



ZWINT TEAM:

Establishment Integrated Treatment Facility in Cilincing

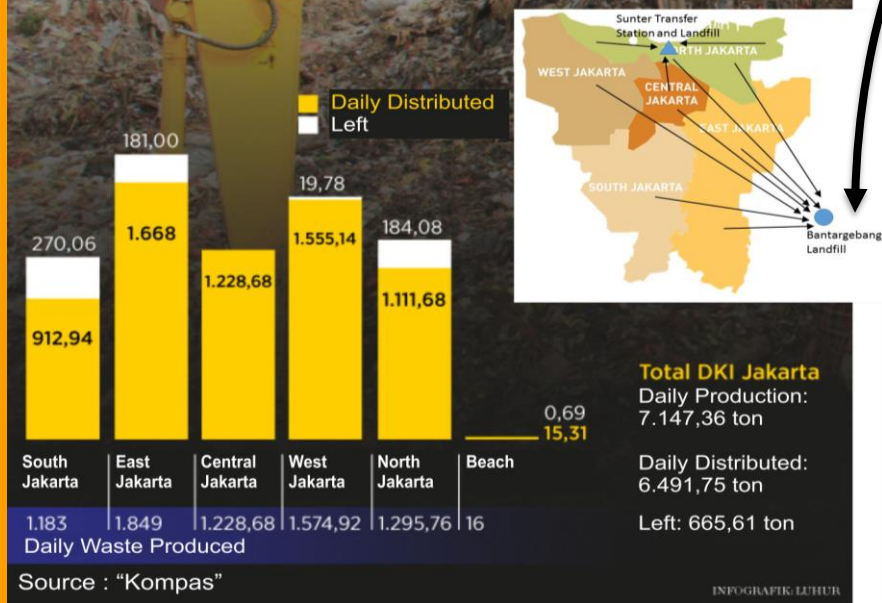
Gusti Adli | Azizah Ilmi | Ahmad Rivqy | Hendro Priyono

Background

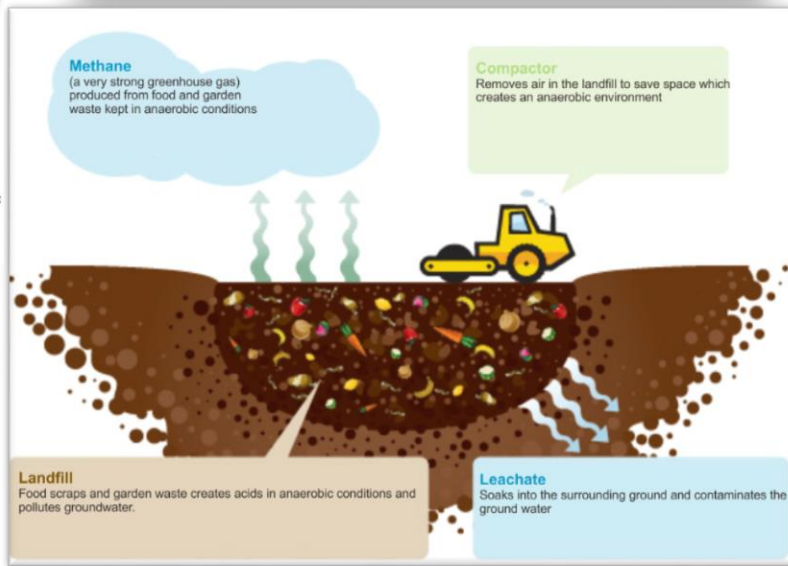
In January 2014, Basuki Tjahaja Purnama, as Vice Governor of Jakarta (Now Governor), plans to terminate the contract of Municipal Solid Waste (MSW) distribution from Jakarta to Bantargebang by 2016.



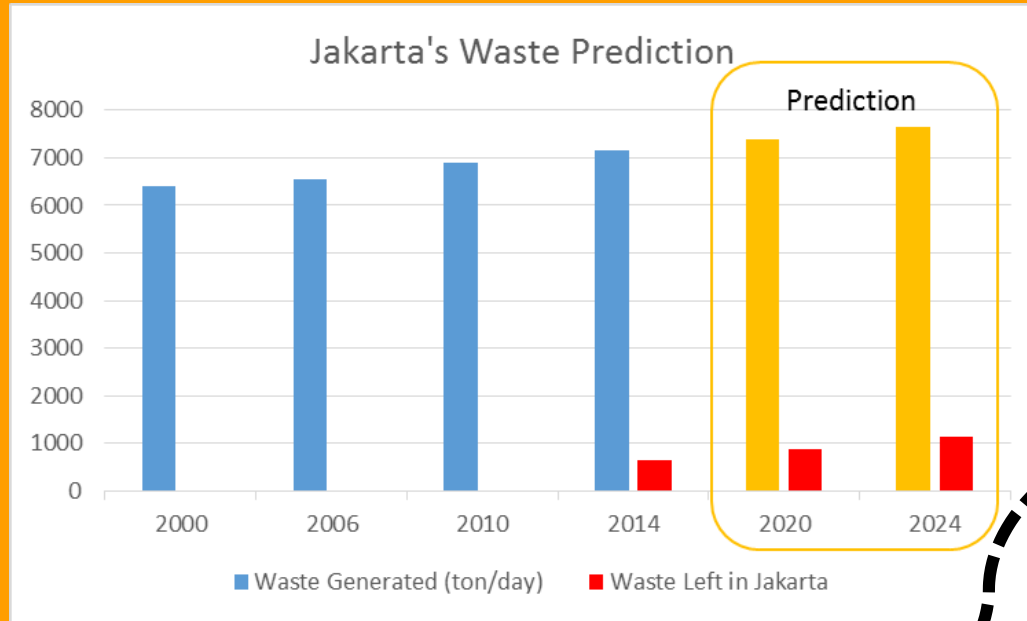
Current Condition



Input	Process	Output	Description
Jakarta's MSW	Landfill	Methane	Greenhouse gas that will be the material energy and also spread in the environment due to open space treatment
		Leachate	Toxic that spreads to the ground and contaminates the soil and groundwater
		Scrap Waste	Waste left due to chemical decomposition problems.

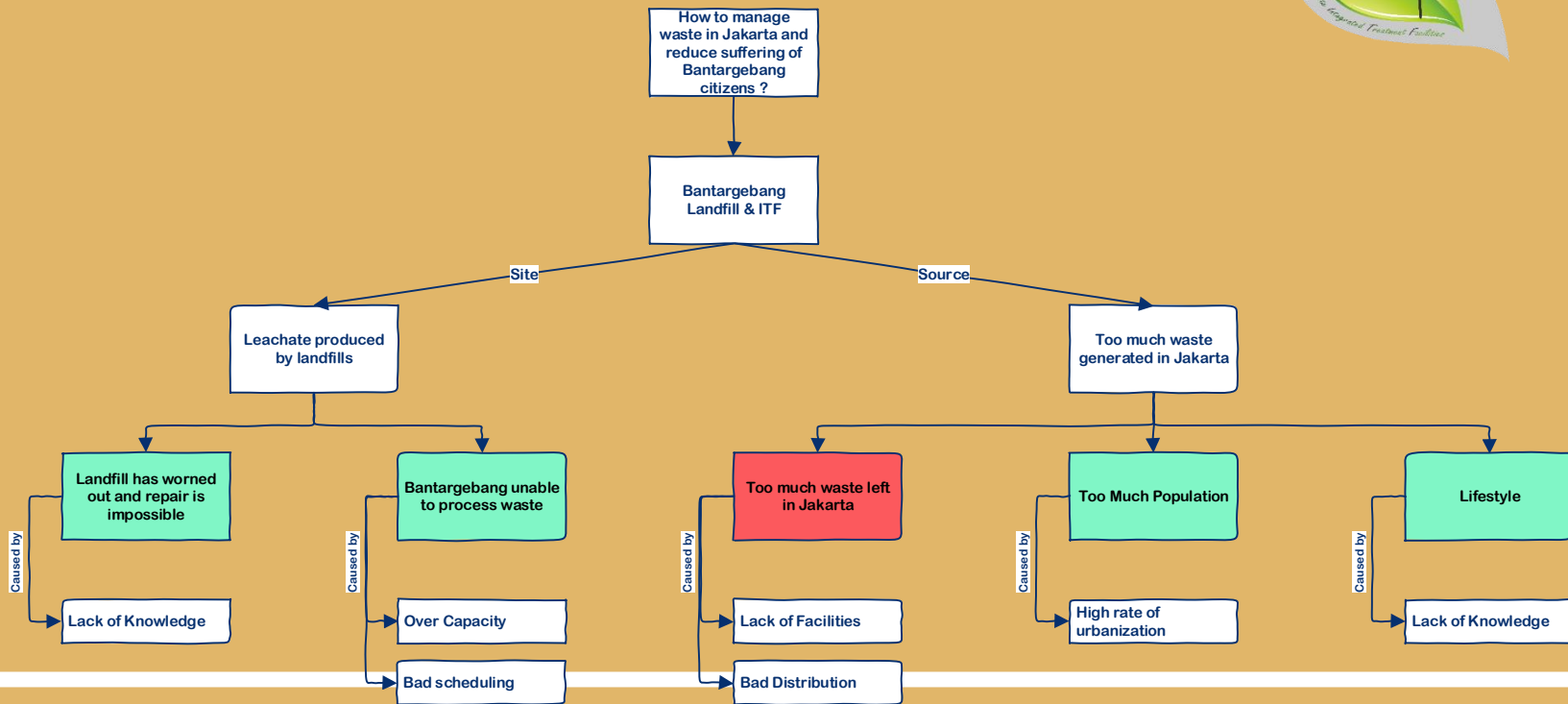


FUTURE PREDICTION

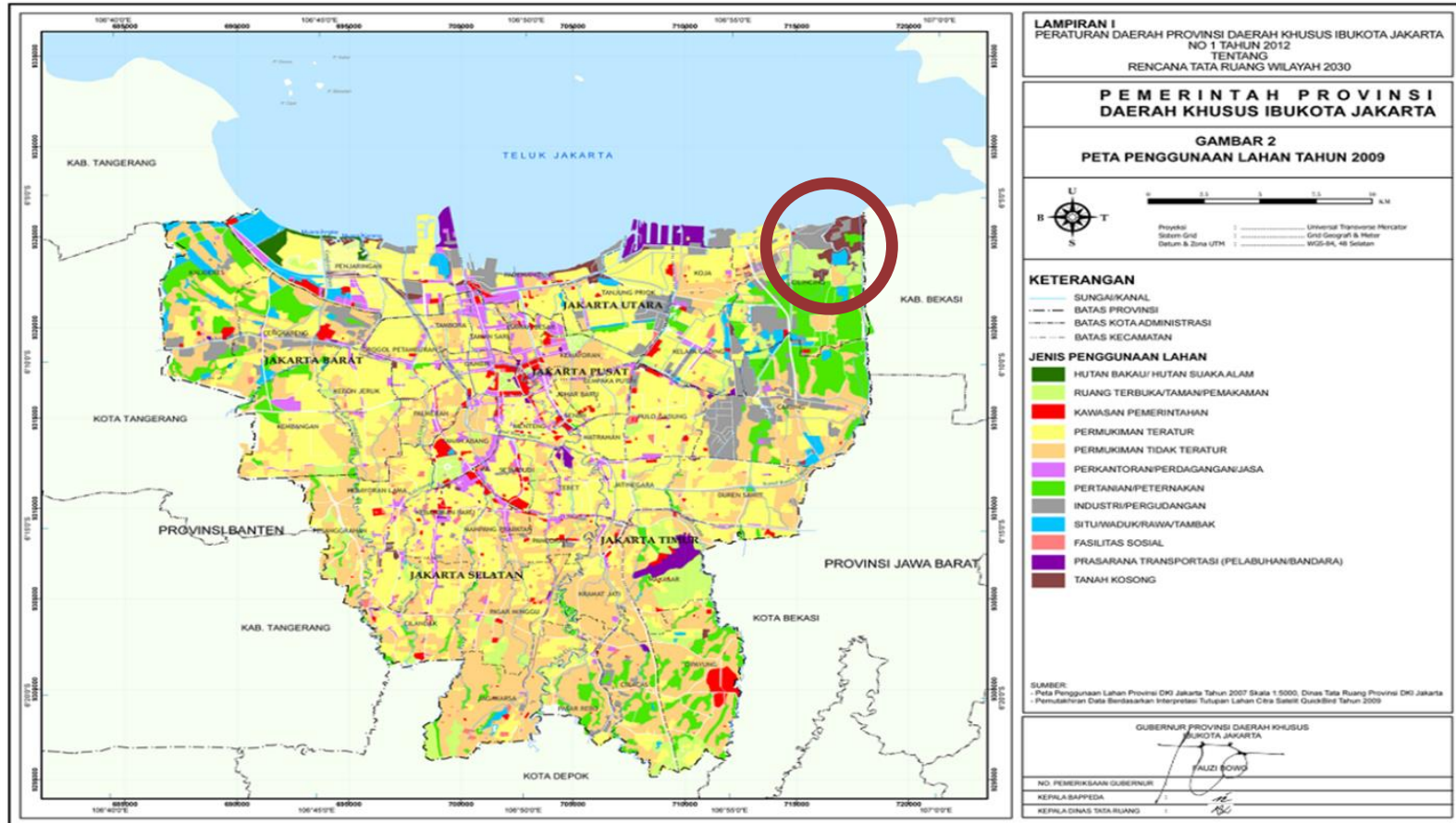


BANTARGEBAANG **NOW!**

SOLUTION



LOCATION FEASIBILITY





Combustible IPO (Input Process Output) Diagram

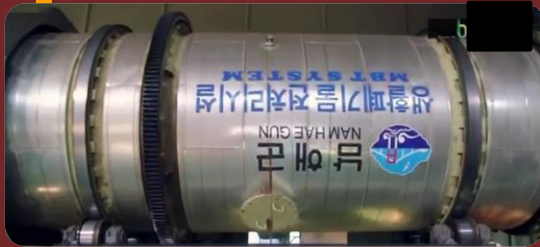
Input	Process	Sorting Output	Process	Output	Description
Combustible Waste	Rotary Drum, Sorting	Organic Waste	Fertilizer Processing	Fertilizer	Material that is applied to soil and will provide soil nutrients
		Combustible Waste	RDF Processing	Refused Derived Fuel	Fuel produced by shredding and dehydrating waste
		Non-Combustible Waste			Waste leftover that can't be unprocessed by the ITF

How ITF Cilincing Operate?



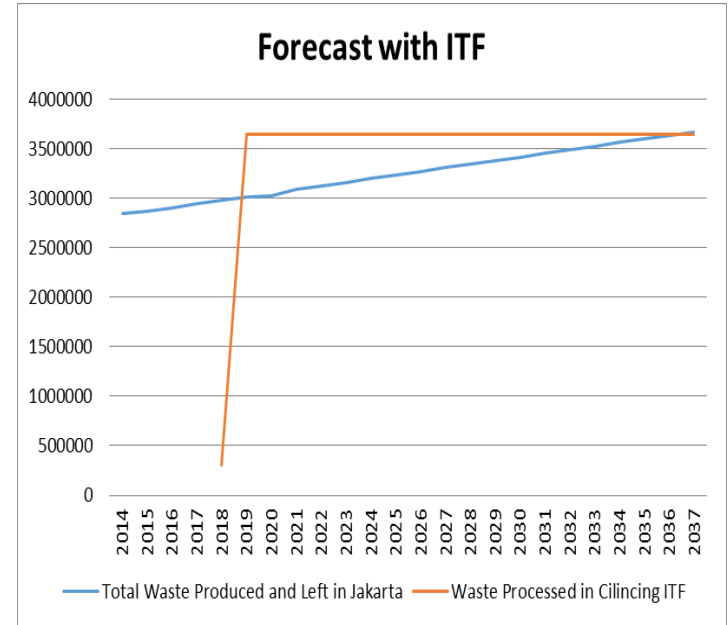
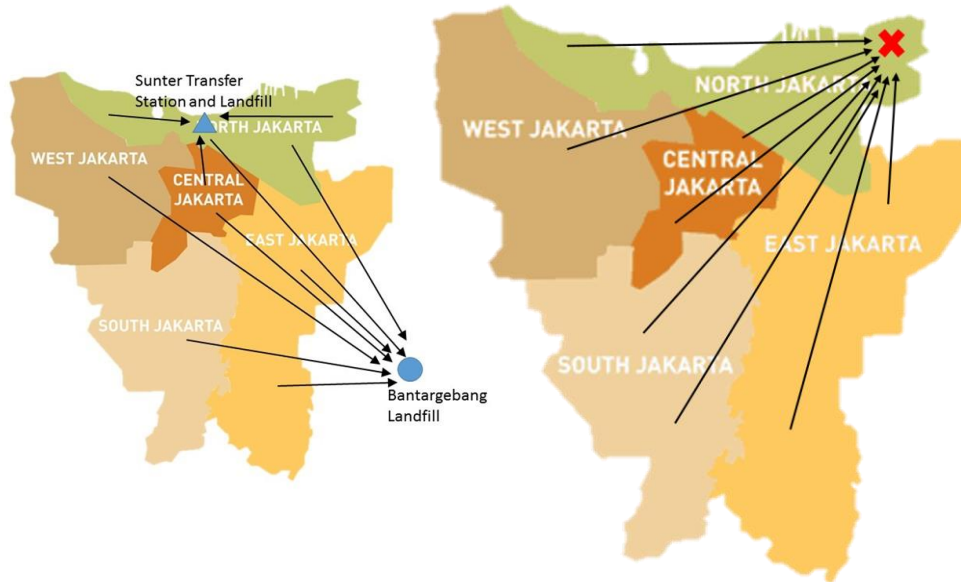
Recyclable IPO (Input Process Output) Diagram

Input	Process	Output	Description
Recyclable Waste	Sorting, Wiring, and Bailing	Paper Resource	→ Pile of paper which can be recycled
		Cardboard Resource	→ Pile of cardboard which can be recycled
		Plastic Resource	→ Pile of plastic which can be recycled
		Ferrous Metal Resource	→ Pile of ferrous metal which can be recycled
		Non-Ferrous Metal Resource	→ Pile of non-ferrous metal which can be recycled
		Non-Recyclable Waste	→ Leftover which can't be recycled. Some of them may be combustible



DISTRIBUTION MAP & FUTURE DISTRIBUTION

INITIAL (38.2 km) **FUTURE (22.3 km)**



PROJECT IMPACT



- Stabilized electricity distribution
- Increase farmer prosperity
- Advance alternative for MSW recycling



- Enhance the society's knowledge about 3R
- Increase society's awareness regarding to waste treatment



- Reusable source of energy (RDF)
- Reduce toxic produced by landfills in Jakarta and nearby region

Project Objective

Specific

Establishing an ITF which will produce recyclables resource, energy source, and fertilizer respectively from recyclables waste, combustible waste, and organic waste

Measurable

This ITF will have 25 Ha area where 16 Ha area used for production facilities and 9 Ha for green area In Cilincing, North Jakarta and succeeds when landfills usage (especially in Bantargebang) is reduced and also reduce Jakarta's MSW distribution cost

Agreed Upon

This project should be supported by DKI Jakarta governance

Realistic

This project will be finished with maximum IDR 3 trillion budget

Time-Bound

This project is planned to start on August 8^h, 2016 and finish no longer than April 15^h, 2019

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PROJECT SCOPE

Project Exclusion

- Post facility establishment human resource procurement.

Project Assumptions

- The budgeting of this project is given by the Government of DKI Jakarta, Sanitary Department of DKI Jakarta, and other investors.
- Feasibility study indicates that the project is feasible.
- Governance change will not affect the project plan.

CONSTRAINTS



Schedule

- Standard working time is 8 hours a day
- Work will be done 5 days a week from Monday to Friday
- The project must finish before April 15th, 2019



Quality

- During project all activities must follow the national Health, Safety, and Environmental regulations
- The ITF must fulfill ISO 14001 about Environmental Management
- All of the ITF components must fulfill SNI (Indonesia National Standard)



Budget

- Maximum budget usage is IDR 3,000,000,000,000.-

CONSTRAINTS



Resources

- Construction phase is done by 3rd party which makes the construction resources included in the corresponding work
- All of agreement/pack the resource are always available during the project



Risk

- The exchange rate for US\$ 1 is initially set to be IDR 14,000.- , but with probability 0.2 to fluctuate

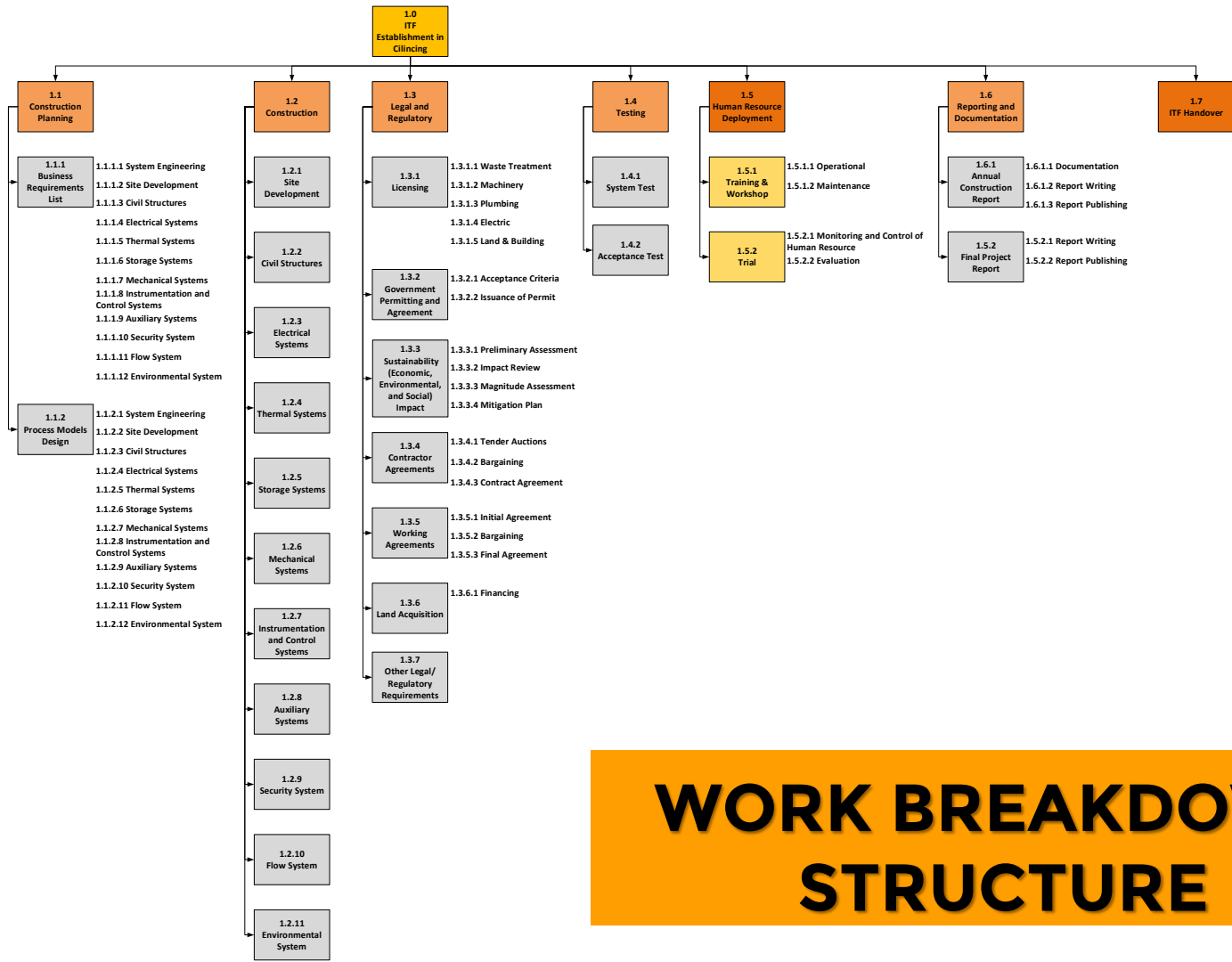


Scope

- The land allocation is 25 ha and at most 16 ha for building
- 9 ha land left is allocated for greenery and further development
- 16 ha of ITF is able to process 10000 tons of MSW/day

Acceptance Criteria

- DKI Jakarta Government must start a 3R campaign and also minimize landfills campaign to the society
- The waste from household are be presorted and kept in original state of waste
- Waste distribution schedule in DKI Jakarta has been established



WORK BREAKDOWN STRUCTURE

	WBS	Task Name	Duration	Half 2, 2016						
				J	A	S	O	N	D	J
1	1	ITF Establishment in Cilincing	597 days?							
2	1.1	Construction Planning	8 days							
3	1.1.1	Business Requirements List	6 days							
4	1.1.1.1	System Engineering	6 days							
5	1.1.1.2	Site Development	6 days							
6	1.1.1.3	Civil Structures	6 days							
7	1.1.1.4	Electrical Systems	6 days							
8	1.1.1.5	Thermal Systems	6 days							
9	1.1.1.6	Storage Systems	6 days							
10	1.1.1.7	Mechanical Systems	6 days							
11	1.1.1.8	Instrumentation and Control Systems	6 days							
12	1.1.1.9	Auxiliary Systems	6 days							
13	1.1.1.10	Security System	6 days							
14	1.1.1.11	Flow Systems	6 days							
15	1.1.1.12	Environmental Systems	6 days							
16	1.1.2	Process Models Design	8 days							
17	1.1.2.1	System Engineering	8 days							
18	1.1.2.2	Site Development	8 days							
19	1.1.2.3	Civil Structures	8 days							
20	1.1.2.4	Electrical Systems	8 days							
21	1.1.2.5	Thermal Systems	8 days							
22	1.1.2.6	Storage Systems	8 days							
23	1.1.2.7	Mechanical Systems	8 days							
24	1.1.2.8	Instrumentation and Control Systems	8 days							
25	1.1.2.9	Auxiliary Systems	8 days							
26	1.1.2.10	Security System	8 days							
27	1.1.2.11	Flow Systems	8 days							
28	1.1.2.12	Environmental Systems	8 days							

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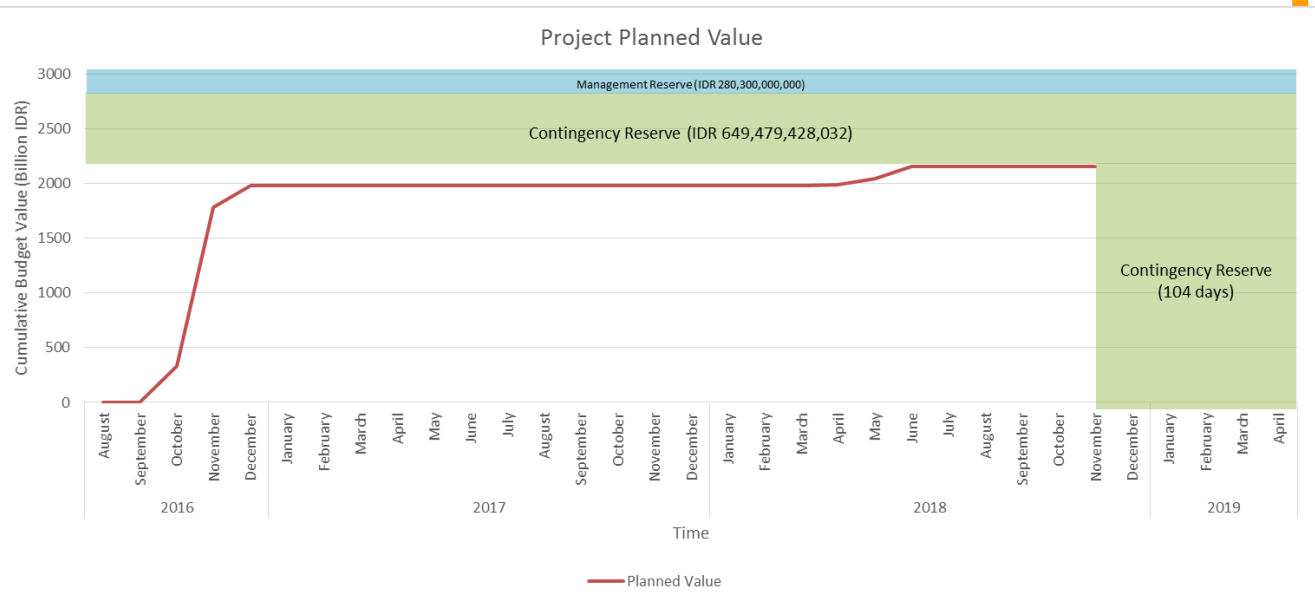
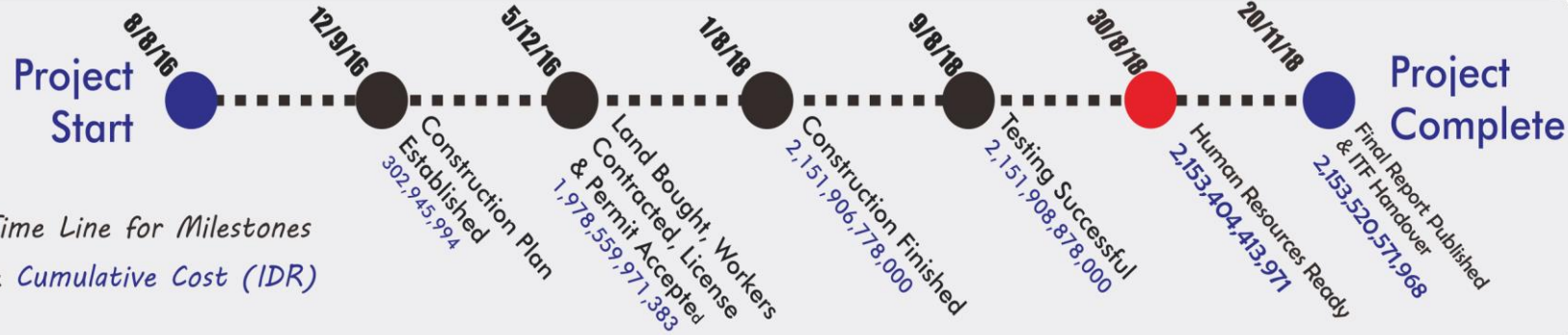
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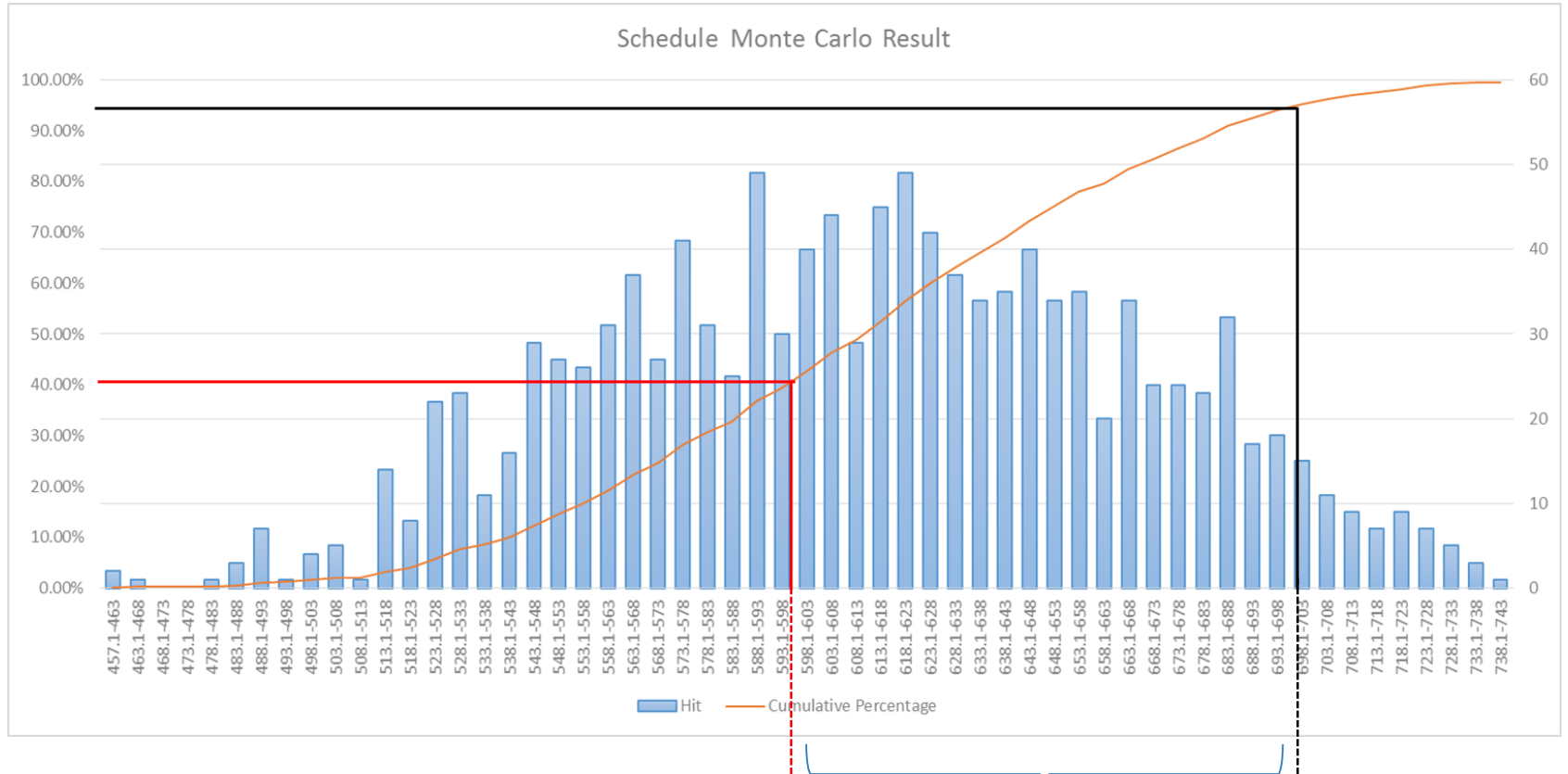
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Qualitative Risk Analysis

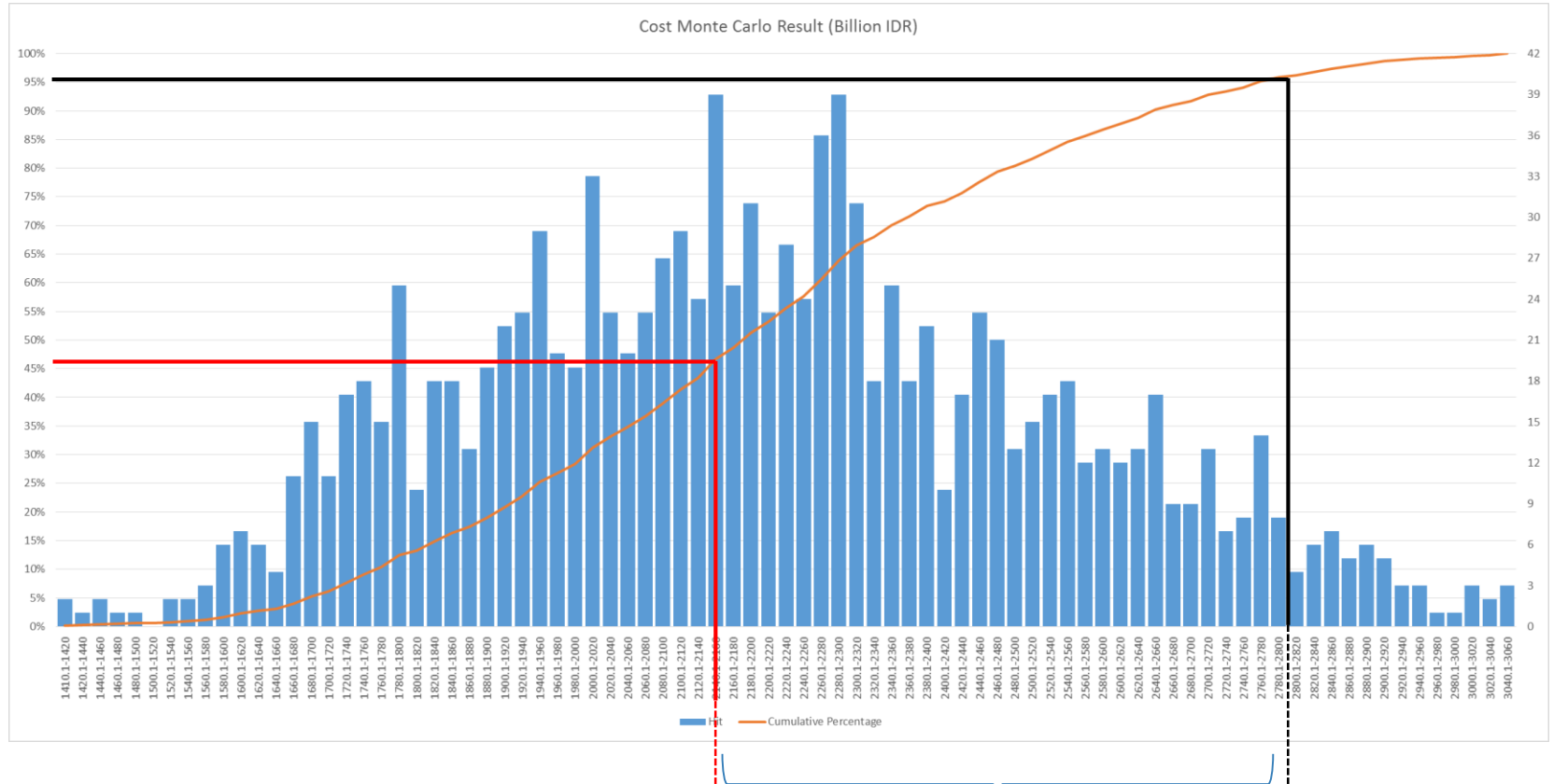
Risk Identification				Qualitative Analysis				Response Plan					Risk Residual			Response Plan Priority	
Code	Impacted Phase	Risk	Cause	P	I	Risk Rate	Threat/ Opportunity	Possible Risk Response	Response Application Plan	Response Plan Impact	PIC of Response Plan	Expected Actions from PIC	P	I	Risk Residual Rate	Priority Rate	Priority Level
RG07	Whole project Phase	Project Plan Change	External Influence (Politics, Society, Competitors, Investors), Low on Budget, Late Schedule, Early Schedule, Scope Change	0.50	0.80	0.4 /High	Threat	Avoid	Urge stakeholders to cancel plan change by informing about the loss from the change	Schedule change and/ or stakeholder conflict	Project Manager	Hold stakeholder meeting	0.30	0.40	0.12 /Medium	0.76	High (2)
									Determine important milestones of the project	Clear project plan	Project Manager, Project Engineer, Engineers, Contractors	Set project milestones	0.30	0.10	0.03 /Low	1.00	Top Priority (1)
				0.30	0.40	0.12 /Medium	Opportunity	Exploit	If profitable directly inform stakeholders to ensure plan change occur	Better technology usage, better human resource, faster schedule, less expenses, etc.	Project Manager	Hold stakeholder meeting to implement the better technology in the project	0.70	0.40	0.28 /High	1.00	Top Priority (1)

Quantitative Risk Analysis



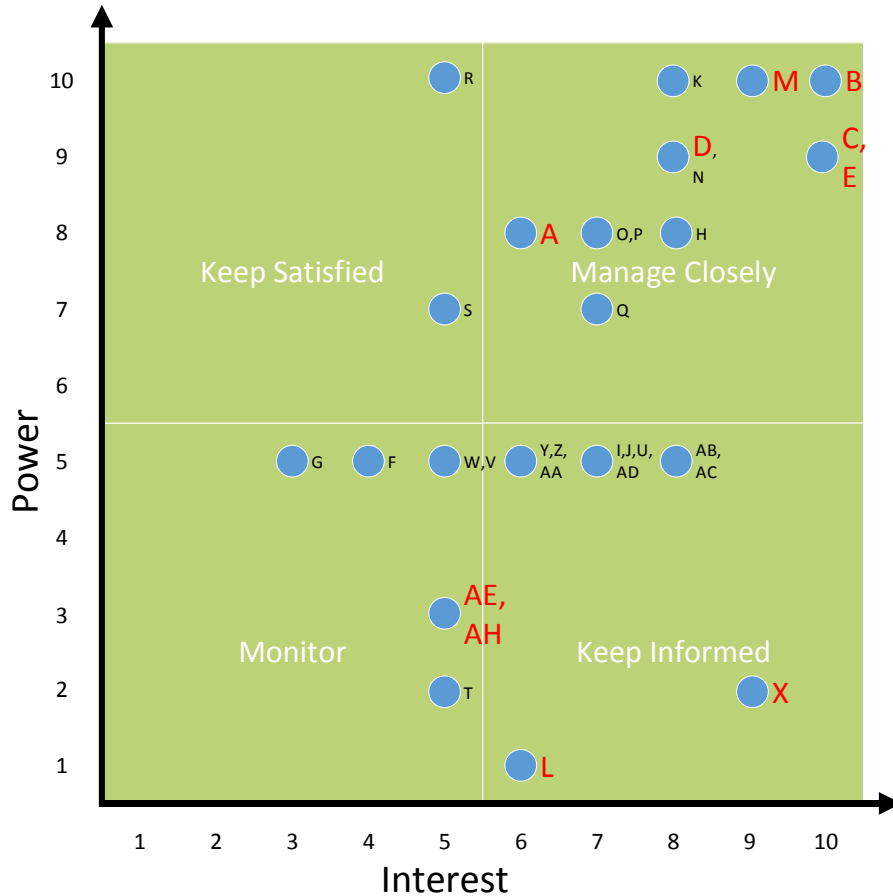
Contingency Reserve = 104 days

Quantitative Risk Analysis



Contingency Reserve = IDR 649,479,428,032

STAKEHOLDER ANALYSIS



Key Stakeholders:

- Investor (A)
- Governor of Jakarta (B)
- Sanitary Department of Jakarta (C)
- Regional Development of Jakarta (D)
- Environment Department of Jakarta (E)
- Citizen of DKI Jakarta (L)
- Main Contractors (M)
- Future Cilincing ITF Managers (X)
- Citizen Nearby Bantargebang (AE)
- Citizen Nearby Cilincing (AH)



Front View



Isometric View



Side View



GUSTI ADLI ANSHARI
(Project Manager)



AZIZAH NUR ILMI
(Project Analyst)



HENDRO PRIYONO
(Project Design)



AHMAD RIVQY SUAIDI
(Project Planner)

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APPENDICES

SCQ FRAMEWORK : SITUATION — COMPLICATION - QUESTION

Situation	Complication	Question
<ul style="list-style-type: none">• Landfills produces leachate, a hazardous liquid and methane, a greenhouse gas• Once a landfill is built, maintenance is not possible• Leachate will contaminate soil and water once a landfill is worn out• Bantargebang is one of the largest landfill in Indonesia with around 80 Ha used for waste landfill and treatment facilities• The waste in Bantargebang landfill reaches 25 meters high <ul style="list-style-type: none">• Bantargebang produces fertilizer from organic waste and energy by utilizing methane• The citizen near Bantargebang is suffering due to water contamination near the site• Bantargebang accepts around 6500 tons of solid waste from Jakarta everyday• Jakarta generates around 7000 tons of waste/day• The waste generated in Jakarta has an increasing trend every 5 years	<ol style="list-style-type: none">1. Bantargebang has caused near citizen suffer due to the landfill's hazard2. The biggest source of waste in Bantargebang is from Jakarta3. In average, there is 600 tons of waste remains in Jakarta	<ol style="list-style-type: none">1. How to manage waste in Jakarta and reduce suffering of Bantargebang citizens ?

Distribution Distance Calculation

		To			
		Bantargebang	Sunter	Bantargebang (via Sunter)	Average
From	North Jakarta	38.1	3.4	44	41.05
	West Jakarta	47.5			47.5
	Central Jakarta	36.6	9.3	49.9	43.25
	East Jakarta	27.6			27.6
	South Jakarta	31.6			31.6
	Sunter	40.6			
Total Average					38.2

		To
		Cilincing
From	North Jakarta	13.2
	West Jakarta	26.6
	Central Jakarta	20.5
	East Jakarta	18.1
	South Jakarta	33
Total Average		22.28