

# The 3Rs and Clean Land-The Role of the Circular Economy in Preventing Land Pollution (*Indonesian Prespective*)

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**REPUBLIC OF INDONESIA**

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# POLICY DIRECTIVES OF SWM (LAW NUMBER 18 YEAR 2008 ON SOLID WASTE MANAGEMENT) SHIFTING PARADIGM

BEFORE 2008

END OF PIPE  
SOLUTION

- WASTE JUST POLLUTANT LOADS
- NO WASTE REDUCTION
- NO WASTE TO RESOURCE
- NO RESOURCE EFFICIENCY
- FULL VIRGIN RESOURCE EXTRACTION
- LINIER ECONOMY

2008-2015

3R & EPR

- REDUCE WASTE AS POLLUTANT LOADS
- REDUCTION AT SOURCE
- WASTE TO RESOURCE
- RESOURCE EFFICIENCY
- LIMIT VIRGIN RESOURCE EXTRACTION
- PRODUCER RESPONSIBILITY

2015- UNTIL NOW

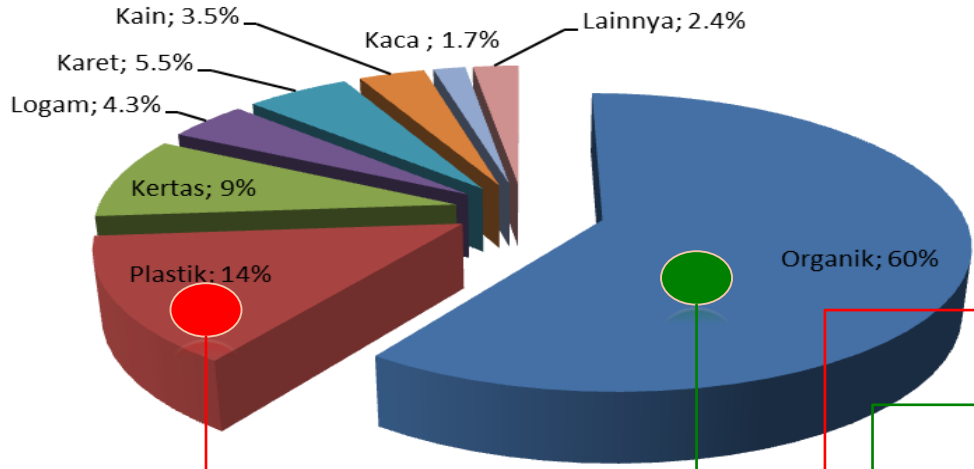
CIRCULAR ECONOMY  
& GREEN GROWTH

- MAKE WASTE A NEW LIFE AS LONG AS POSSIBLE
- RESOURCE EFFICIENCY
- SUSTAINABLE CITIES AND COMMUNITIES (**SDG GOAL NO 11**)
- RESPONSIBLE CONSUMPTION AND PRODUCTION
- LAND PROTECTION FROM SWM POLLUTION (**SDG GOAL NO 15**)

- ❑ SDG 11: SUSTAINABEL CITIES AND COMMUNITY
- ❑ SDG 15: RESPONSIBLE LIFE ON LAND

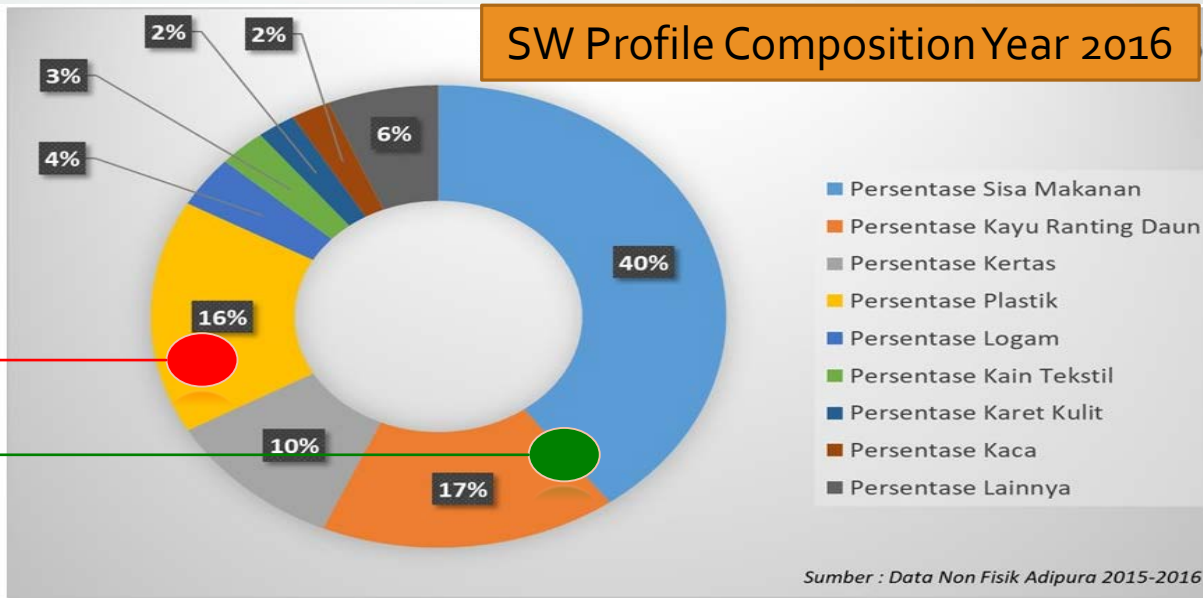
# Indonesia's Solid Waste Profile

SW Profile Composition Year 2013



Source: Adipura Secretariat, 2013

SW Profile Composition Year 2016

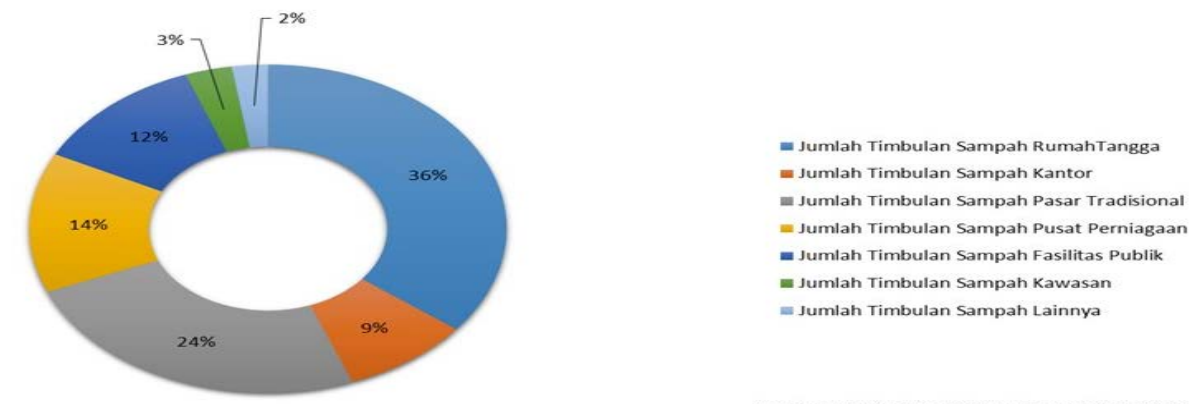


Sumber : Data Non Fisik Adipura 2015-2016

Changing of Waste Profile:  
 ● Organic Waste: 60% (2013) → 57% (2016)  
 ● Plastic Waste: 14% (2013) → 16% (2016)

- Approachment program:
- Increasing public awareness to manage waste from the sources
  - Create social engineering of sorting process to implement R3 program in the community
  - Green Infrastructure Program

Source of Solid Waste



Sumber : Data Non Fisik Adipura 2015-2016

# NATIONAL STRATEGY OF SOLID WASTE MANAGEMENT

HEALTHY AND  
CLEAN  
ENVIRONMENT

CLEAN INDONESIA  
PROGRAM YEAR  
2020

PRESIDENTIAL  
REGULATION NUMBER  
97/2017 ON NATIONAL  
STRATEGY AND POLICY  
OF SWM

NATIONAL TARGET OF  
SWM UNTIL YEAR 2025

- LAW NO 18/2008 → Solid Waste Management
  - PP 81/2012 → Household Solid Waste & Household-like Solid Waste Management
  - Ministerial Decree NO 13/2012 → 3R and Waste Bank
  - Ministerial Decree NO 53/2016 → ADIPURA
  - Ministerial Decree NO 59/2016 → Leachate Standard at Final Process Facilities/TPA
  - Ministerial Decree NO 70/2016 → Emission Standard for Thermal Process of SW
- SW REDUCTION 30%
  - SW HANDLING 70%

# Solid Waste Management Related to the SDGs Achievement

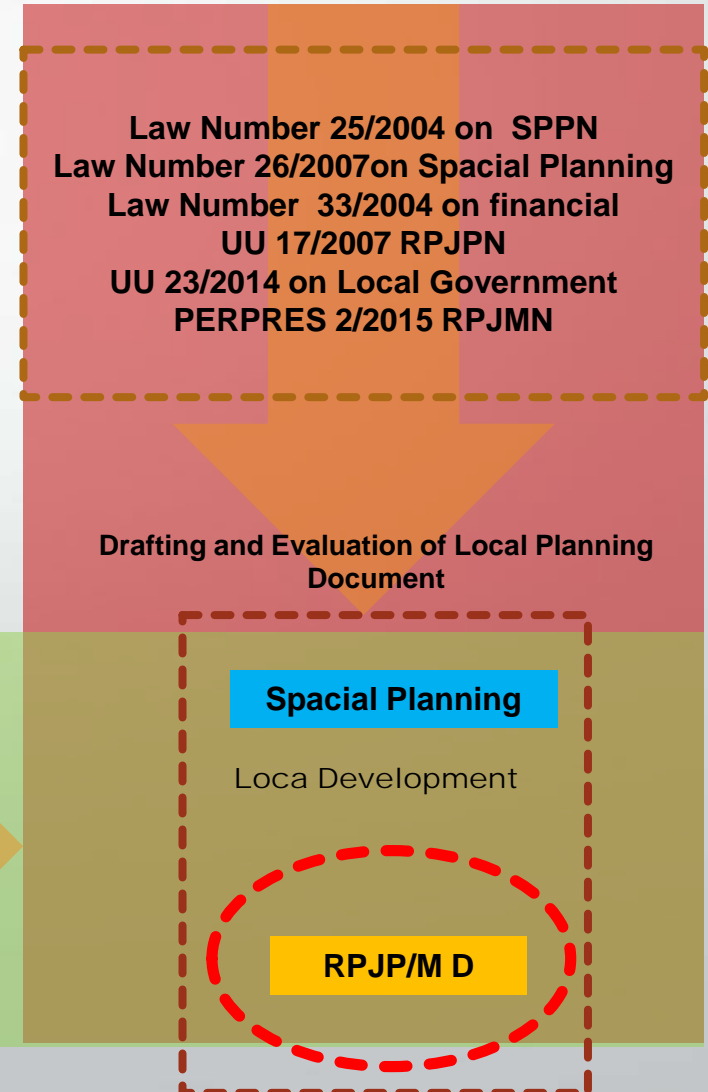
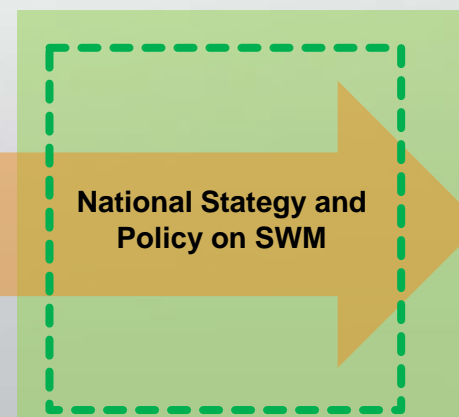
## SWM at the SDGs 11 and 15 :

- ❑ **Solid waste reduction** → 30% in year 2025, implementing by SW prevention, reducing, reuse and recycle
- ❑ **Solid waste handling** → 70% in year 2025, implementing by sorting, collecting, transporting, treating and final treatment (disposal)
- ❑ The objectives of SWM are:
  1. To make cities and human settlements includes safe, resilient and sustainable of SWM
  2. Protect, restore and promote sustainable use of SWM to combat land degradation and biodiversity loss.

Presidential Regulation 59/2017 on TPB



Law Number 18/2008



# THE BENEFIT OF 3R AND RESOURCES EFFICIENCY MEASURES PROVIDE IN MAKING CITIES AND SOCIETIES RESILIENT

- ❑ Environmental conservation by reducing waste to the environment → reduction of greenhouse gases
- ❑ Empowering waste as resources ;
  1. Plastic waste for industrial substitute raw material → plastic recycling industry or crafting
  2. Metal waste → iron smelting industry
  3. Organic waste → organic compost
  4. Paper waste → Paper industry or crafting
  5. Fly ash → Cement substitute raw material and construction
  6. Used oil → Substitute fuel alternative, new oil product
- ❑ Environmental aesthetics by using organic compost for urban farming/gardening

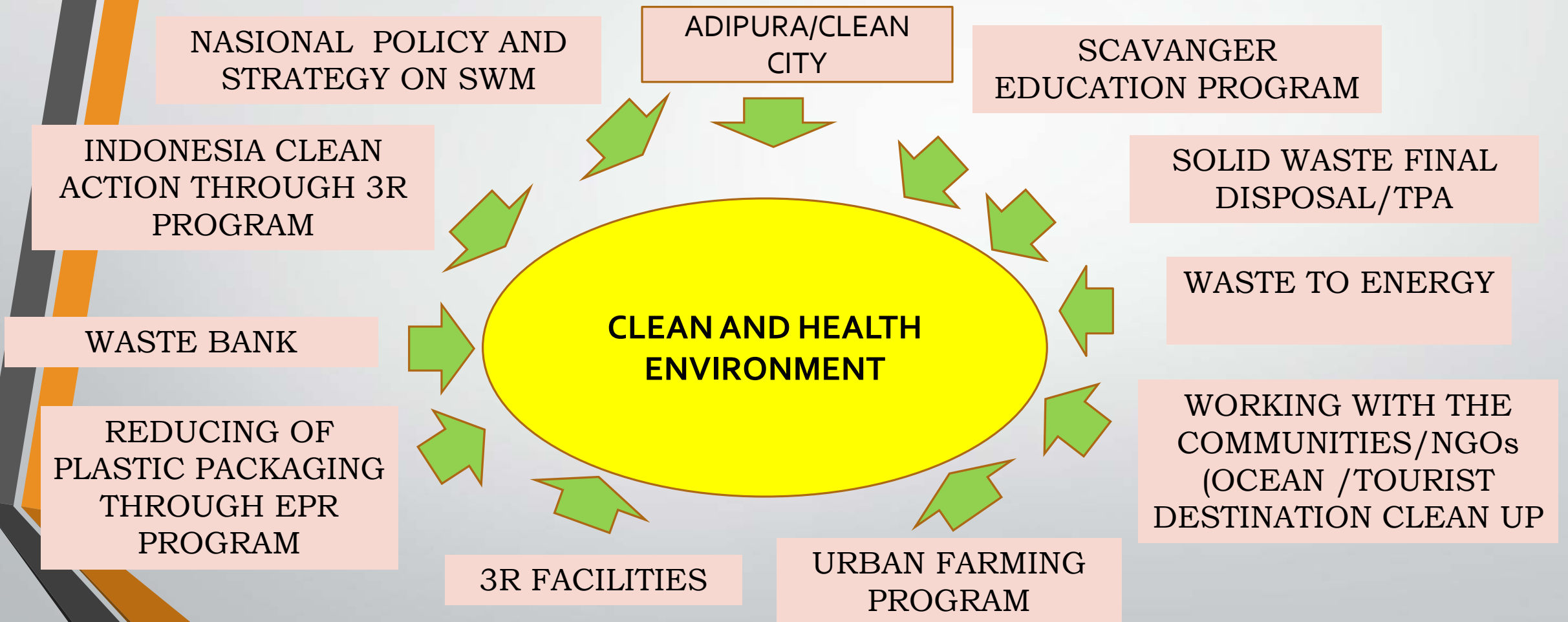


# WHAT CRUCIAL POLICIES AND INSTITUTIONAL SHIFTS ARE NECESSARY TO INTEGRATE 3R AND RESOURCES EFFICIENCY WITH REDUCING LAND POLLUTION AND LAND DEGRADATION

Major Program/Policy implementing by some institutions:

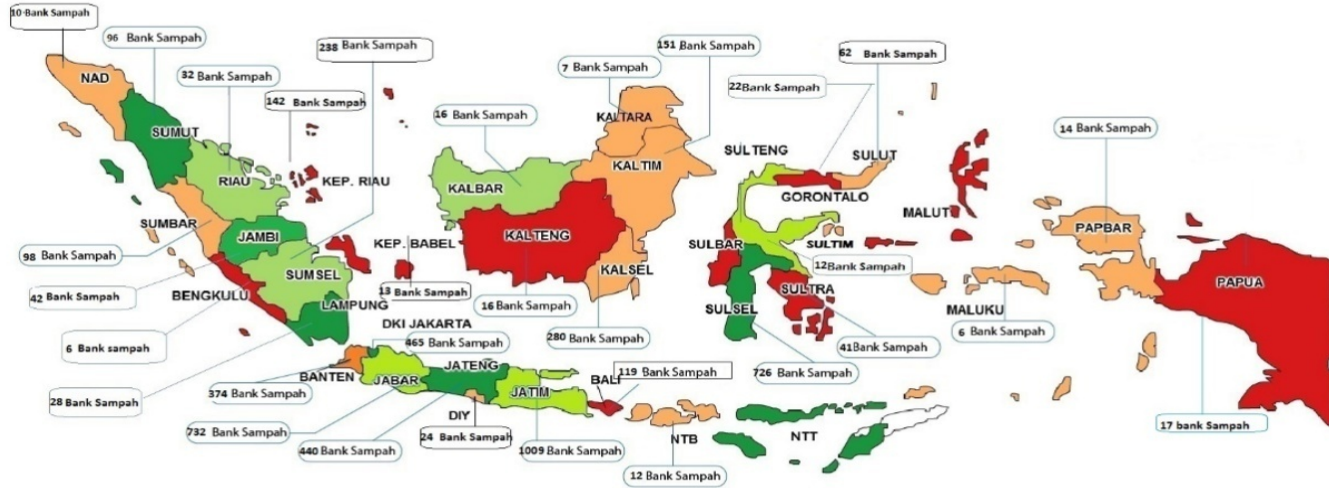
- Program Adipura (monitored & evaluated cleanliness and greenery performance of 380 cities) → pushed cities to implement 3R program of waste reduction and use landfill gas of solid waste final disposal for methane capture
- Promoting & implementing 3R program through Waste Bank and Centre of Recycling (PDU)
  - Composting for organic waste
  - Recycle/reuse for anorganic waste (plastic, metal, glasses)
- Promoting & implementing green industry through resource efficiency & cleaner production program
  - *Set up of Ministry of Industry Decree regarding Road Map of CO<sub>2</sub> Emission Reduction in Cement Industry and Ozone Depleting Substances Abolition*
  - *Set up of Technical Guidance for Energy Conservation Technique and CO<sub>2</sub> Emission Reduction for steel, fertilizer, pulp & paper, and ceramic industries.*

# NASIONAL COLLABORATIVE PROGRAM ON SOLID WASTE MANAGEMENT





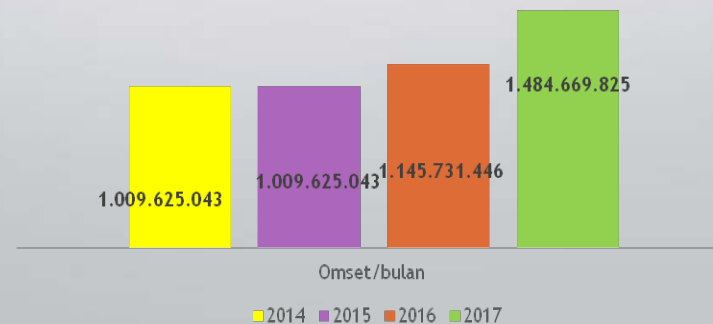
# The Implementation of 3R Program of Solid Waste Management through the Waste Bank to Promote Resource Efficiency and Circular Economy



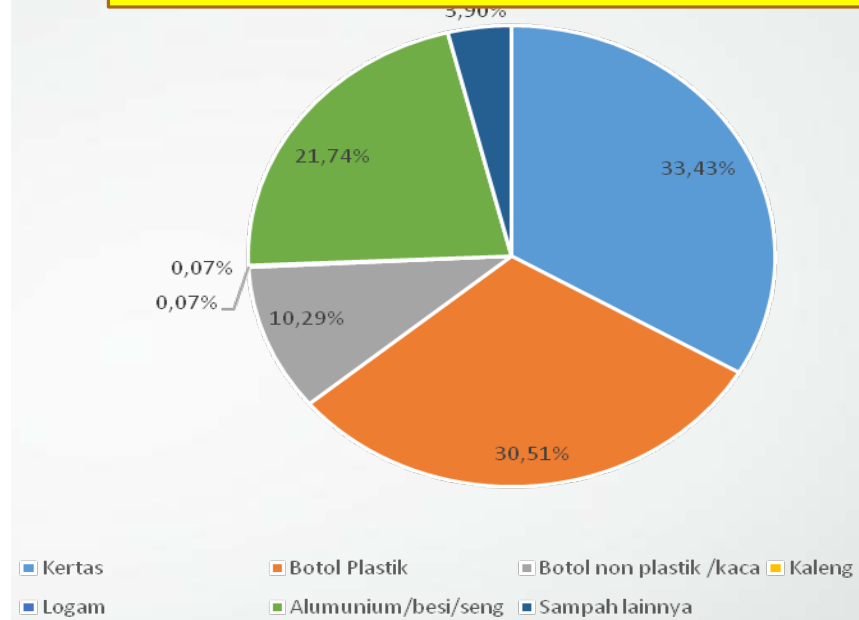
Total Waste bank 5,244 in 34 provinces and 219 cities Indonesia

- Create social engineering of sorting process to implement R3 program in the community
- Waste reduction from the sources
- Need more time and excellent method to make this program massive in Indonesia

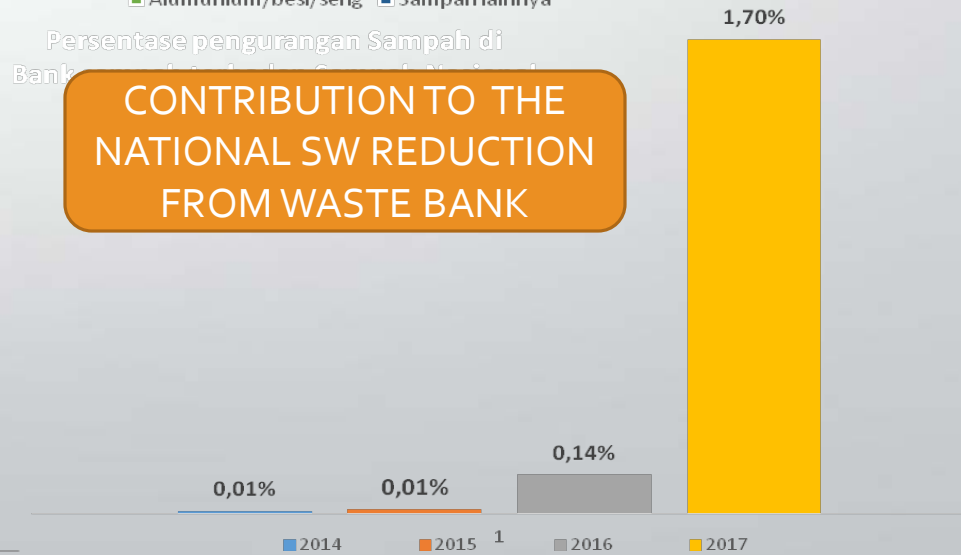
## Circular Economy



## SW HANDLING IN WASTE BANK



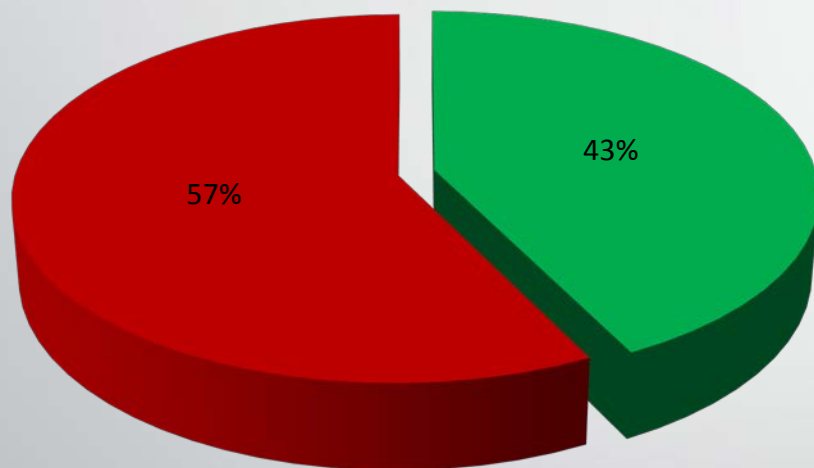
## CONTRIBUTION TO THE NATIONAL SW REDUCTION FROM WASTE BANK



# Clean City Program (ADIPURA)

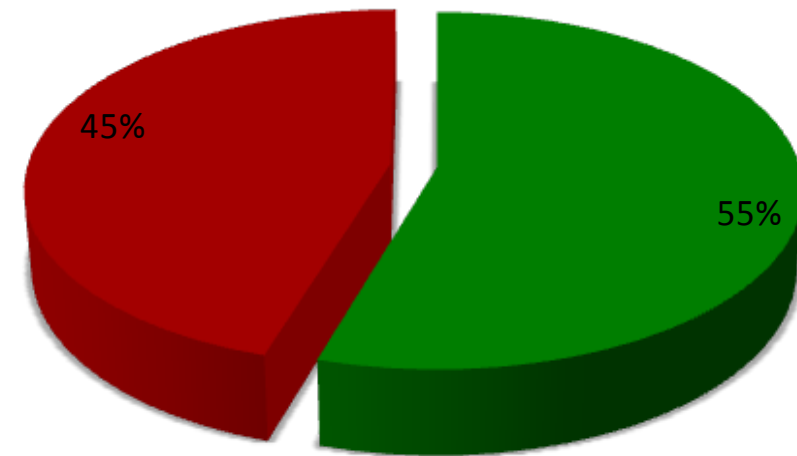
Adipura Program could enforce regulation compliance on non-open dumping landfill operation

Landfill status distribution Nationally (2015)



■ TPA Non Open Dumping  
■ TPA Open Dumping

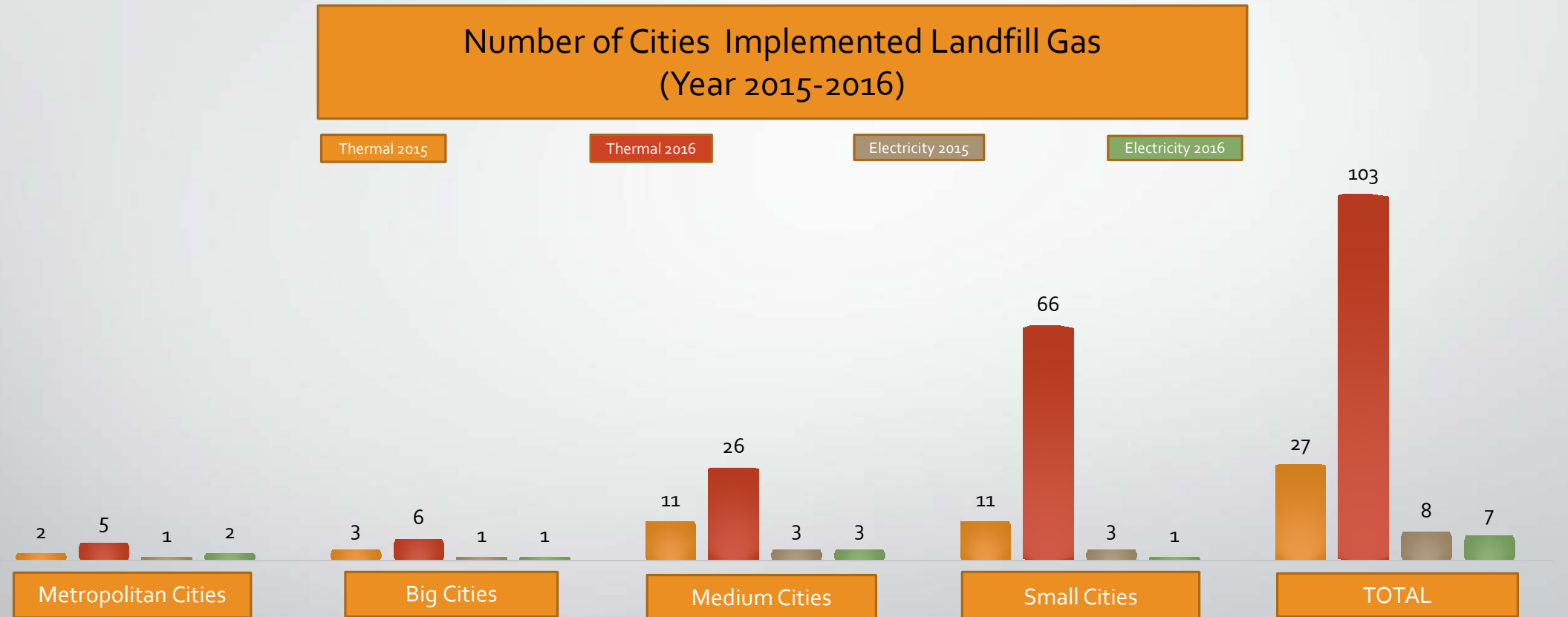
Landfill status distribution Nationally (2016)



■ TPA Non Open Dumping  
■ TPA Open Dumping

There was improvement of municipalities/regencies number that operate non-open dumping landfill (minimum controlled landfill) from 152 cities in 2015 into 194 cities in 2016, as much 27,63%

# METHANE CAPTURE FROM LANDFILL GAS AS ENERGY ALTERNATIVE SOURCES



The increasing of cities implemented landfill gas for methane capture as an alternative energy (24%):

□ Year 2015 : 35 cities

□ Year 2016 : 110 cities

TRANSFORMING CITIES OFTEN REQUIRES HIGH CAPITAL INVESTMENT AND LONG PAYBACK PERIODS. THUS, CITIES ARE OFTEN LIMITED TO DEVELOPING A SHORT RECOVERY PERIOD, AND ADAPTATION MEASURES THAT OFTEN HAVE NO PAY BACK. IT IS IMPORTANT FOR CITIES TO TRANSFORM, BUT HOW CAN THIS ISSUES BE ADDRESSED

- Improve public awareness and willingness from all stakeholders
- Technical assessment is needed for a companion cities in implementing 3R program
- Pilot project on 3R program in challenged cities that facing a problem in handling waste due to limited space and budget
- Best Available Technology should be implemented
- Financial support from Central Government and Donor Agent or Developed Countries
- Intensive controlling and enforcement program must be considered



**THANK YOU**

*“For the better life and support further young generation we have to  
work together in one unity to safe the world”*