

PORTFOLIO

# Solid Waste Management Research

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## Waste Audit in TPA Wakonti Baubau

For Waste to Energy  
Feasibility Study

# **Solid Waste Management Research**

Data and knowledge are two of our most fundamental aspects in building appropriate solid waste management system design and solid waste management recommendations for our clients. Data and knowledge are even more crucial in the initial stage of solid waste management planning.

**Our research and analysis are based on 5 aspects of solid waste management: technical aspect, social participation and behavioral aspect, institutional aspect, regulation aspect, and financial aspect.**

The on-ground primary data that we collect are waste audits, questionnaire and desk research. We also hold stakeholders meeting with our vast networks on solid waste management across the country and analyze the best solutions based on the data gathered.

**Our expertise and experiences include:**

- Solid Waste Management Feasibility Study**
- Waste Audits**
- Technical and Operational Design of SWM**
- SWM Regulatory Analysis**
- Behavioral Change Analysis**
- Financial Analysis**
- Institutional Analysis**
- Stakeholders Mapping**
- Recycling Value Chain Analysis**
- Material Flow Analysis/VCA**
- Marine Debris Study**
- Waste to Energy Feasibility Study**



**“**

We are very content with the works performed by Waste4Change. They are very good at their job and have shown fantastic understanding of the project. They perform at international level! Looking forward to maintaining our good cooperation and preparing good results for our client

**- Carsten Schneider**  
Head of Business Development  
Ramboll Danmark A/S

# Our Portfolio

**01.**  
**Solid Waste Management**  
**Research in Institutions**

**02.**  
**Solid Waste Management**  
**Research in Municipalities**

**03.**  
**Value Chain Analysis**

**04.**  
**Marine Debris**

**05.**  
**Waste to Energy**

# Aggregator Interview

For Pre-Feasibility Study  
of Pyrolysis in Mataram



01. —

## Solid Waste Management Research for Institutions



**We provide a complete solid waste management study to optimize your office/area/building's solid waste management and to further implement 3R (Reduce, Reuse, Recycle) principles.**

We hope that the comprehensive waste management education will influence others with similar or different businesses to take action on implementing waste management sustainably.

Our clients will receive a complete guide for improving their solid waste management and comprehensive data on the existing conditions of their solid waste management system.

To ensure the total and thorough study of our clients' solid waste management system, our approach is based on 5 aspects of solid waste management: technical aspect, social participation and behavioral aspect, institutional aspect, regulation aspect, and financial aspect.

### Benefits:

- Material Efficiency
- Cost Reduction
- Improving client's brand image in supporting sustainable green waste management system
- Complete and comprehensive data to be used for further improvement
- Opportunity to obtain related certifications such as Greenship, PROPER, etc.

## OUR EXPERIENCE

# Solid Waste Management Study at Pelabuhan Indonesia II HQ



Based on the Regulation of Ministry of Transportation No. 51 Year 2015 about Sea Ports, Sea Ports Unit Organizations have to provide pollution prevention facilities and ensure the implementation of a green port.

Therefore, the study in PT Pelabuhan Indonesia II (Persero) head office building aims to identify and provide recommendation related to the steps in implementing 3R-based waste management system. This study was conducted by doing waste audits, survey to employees, and in-depth interview to related stakeholders.

Attained deliverables of the program are:

- Analysis and recommendation to implement a responsible 3R-based waste management system using the approach of 5 aspects.
- Identification of waste management system that is potential to be developed;
- Written report and presentation of 3R-based waste management system

**Waste Audit in  
PT Pelindo II**

**For Solid Waste  
Management  
Study**



## 02. —

# Solid Waste Management Research for Municipalities



**Waste management oftentimes requires holistic study of the region to understand and identify potential technology or programs that can be implemented.**

Keeping in mind Indonesia's status as the second biggest marine debris contributor, waste leakage analysis and collection system review for example, should be done at regional level. This will allow us to provide a comprehensive report on the existing condition as well as recommendations for improvement.

### **Benefits:**

- Holistic overview of waste management conditions which can lead to immediate action plan or city/province masterplan
- Overview of potential waste technology and system that could be implemented in the region

## OUR EXPERIENCE

### Solid Waste Management Design for Revitalization at Jami' Mosque and Kampung Beting Settlements

#### Client: Ministry of Public Works and Housing



Beting village and Jami' Mosque area are located at the intersection of Kapuas River and Landak River. People in Beting village area tend to dispose their waste into the river due to minimum facilities, limited access to landfill and unavailability of waste management system.

The increasing piles of waste in this area was also worsened by waste from the upstream river. In order to solve the waste problem in that area, an integrated waste management system needs to be done.

In order to achieve the goal to realize an integrated waste management system in Beting Village and Jami' Mosque area, the activities that were conducted during the project are:

- Data collection activities through interview, field observation, questionnaire distribution and waste sampling in favor of analyzing the major problems that occurred in Beting Village and Jami' Mosque area.
- Analysis of the current management system by identifying existing laws, institutions, operational techniques, community participation, and financial aspects in order to find the best solutions and program.

# **Behavior Questionnaire**

## **Beting Settlements**

For SWM Design for Revitalization  
at Jami Mosque and Kampung



## 03. —

# Value Chain Analysis



**To support the implementation of circular economy, asserting that used material is valuable to the market is crucial.**

That way, people can start seeing byproducts as resources instead of waste that needs to be disposed of. By doing so, we hope that the public could also see waste management as an essential thing in building a strong community that is supported by both social and economic aspects.

In this study, we produce comprehensive life cycle analysis of our target's product in regards to waste management, stakeholder mapping of the product's target consumers, collectors and recyclers, value analysis of the end-cycle of a target product during collection and recycling, as well as recommendations to implement a better circular economy-oriented product design and recycling system

### The benefits are as follow:

- Roadmap to implement circular economy that can provide incentives due to the reduced use of raw material for production
- Comprehensive report that can support the compliance to Regulation 47/2012 on Corporate Environmental and Social Responsibility

## OUR EXPERIENCE

### Waste Management Scouting Study – Mapping of Stakeholders and Waste Flow in Jakarta and Surabaya

Clients: : PT Deloitte Konsultan Indonesia



Indonesia is the second biggest contributor to plastic leakage into the oceans, primarily through the mismanagement of land-based waste.

In 2010, it was estimated that 3.2 million Mt/year of plastic waste were mismanaged, and that the volume would more than doubled by 2025 if no significant changes were to take place.

The study aimed to better understand waste management in Indonesia, map the packaging waste flows and identify potential local key stakeholders to collaborate with to prevent packaging waste from ending up in the environment.

Attained deliverables of the program are:

- Key players and stakeholders mapping
- Comprehensive waste flow analysis of Jakarta and Surabaya City;
- Identification of recycling rate in Jakarta and Surabaya
- Solid Waste Management SWOT analysis of Jakarta and Surabaya City



## **Informal Recycling Sectors Interview**

For Waste Management Scouting  
Study – Stakeholders Mapping and  
Waste Flow in Jakarta and Surabaya

## 04. —

# Marine Debris Study



**In 2015, Indonesia is declared to be the second biggest plastic waste polluter to the ocean with estimated contribution of 0.48-1.29 MMT/year.**

We see this as one of the accumulated results of low waste collection rate, low recycling rate, lack of waste management awareness, and other contributing factors.

The lack of data regarding the actual conditions of waste in water bodies and the ocean is making it even harder to formulate on-point solutions. In this study, we collect primary data by taking waste samples from the water bodies and analyze them. We also gather data and opinions from related stakeholders in to formulate together an integrated scheme to eliminate waste from the oceans for good.

### Benefits:

- Clear data regarding conditions of waste in the rivers
- Comprehensive report that can be used for further plan

## OUR EXPERIENCE

### Riverine Plastic Monitoring Project in Jakarta

#### Client: The Ocean Cleanup



The Ocean Cleanup is a Dutch-based non-profit organization who develops advanced technologies to rid the world's oceans of plastics.

By deploying their fleet of systems, they aim to remove 50% of the Great Pacific Garbage Patch in just five years' time. By having the same mission on tackling waste problems, The Ocean Cleanup with Waste4Change as their local partner in Indonesia had conducted riverine plastic emission study in Jakarta rivers in April 2018.

During a 10-day fieldwork supported by DKI Jakarta Orange Troops, plastics were monitored at 7 river points throughout Jakarta, which includes Ciliwung and Pesanggrahan River. Plastic samples were trawled and analyzed by dividing them into different types. By having these data, hopefully appropriate measures

can be done to tackle marine debris starting from the rivers, and not only in Jakarta, but also in Indonesia and neighboring countries.

Attained deliverables of the program are:

- Better understanding on the total amount and characteristics of plastics that were contained in Jakarta rivers
- Published research from The Ocean Cleanup regarding plastic waste behaviors in rivers



## TPS Observation

For Riverine Plastic Monitoring  
Project in Jakarta

## 05. —

# Waste to Energy Study



**As a part of circular economy, waste to energy is needed to process big amount of low-value waste.**

Waste-to-energy (WtE) itself is the process of generating energy in the form of electricity and/or heat from the primary treatment of waste, or the processing of waste into a fuel source. In order to decide the best methodology and technology to convert our waste into energy, this study aims to generate the analysis of waste characteristics suitability to certain waste-to-energy method, stakeholders mapping analysis, permit analysis, behavior acceptance analysis, and also the financial sustainability of the technology that will be implemented.

## OUR EXPERIENCE

### Technical Due Diligence for ITF Sunter Jakarta

#### Client: Ramboll Danmark A/S



Waste-to-Energy Plant or incinerators are planned to be built by the President of Indonesia in 12 big cities, and Jakarta is currently one of the front runners in which the first incinerator will be made.

Ramboll Danmark A/S as the main consultant was working together with Waste4Change as the local consultant to conduct technical due diligence for 2,200 tpd and 35 MW Waste-to-Energy Plant that will be built in Sunter, North Jakarta.

This due diligence is done for lenders appraisal and to make sure that the Waste-to-Energy plant will be operating sustainably in terms of technicalities.

The benefits are as follow:

- Review of Solid Waste Characteristics and the existing system of solid waste
- Solid waste supply plan review and its possible disruptions
- Suitability study of the current site for
- Waste-to-Energy facility

# Our Experiences

2014-2019

No.	Research Type	Client	Service Name	Year
1	SWM Research in Institution	PT Monica Hijau Lestari	Feasibility Study of The Body Shop's Outlets	2014
2	SWM Research in Institution	PT Tirta Investama	Feasibility Study of Danone HQ Jakarta	2014
3	Marine Debris	Bappenas	Citarum Waste Management Study	2014
4	Waste to Energy	PT Pertamina Persero	Detailed Feasibility Study for PLTSa Bantargebang Waste-to-Energy Project	2014
5	SWM Research in Institution	PT Indonesia Power UP Suralaya	Feasibility Study of Solid Waste Management in UP Suralaya	2015
6	SWM Research in Institution	Kementerian Lingkungan Hidup dan Kehutanan	Solid Waste Management Study of Ministry of Environment and Forestry	2015
7	SWM Research in Municipalities	Kementerian Pekerjaan Umum dan Perumahan Rakyat	Waste Management Study in Indonesia's Frontline Territories	2016
8	SWM Research in Municipalities	PT Bank Mandiri Persero Tbk.	Stakeholder Analysis and Social Mapping of Responsible Solid Waste Management in Rusunawa West Jatinegara	2016
9	SWM Research in Institution	Grand Luley Resort	Feasibility Study of SWM System at Grand Luley Resort	2016
10	SWM Research in Municipalities	American Red Cross	Feasibility Study of Solid Waste Management System in Sukahati and Pondok Rajeg	2017
11	SWM Research in Municipalities	World Bank	Assessment of Community and Informal Sector Engagement in Solid Waste Management System in Indonesia	2017
12	SWM Research in Municipalities	Bukit Golf Mediterania Pantai Indah Kapuk	Analysis and Assistance for Solid Waste Management	2017
13	SWM Research in Institution	PT Pelabuhan Indonesia II (Persero)	Solid Waste Management Study at Pelabuhan Indonesia II HQ	2017
14	SWM Research in Institution	PT United Tractors Tbk	Feasibility Study of SWM System at United Tractors HQ	2017
15	SWM Research in Institution	Indonesia Asian Games Organizing Committee	Sustainability Strategy Study for Test Event Asian Games 2018	2017
16	SWM Research in Institution	Kementerian Koordinator Bidang Kemitiman	Kemenkomaritim Bijak Kelola Sampah Study	2017
17	Value Chain Analysis	PT Deloitte Konsultan Indonesia	Waste Management Scouting Study – Stakeholders Mapping and Waste Flow in Jakarta and Surabaya	2017

No.	Research Type	Client	Service Name	Year
17	SWM Research in Municipalities	PT Trimegah Bangun Persada	Feasibility Study of Solid Waste Management System in Obi Island	2018
18	SWM Research in Municipalities	Kementerian Pekerjaan Umum dan Perumahan Rakyat	Solid Waste Management Design for Revitalization in Jami' Mosque and Kampung Beting Settlements	2018
19	SWM Research in Municipalities	PT Andalas Mitra Cagar	Best Practice of Circular Economy in Indonesia	2018
20	SWM Research in Municipalities	PT Nestle Indonesia	Social Mapping of Solid Waste Management at Kebagusan Jakarta	2018
21	SWM Research in Institution	PT Pertamina Lubricants	SOP for Waste Management in Pertamina Lubricants	2018
22	Marine Debris	The Ocean Clean-up	Riverine Plastic Monitoring in Jakarta	2018
23	Marine Debris	Dell Technologies Inc.	Ocean Plastic Trip and Mapping	2018
24	Waste to Energy	PT Castlerock Consulting	Pre-Feasibility Study for Waste to Energy in Bima and Baubau	2018
25	Waste to Energy	Ramboll Group A/S	Sunter Waste to Energy Plant Technical Due Diligence	2018
26	Value Chain Analysis	GA Circular Pte Ltd.	Material Flow and Value Chain Analysis for PET Bottles and Aluminum Cans in Indonesia	2018
27	Value Chain Analysis	Enviu B.V.	Flexible Multilayer Packaging Research	2018
28	Value Chain Analysis	PT Tetra Pak Indonesia	UBC Value Chain System	2018
29	SWM Research in Municipalities	Dinas Lingkungan Hidup Jakarta	Performance Study of DLH DKI Jakarta	2019
30	SWM Research in Municipalities	Dinas Lingkungan Hidup Jakarta	Performance Waste Reduction Monitoring of DLH DKI Jakarta	2019
31	SWM Research in Municipalities	PT Castlerock Consulting	Tarimbang Village Preliminary Study	2019
32	SWM Research in Institution	PT Tripatra Constructions and Engineers	Solid Waste Management Design for Juanda Airport	2019
33	Marine Debris	GA Circular Pte Ltd.	Design and Piloting of Marine Debris Behavior Change Communication Program	2019
34	Value Chain Analysis	Fortum Power & Heat Oyj	Recycling Stakeholders Mapping in Jakarta	2019
35	Waste to Energy	GA Circular Pte Ltd.	Feasibility Study of Pyrolysis for Plastic Packaging in Lombok and Batam	2019

No.	Research Type	Client	Service Name	Year
36	Marine Debris	Fortum Power & Heat Oyj	River Waste Characteristic Research in Jakarta	2019
37	Value Chain Analysis	Nest.org	Ethical Compliance Practice on Recycling Supply Chain	2019
38	Value Chain Analysis	GA Circular Pte Ltd.	Recycling Stakeholders Mapping in Jakarta	2019
39	SWM Research in Municipalities	Bappenas	Financing Scheme of Solid Waste Management	2019
40	Value Chain Analysis	PT Mudamudi Jiwa Selaras	Exhibition Data for Coca Cola	2019
41	SWM Research in Municipalities	Kementerian Pekerjaan Umum dan Perumahan Rakyat	Solid Waste Management Cost Calculation	2019
42	SWM Research in Institution	PT Pupuk Indonesia	Solid Waste Quick Scan at PT Pupuk Indonesia	2019



## Solid Waste System Observation in Gili Trawangan

For Solid Waste Management Study  
at Gili Trawangan

# Get in Touch With Us

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