along the waste management value chain in Bukittinggi City, Jambi City, Bogor Regency, Cirebon City, Malang City, and Denpasar City.

The results of the study show that waste generation in the 6 cities/districts varies from between 0.5 kg and 1.2 kg per capita per day, with an average waste generation of 0.8 kg per capita per day. The waste composition in the 6 city districts was dominated by food waste (48%) plastic waste (16%) and garden waste (13%). In terms of source, household waste is the dominant contributor to waste generation compared to non-household waste.

At the national level, this study analyzes the trend of national waste generation and composition to formulate evaluation points and recommendations for updating SNI 19-3964-1994 on Methods of Sampling of Waste Generation and Composition and policy recommendations for waste generation rate specification standards in SNI 8632:2018, SNI 19-3983-1995 and Appendix to PermenLHK 6/2022.

SCAN TO READ



3. POLICY ANALYSIS SUPPORT THROUGH STUDIES AT THE NATIONAL LEVEL

REPORT 3 | INFORMAL SECTOR INTEGRATION



EXECUTIVE SUMMARY

This study identifies the profile of the informal sector in waste management in the 6 cities/districts of the project area and provides recommendations for a roadmap for the integration of the informal sector in waste management in Indonesia. In the study areas, informal sector actors, such as waste pickers, and collectors, helped collect up to 86% of the total waste collected in the cities/districts for recycling. The informal sector integration scheme can be carried out between the informal sector and the government or the informal sector and the private sector in the form of legalization/formalization of informal sector workers both individually and in groups/associations to carry out waste management activities in a legal and organized manner. The roadmap strategy for integrating the informal sector into waste management includes the development of supporting regulations as well as strengthening institutional schemes and partnerships for the involvement of the informal sector.

REPORT 4 | SUSTAINABILITY OF WASTE TREATMENT FACILITIES



EXECUTIVE SUMMARY

This study maps the profile of Waste Sorting and Processing Facilities (WTSFs) in the project area and evaluates and formulates strategies for improving the performance and sustainability of WTSFs. Some important factors identified to support the sustainability of FPSS include financing, governance, facilities and infrastructure, human resource capacity, and business and marketing schemes. Meanwhile, the highlights of FPSS sustainability strategies in Indonesia include strengthening inter-institutional cooperation, optimizing funding and increasing the capacity and education of relevant stakeholders.



ENHANCEMENT ON
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PARTICIPATION



IMPROVEMENT ON WASTE
DATA MANAGEMENT



STRENGTHENING
STAKEHOLDERS CAPACITY



INSTITUTIONAL FLEXIBILITY



FUNDING AND FINANCING



BINDING
MECHANISM

SCAN TO READ



SCAN TO READ



3. POLICY ANALYSIS SUPPORT THROUGH STUDIES AT THE NATIONAL LEVEL

REPORT 5 | COMPARISON OF WASTE FINAL-PROCESSING TECHNOLOGIES



EXECUTIVE SUMMARY

This study compares 3 thermal technologies for final treatment of waste: **Refuse Derived Fuel (RDF), Landfill Mining (LM), and Processing Waste into Electrical Energy (PSEL)**. The analysis involved evaluating the performance of the technologies based on waste reduction capability, land requirement, as well as financial aspects such as CAPEX, OPEX, and revenue. The study recommendations show that under both public and private financing scenarios, RDF is the safest and most efficient technology, with low CAPEX and OPEX values and high waste reduction capability. This study recommends a CAPEX financing scheme that is borne by the central government, provided that this financing has been budgeted and without considering the refund that must be made by the central government.

SCAN TO READ



ENHANCEMENT ON PLANNING QUALITY AND STAKEHOLDER PARTICIPATION



IMPROVEMENT ON WASTE MANAGEMENT DATA



STRENGTHENING STAKEHOLDERS CAPACITY



INSTITUTIONAL FLEXIBILITY



FUNDING AND FINANCING



BINDING MECHANISM

REPORT 6 | OFF-TAKER RDF ANALYSIS



EXECUTIVE SUMMARY

This study contains an analysis of the potential utilization of Refuse Derived Fuel (RDF) with a focus on the Processing Industry. Considering the types of energy-intensive industries with good emission control systems, this study recommends prioritizing the development of RDF implementation in four industrial sub-sectors, namely (1) Cement Industry; (2) Fertilizer Industry; (3) Pulp and Paper Industry; (4) Iron and Steel Industry.

To gain a common understanding, this study presents the definition of RDF and good practices of RDF utilization in other countries. Recommendations are generated through in-depth analysis of industrial processes, fuel requirements, and challenges of RDF utilization. As complementary information, the study also mapped the general location of existing industrial plants that could potentially utilize RDF, along with the estimated distance between the plant and the nearest landfill that could potentially provide waste supply for RDF production.

SCAN TO READ



SUMMARY OF WASTE MANAGEMENT REFORM RECOMMENDATIONS

1 GOOD WASTE MANAGEMENT STARTS WITH HIGH QUALITY PLANNING

- Synchronization of waste management strategies and policies that are data-based and in accordance with regional capacity.
- Evaluation of Jakstrada achievements, and revision of targets if necessary, to ensure suitability of setting waste management targets with the capacity, capability, and regional conditions.
- Integration of physical and governance aspects by involving all stakeholders.

2 HIGH QUALITY PLANNING BASED ON ACTUAL AND ACCURATE DATA

- Abolishment of SNI 8632: 2018 and PermenLHK No. 6/2022 by removing the number of rates.
- Elimination of SNI 19-3983-1995 Specification of waste generation for small and medium cities in Indonesia
- Update of SNI 19-3964-1994 concerning Methods of Collection and Measurement
- Implementation of one data in the waste sector
- Obligation to report and monitor data on waste management activities by operators regulated in regional regulations on waste management.

3 ALIGNMENT OF SWM PLANNING AND IMPLEMENTATION REQUIRES ADEQUATE STAKEHOLDER CAPACITY

- Establishment of a task force to support capacity building of stakeholders
- Review of Permendagri 90/2019 for identification of budget line items in the SWM for physical and governance aspects that need to be funded and financed.
- Optimization of alternative casual workers (THL) for waste management (related to elimination of YHL in SE MenPAN RB No.: B/165/M.SM.02.03/2022) to support resource efficiency.

4 INCLUSIVE WASTE MANAGEMENT INSTITUTIONS FOR INTEGRATED WASTE MANAGEMENT

- Division of roles, functions and work areas between waste management actors (community, informal sector, private sector and local government) from upstream to downstream need to be defined.
- Community involvement as an operator in the waste management system/delegation of waste management authority to the community needs to be legally bound in a regional regulation.
- Integration of informal sector workers in waste management needs to be supported with a legal umbrella through revision of Waste Law No. 18 Year 2008.

5 STRONG FUNDING FOR THE IMPLEMENTATION OF GOOD WASTE MANAGEMENT

- Implementation of Permendagri No. 7/2021 which oriented to Law No. 1/2022 on Financial Relations between the Government (HKPD).
- Development of the content of Permendagri No. 7/2021 to produce a more accurate financial model (e.g. value of money component against time, etc.) by Bappenas, Ministry of Public Works and Ministry of Home Affairs.
- Expenditure efficiency of waste management system through the implementation of management of Regional Property (BMD) management in accordance with applicable regulations. This includes the application of the Regional accounting system in accordance with applicable Government Accounting Standards (SAP).

SCAN TO
READ



NATIONAL WASTE MANAGEMENT REFORM

EMISSION REDUCTION IN CITIES
THROUGH IMPROVED WASTE
MANAGEMENT PROJECT (ERIC - DKTI)

