



Technical Assistance Consultant's Report

Project Number: 49154-001
August 2018

Indonesia: Sewerage System Development Project

Part 3: Appendixes

Prepared by Finnish Consulting Group-Asia Pte Ltd in Joint venture with FCG International Ltd and SCE and in association with OSANA International Indonesia

For Asian Development Bank

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Table 14: Cost Estimates for Design Consultants (USD 000's)

b. Detailed Design					
	Consultants Hired through ADB ESP Project	Lump Sum	1	4,680.00	4,680.00
	Subtotal Detailed Engineering Design				4,680.00

Table 15: Cost Estimates for the International Capacity Building Consultants

c. Capacity Building					
1 International Consultants - Capacity Building Mataram					
a. Start up Consultant					
(i) Procurement			Total Months		Total Cost
	Advisor to team leader/senior planner	p-month	0.9	20.00	18.67
(ii) Financial Management					
	Financial Management - Head Trainer: Project Development	p-month	3.3	20.00	66.67
(iii) Safeguards					
	Environmental Expert	p-month	3.3	20.00	66.67
	Social Expert	p-month	3.3	20.00	66.67
b. Capacity Development					
(i) Outreach					
	Community Outreach - Team Leader	p-month	1.7	20.00	33.33
(ii) Enabling Environment					
	Asset Management Trainer <i>(Covered by Construction Supervision)</i>	p-month	3.5	20.00	70.00
	Regulatory, institutional, planning and tariff expert trainer	p-month	0.5	20.00	9.33
(iii) O&M Training					
	Financial Management - Head Trainer: Utility Management	p-month	0.5	20.00	10.00
	Utility management - Head Trainer	p-month	0.8	20.00	16.00
	International Travel	return trip	17	2.00	34.00
	Per Diem	Days	547	0.08	43.76
	Subtotal International Consultants - Capacity Building				435.09

Table 16: Cost Estimates for the National Capacity Building Consultants

2 National Consultants - Capacity Building					
	Environmental Expert	p-month	1.7	4.50	7.50
	Financial Management - Assistant Trainer	p-month	1.7	4.50	7.50
	Assistant Trainer - Institutional	p-month	0.3	4.50	1.50
	Assistant Trainer - Comparative Study	p-month	0.7	4.50	3.00
	Social Expert	p-month	1.7	4.50	7.50
	Community Outreach - Deputy Team Leader	p-month	0.8	4.50	3.75
	Customer Management - Deputy Head Trainer	p-month	0.3	4.50	1.50
	Asset Management Trainer <i>(Covered by Construction Supervision)</i>	p-month	0.6	4.50	2.70
	Financial Management - Assistant Trainer: Utility Management	p-month	0.3	4.50	1.50
	Utility management - Assistant Trainer	p-month	0.3	4.50	1.50
	HRM Development Expert	p-month	1.0	4.50	4.50
	Procurement Specialist	p-month	1.0	4.50	4.65
	Per Diem - Site Visits	Days	327	0.05	16.350
	Domestic Return Flights	Number	65	0.20	13.000
	Subtotal National Consultants - Capacity Building				76.45

2-26. For implementation there will be some service contracts, workshops and car rentals from time to time. The following is estimated for this project:

Table 17: Cost Estimates for Service Contracts

3 Consultants - Service Contracts				
Car Rental	Contract	538	0.05	26.900
				26.90
Subtotal Consulting Services - Capacity Building				538.44
4 Workshops				
Mataram Workshops				
Public Awareness - Stakeholder Workshops - Social	Pax Days	100	0.02	2.00
Environment	Pax Days	100	0.02	2.00
Financial Management	Pax Days	100	0.02	2.00
Procurement	Pax Days	70	0.02	1.40
Training for Unity Management				
2.1 Utility	OTJ/Classroom	50	0.02	1.00
2.2. Asset Management	OTJ/Classroom	652	0.02	13.04
2.3. Enabling	OTJ/Classroom	56	0.02	1.12
2.4. Outreach	OTJ/Classroom	131	0.02	2.62
2.5. Financial Management	OTJ/Classroom	36	0.02	0.72
Total Mataram Training Workshops				25.90
5 Supply Contracts				
Promotional Materials	PCSum	47	1.00	47.00
Community Surveys - Desludging 3 months one each Year	PCSum	5	59.42	297.11
Survey Piped Sewerage	PCSum	7	38.10	266.67
Training for surveys	PCSum	7	2.00	14.02
Total Mataram Supply Contracts				624.79
6 Courses				
Short Courses (Internship 3 months 3x2))	Unit	2	16.80	33.60
Long term Courses (6) Diploma 1 x3 each province	Unit	2	36.00	72.00
Subtotal Capacity Building Courses				105.60
Grand Total Capacity Building				1,806.28

2-27. For project management there are several aspects. There will be a firm hired as a 'Project Implementation Support Consultant' (PISC) which will support at the central and provincial levels for project implementation. At the provincial level implementation units called "SATKERS" will be staffed by seconded and new staff and supported by the PISC, including International and National Consultants. The SATKER will be provided with mechanical and equipment as specified in the Tables below, with some minor construction and rehabilitation, together with office equipment:

Table 18: PISC International Consultants

Project Management				
1 Project Implementation Support Consultants				
a International Consultants - Project Management SATKER Mataram				
Supervising Project Engineer	p-month	8	22.00	176.00
Monitoring & Evaluation Specialist	p-month	3	20.00	60.00
Environmental Specialist	p-month	-	20.00	-
Social Safeguards Specialist	p-month	1	20.00	20.00
International Travel	return trip	8	2.50	20.00
Per Diem	p-month	360	2.70	972.00
Subtotal International Consultants - Project Management - Mataram				1,248.00

Table 19: PISC National Consultants

b National Consultants - Project Management SATKER Mataram				
Project team leader	p-month	60	4.50	270.00
Supervising Project Engineer	p-month	108	4.50	486.00
Monitoring & Evaluation Specialist	p-month	18	4.50	81.00
Environmental Specialist	p-month	12	4.50	54.00
Social Safeguards Specialist	p-month	18	4.50	81.00
Training coordinator	p-month	15	4.50	67.50
Workshop Facilitator	p-month	6	4.50	27.00
Project assistants	p-month	240	4.50	1,080.00
Driver	p-month	120	4.50	540.00
Per Diem	Days	299	0.05	14.93
Subtotal National Consultants - Project Management - Mataram				2,701.43

Table 20: Support Staff SATKER Mataram

c Support Staff - Project Management SATKER Mataram					
Support Staff					
Administrator	p-month	120	0.25	30.00	
Administrative Assistant	p-month	120	0.50	60.00	
Translator/Interpreter	p-month	120	1.50	180.00	
Office Operations					
Office Consumables (PIUx1)	month	120	0.10	12.00	
Communications (PIUx1)	month	120	0.10	12.00	
Reports & Communications	month	120	0.25	30.00	
Vehicle Operation & Maintenance					
Vehicle Operation & Maintenance V#1	month	120	0.50	60.00	
Vehicle Operation & Maintenance V#2	month	120	0.50	60.00	
Subtotal project Management					444.00

Table 21: SATKER Mataram Mechanical & Equipment

d Mechanical and Equipment					
1 Mechanical Equipment					
Air Conditioning	Unit	120	1.00	120.00	
Electrical supply	Unit	120	1.00	120.00	
Internet ADSL + wireless router	Unit	120	1.00	120.00	
Internet ADSL connection	Unit	120	1.00	120.00	
Subtotal Mechanical Equipment					480.00
2 Minor Construction at SATKER Level (in Mataram)					
Rehabilitation	Lump Sum?	1	1.00	1.00	
Shelves	Lump Sum?	1	0.30	0.30	
Plastering	Lump Sum?	1	0.30	0.30	
Drainage and Protective Works	Lump Sum?	1	1.00	1.00	
Maintenance	Lump Sum?	1	1.00	1.00	
Subtotal Minor Construction					3.60
3 Vehicles					
4WD Twin Cab Pickup Truck	No	1	30.00	30.00	
Mini Bus	No	1	30.00	30.00	
Subtotal Vehicles					60.00
4 Vehicle hire					
4WD Twin Cab Pickup Truck	month	24	1.00	9.00	
Mini Bus	month	-	1.00	-	
Subtotal Vehicle Hire					9.00
5 Office and Other Equipment					
Desktop computer	No	4	0.60	2.40	
Laptop computer	No	2	0.80	1.60	
Mono printer/scanner/copier	No	1	0.35	0.35	
Colour printer (A3)	No	1	1.00	1.00	
Photocopier	No	1	1.50	1.50	
Fax machine	No	-	0.20	-	
Mobile phones for 6 Staff	No	14	0.20	1.20	
Mobile phone operation	year	10	0.10	0.50	
Incremental Administration					
Electricity	Month	10	0.20	1.00	
Stationery	Month	10	0.20	1.00	
Internet annual cost (subscription and use)	Month	10	0.50	2.50	
Phone line operation annual cost	Month	10	0.20	1.00	
Office rent	Month	10	0.35	1.75	
Chairs, desks, filing cabinet, bookcase	set	1	0.40	0.40	
Subtotal Equipment - Office and Other Equipment					16.20
Total Project Management					4,958.63

2-28. Land acquisition is discussed in a separate report, but for the cost estimates it was considered that land was needed for pumping stations and the WWTP. The pumping stations need around 100 m² each costed at around US\$110 per m². For the WWTP it is envisaged that around 71,405 m² would be required, again costed at US\$110 per m².

2-29. There is an analysis of resettlement and compensation covering loss of structures (11 units), loss of business income (4 units), with compensation for emotional loss and livelihood restoration. A cost is estimated for a resettlement expert and for external monitoring.

Table 22: Land Acquisition & Resettlement

Land Acquisition and Resettlement Cost				
Pumping Stations				
The banks of the Jangkuk River, Amperan Tengah Village – Sukaraja, Amperan sub	m2	100	0.11	11
Bagar Kebar area of Tanjung Karang Permai village of Sekarbela sub-district	m2	100	0.11	11
Tanjung Karang Permai village in Sekarbela Sub-District (PS 3A)	m2	100	0.11	11
Sembalun Village Sekarbela Tanjung Karang sub-district (PS 3B)	m2	100	0.11	11
Tanjung Karang around Mapak in Unus River Bridge (PS 4)	m2	100	0.11	11
WWTP				
Sekarbela Sub-District, Mataram	m2	71,405	0.11	8,040
Loss Structures (11 Units structures)	Units	11	0.15	2
Loss Business Income (1 Settled Business and 3 Mobile Business)**	Units	4	0.32	1
I. Solatium / Emotional Loss (10% of structure loss)	LS	1	7.07	7
II. Livelihood Restoration Program (11 semi- permanent impact)***	LS	1	12.15	12
Resettlement Plan Administrative costs	LS	1	125.73	126
(refer to PMNK RI No. 10/PMNK.02/2016, budget above Rp 100 billion to Rp.	LS	1	81.64	82
External Monitoring (1%)	p-month	12	4.50	54
Resettlement Expert				
Total Land Acquisition & Resettlement				8,380
*) The pump station only needs 8 m x 5 m, but the land owner wants to be acquired up to 100 m2 because if it fits the required area for the pumping station 8 m x 5 m, the remaining land will become idle.				
**) Based on lost income for 3 months for 1 Settled Business IDR 70,000 per day and 3 Mobile Business IDR 50,000 per day.				
***) Based on estimation: (1) moving allowance; (2) waiting allowance 3 months refer to transitional life support refers to the life insurance system for transmigration. Food aid or life insurance in the form of rice and non-rice assistance. The amount of rice aid is: head of household (husband) of 17.5 kg; wife of 10 kg; and children as much as 7.5 kg. While non-rice aid is provided in the form of packets per KK, in the form of: salted fish (3 kg); sugar 93 kg; cooking oil (3 kg); kerosene (8 liters); laundry soap (3 kg); iodine salt (2 kg) green beans (3 kg); soy sauce (3 bottles). Food aid is intended to enable eligible parties to be relocated to productive activities; (3) training program; (4) seed capital and (5) entrepreneurship empowerment.				

2-30. The government and city administrations will provide incremental staff to the project. The city staff will most probably assist in monitoring the project implementation and coordinating departments for the construction to take place. These costs are recurrent and will be the contribution of the government to the project.

Table 23: Recurrent Costs – incremental staff

Recurrent Costs				
a Salaries				
1 Incremental Staff				
Incremental Staff - (Based in Provincial Government or City Administration)				
Project Manager	p-month	108	0.28	13.44
Accountant	p-month	108	0.20	9.60
Procurement Officer	p-month	108	0.18	8.64
Secretary	p-month	108	0.18	8.64
Drivers	p-month	108	0.20	9.60
Guards	p-month	108	0.10	4.80
Cleaner	p-month	108	0.08	3.84
Accommodation	Month	108	1.08	51.84
Operation & Maintenance	Month	108	2.08	99.84
Subtotal Incremental Staff				210.24
Incremental Staff - Operator				
Project Manager	p-month	72	0.20	2.40
Administrator	p-month	72	0.10	1.20
Accountant	p-month	72	0.08	0.96
Procurement Specialist/Assistant Project Manager	p-month	72	1.08	12.96
Procurement Specialist / Deputy Head	p-month	72	2.08	24.96
Monitoring and Evaluation Specialist	p-month	72	3.08	36.96
Environmental Officer	p-month	72	4.08	48.96
Gender Specialist	p-month	72	5.08	60.96
Driver	p-month	72	3.08	36.96
Guards	p-month	72	4.08	48.96
Cleaner	p-month	72	5.08	60.96
Accommodation	Month	72	6.08	72.96
Operation & Maintenance	Month	72	7.08	84.96
Subtotal Incremental Staff - operator (Central Government Funded)				494.16

Table 24: Recurrent Costs – Expenses

2 Expenses					
Electricity	Month	108	0.20	9.60	
Stationery	Month	108	0.15	7.20	
Internet monthly cost (subscription and use)	Month	108	0.12	5.76	
Phone line operational cost	Month	108	0.10	4.80	
Office rent	Month	108	1.00	48.00	
Chairs, desks, filing cabinet, bookcase	Annual	108	0.25	12.00	
Subtotal Incremental Administration Expenses				87.36	
3 Equipment Operation and Maintenance					
Desktop computer	Unit	6	0.60	3.60	
Laptop computer	Unit	3	0.80	2.40	
Mono printer/scanner/copier	Unit	1	0.35	0.35	
Colour printer (A3)	Unit	1	1.00	1.00	
Photocopier	Unit	1	1.50	1.50	
Fax machine	Unit	1	0.20	0.20	
Mobile phones for Staff	Unit	6	0.20	1.20	
Mobile phone operation	Month	108	0.10	4.80	
Subtotal Incremental Administration O&M				15.05	
Salaries (Central Government Funded)				704.40	
Operating expenses (Central Government Funded)				87.36	
Equipment Operation and Maintenance (Central Government Funded)				15.05	
Total Recurrent Costs				806.81	

3.3. Mataram City Administration – Stage 1 only

2-31. **Financial assumptions.** There are 3 stages to the Mataram costing structure reflecting the planned implementation over 10 years with the provision of consulting services, project management, land acquisition and resettlement costs taking place in the first year (for now this is 2019 – but can be changed easily in the excel model). However, ADB has requested an extraction of the costs for Stage 1 only.

2-32. Stage 1 includes a sewer network construction of 10% in year 2020, 30% in year 2021, 35% in year 2022 and 25% in year 2023. The sewer system will feed into a wastewater treatment plant which will be constructed by 10% in year 2020, 30% in year 2021, and 60% in year 2022 prior to the completion of the sewer system.

2-33. Household connections are assumed to follow the pattern of the sewer system with a lag of 1 year with 37% connected in year 2022, 37% in year 2023 and finally 26% in year 2024.

2-34. The costs for the environmental and social mitigation is assumed to remain the same, as in the overall project it was expected that these activities would cease by 2023 in line with the completion of Stage 1. So, the cost estimates remains at \$557,170 as in Table 12 above.

2-35. The unit rates for all civil works, mechanical and equipment are the same as for the total project as demonstrated in the Tables above, but all inputs are scheduled to be completed in 2023, except for the household connections which will spill over into 2024. The connections rely on the sewer network connection and the downstream connection to the WWTP, therefore creating a lag – assumed for this project to be 1-year.

2-36. The Stage 1 estimated base costs are therefore \$90,100,000 as per Table 25.

Table 25: Base Cost Estimates for Stage 1 Mataram

D. Detailed Cost Estimates by Outputs/Components			
Item		(\$ million)	
		C3: Mataram	
		Amount	% of Cost Category
A. Investment Costs^b			
1	Civil Works	52.0	25.39%
2	Mechanical and Equipment	9.8	4.77%
3	Environment and Social Mitigation	0.6	0.27%
4	Consulting Services	10.9	5.30%
	a. Construction Supervision	4.4	2.17%
	b. Detailed Design	4.7	2.29%
	b. Capacity Building	1.7	0.84%
5	Project Management	3.3	1.59%
6	Land Acquisition and Resettlement Cost	8.4	4.09%
7	Taxes & Duties	5.2	2.55%
	Subtotal (A)	90.0	21.62%
B. Recurrent Costs			
1	Salaries	0.1	2.39%
2	Operations	0.0	0.41%
3	Equipment Operation and Maintenance	-	0.00%
	Subtotal (B)	0.1	0.88%
	Total Base Cost	90.1	21.06%

On-Site Sanitation – Mataram

2-37. As with a separate costing for Stage 1 of the Mataram project a separate costing is provided here for the on-site sanitation proposal.

2-38. The Cost estimates provided above include both the sewerage system and on-site sanitation. There are 3 key elements to on-site sanitation systems; (i) Containment, in the form of HH Septic tanks and community holding tanks, (ii) Transport – vacuum trucks and water trucks and (iii) Treatment - Septage Treatment Plants (STP).

2-39. The pilot system proposed under this project will 1,800 Septic Tanks for residential use and 300 tanks for commercial use for containment. For the pilot a vacuum truck and a three-wheeler suction vehicle will also be provided to address the transport dimension. The project will also provide for a Co-Septage treatment unit (100 m³/d), 2 Potable Temporary Septage Storage tanks (5 m³), and 2 Biosolid drying machines. Furthermore, there will be some Upgrading of Kebon Kongok IPLT. To support the operations the project will provide GIS and MIS Development (including Hardware & software), portable Water Quality Testing Instrument and conduct Marketing and Socialization. The costs are (USD):

Table 26: Cost Estimates Mataram Septage Management

Septage Management		USD		1,453,000
Mechanical & Equipment	Quantity	Unit	Unit Cost	Total Cost
Fabricated SNI Septic Tanks of 3 m3 (residential) with protection	1,800.0	unit	450.0	810,000
Fabricated SNI Septic Tanks of 5 m3 (commercial) with protection	300.0	unit	650.0	195,000
Co-Septage treatment unit (100 m3/d)	1.0	unit	60,000.0	60,000
Potable Temporary Septage Storage tank (5 m3)	2.0	unit	4,000.0	8,000
Biosolid drying machine	2.0	unit	35,000.0	70,000
Purchase vacuum trucks 5 m3 , with GPS	1.0	pc	75,000.0	75,000
Purchase three-wheeler suction vehicles (600 liter)	1.0	pc	5,000.0	5,000
Upgrading Kebon Kongok IPLT	1.0	unit	70,000.0	70,000
GIS and MIS Development (incl. Hardware&software)	1.0	unit	100,000.0	100,000
Portable Water Quality Testing Instrument	1.0	set	30,000.0	30,000
Marketing and Socialization	1.0	ls	30,000.0	30,000
TOTAL CIVIL WORKS - SEPTAGE MANAGEMENT				1,453,000

2-40. Operation and maintenance is, on commissioning of the whole scheme and with access to the WWTP as an additional treatment facility, assessed at US\$56,500 per annum:

Septage Management					
OPEX (in USD)					
Assumptions	cost per m3 desludge				
Manager-annual salary	7,000	3.00			
Senior operator - annual salary	5,500	2.35			
Operator - annual salary	4,800	2.05			
Administrative assistant - annual salary	3,600	1.54			
Security - annual cost	3,600	1.54			
Laborer - housekeeping and general labor	3,600	1.54			
Cost Component	Cost/yr	Units	% of Full time	Cost/yr	Totals
Staff Salaries and Wages - Annual					
Manager	7,000	1	100%	7,000	
Senior operator/engineer	5,500	1	50%	2,750	
Operator/engineer	4,800	2	100%	9,600	
Administrative assistant	3,600	1	100%	3,600	
Security officer	3,600	2	100%	7,200	
laborer	3,600	6	100%	21,600	
Subtotal Salaries/Wages					51,750
Other Operating and Maintenance Costs					
a. Water Quality Testing	1,000	1		1,000	
b. Other Miscellaneous O&M Costs	1,500	1		1,500	
c. Supplies (office and maintenance supplies)	1,500	1		1,500	
d. Protective gear for operation team	750	1		750	
Subtotal - Other Operating and Maintenance Costs					4,750
TOTAL annual operating expenses					56,500

3.4. Bekasi City Administration

2-41. **Financial assumptions.** Bekasi plan to construct 3 sewer networks and 3 WWTP plants at Rawapasung, Perumnas and Rusunawa. The implementation is schedule to take 4 years from 2019 – 2022 with some preparatory work done in 2018 (for now this is 2018 – but can be changed easily in the excel model).

2-42. Each of the sites for WWTP is expected to start concurrently with civil works taking place in 2019 at 10% of construction, in 2020 30%, in 2021 25% with a final push of 35% in 2022. The sewer network construction will follow slightly behind the construction of the WWTPs of 20% in year 2020, 30% in year 2021, and 50% in year 2022. The sewer system will feed into a wastewater

treatment plant and Household connections are assumed to follow the pattern of the sewer system with a lag of 1 year with 100% connected for Perumnas in year 2022, Rawapasung will follow with 67% in year 2022 and finally 33% in year 2023.

2-43. The following Table demonstrates the assumed implementation schedule:

Table 27: Project Implementation Schedule

	Implementation																	
	2018			2019			2020			2021			2022			2023		
	Foreign	Local	Total	Foreign	Local	Total	Foreign	Local	Total	Foreign	Local	Total	Foreign	Local	Total	Foreign	Local	Total
WWTP Rawapasung	0%	0%	0%	10%	10%	10%	30%	30%	30%	25%	25%	25%	33%	33%	33%			
WWTP Perumnas	0%	0%	0%	10%	10%	10%	30%	30%	30%	25%	25%	25%	33%	33%	33%			
WWTP Rusunawa	0%	0%	0%	10%	10%	10%	30%	30%	30%	25%	25%	25%	33%	33%	33%			
sewer NW Rawapasung	0%	0%	0%	0%	0%	0%	20%	20%	20%	30%	30%	30%	50%	50%	50%			
sewer NW Perumnas	0%	0%	0%	0%	0%	0%	20%	20%	20%	30%	30%	30%	50%	50%	50%			
sewer NW Rusunawa	0%	0%	0%	0%	0%	0%	20%	20%	20%	30%	30%	30%	50%	50%	50%			
HH Connections R	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	67%	67%	67%	33%	33%	33%
HH Connections P	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	100%	100%			

2-44. The materials for the sewer network are assumed to have a 10% foreign content, whilst the equipment, such as submersible pumps, transformers and power cables are assumed to be 100% foreign sourced with installation costs having 60% foreign content. The total costs of the sewer network is \$34,353,202.

Table 28: Civil Works Cost Sewer Network

Sewer Network		USD		34,353,202
Civil Works	Quantity	Unit	Unit Cost	Total Cost
<i>Sewer network - main trunk r (procurement, installation and road repair) depth= 3-5 m</i>				
ND 150 mm (Perumnas)	470	m	176	82,720
ND 200 mm (Perumnas)	902	m	195	175,890
ND 250 mm (Perumnas)	409	m	210	85,890
ND 300 mm (Rawapasung)	490	m	203	99,470
ND 350 mm (Rawapasung)	385	m	227	87,395
ND 350 mm (Perumnas)	30	m	278	8,340
ND 400 mm (Rawapasung)	141	m	255	35,955
ND 500 mm (Rawapasung)	580	m	338	196,040
ND 600 mm (Rawapasung)	329	m	534	175,686
Temp sheet piling deep locations (Rawapasung)	600	m	300	180,000
Temp sheet piling deep locations (Perumnas)	200	m	300	60,000
Sewer Network - Secondary & Tert / Etc. Rawapasung	53,802	m	146	7,855,092
Sewer Network - Secondary & Tert / Etc. Perumnas	21,516	m	176	3,786,816
Pipe Jacking Rawapasung	100	m	379	37,900
Pipe Jacking Perumnas	100	m	379	37,900
Household Connections Rawapasung	8,967	Unit	600	5,380,200
Household Connections Perumnas	3,586	Unit	600	2,151,600
<i>Manholes - Rawapasung</i>				
Depth 3-5	40	MH	2,649	105,960
Depth 1-2.5	1,076	MH	1,531	1,647,356
<i>Manholes - Perumnas</i>				
Depth 3-5	38	MH	2,649	100,662
Depth 1-2.5	430	MH	1,531	658,330
RUSUNAWA (0.8 Ha compared to Perumnas)	1	Unit LS	4,584,000	4,584,000
HALIM	1	Unit LS	6,820,000	6,820,000
TOTAL CIVIL WORKS				34,353,202
<i>Summary of Costs by location for Sewer Network:</i>				
Rawapasung			46%	15,801,054
Perumnas			21%	7,148,148
Rusunawa			13%	4,584,000
Halim			20%	6,820,000
			100%	34,353,202

2-45. There are three (3) WWTP to be constructed. Each one includes Civil Works, materials, mechanical and equipment and inlet sewerage pumping stations.

2-46. The first WWTP is at Perumnas (3MLD) at an estimated cost of \$6,287,097 in total as demonstrated in the following Tables.

Table 29: Cost Estimates Perumnas inlet sewerage pump station

Wastewater Treatment Plant (WWTP) Perumnas (3 MLD)			USD	6,287,097
Inlet Sewage Pump Station				
Civil Works	Quantity	Unit	Unit Cost	Total Cost
Site Cleaning 13x17m	30.8	m2	12.6	389
Excavation 221m2, 7.5 m deep	264.0	m3	431.2	113,848
Pumping during excavation	30.0	d	232.9	6,988
Temporary sheet piles 15m deep	24.2	m	465.9	11,274
Pump chamber 13x17m	33.6	m2	7,320.5	245,969
Pump house 20x25m (not included)	30.0	m2	638.9	19,166
Fence	29.0	m	20.0	580
TOTAL CIVIL WORKS				398,214
Material Costs				
43 l/s, 10m, 3.4 kw				
Submersible Pump	3	No	19,965	59,895
Pipes, Valves & Fitting etc	3	Lot	13,310	39,930
Other Accessories	1	LS	10%	9,983
Installation Costs				
Transportation and Handling	3	Lot	2,662	7,986
Prefabrication (Pipes and Fitting)	3	Lot	3,993	11,979
Installation	3	Lot	2,662	7,986
Pipe Connection (15% of Material Charge)	1	LS	15%	4,193
TOTAL MATERIAL COSTS				141,951
Mechanical & Equipment				
Electrical work				
Transformer (200-KVA)	1	No	66,550	66,550
Power Cable Panel and Accessories	1	Lot	19,965	19,965
Other Accessory for Electrical (10%)	1	LS	10%	8,652
Installation Cost for Electrical (20%)	1	LS	20%	17,303
Other				
Manual bar screen, width 7m	8	m	2,662	19,965
Installation (15% of Material Charges)	1	LS	15%	2,995
Screen removal container	2	No	7,986	15,972
Emergency By pass pipe 700 mm	25	m	158	3,960
Emergency By pass excavation	25	m	113	2,828
Emergency By pass installation	25	m	73	1,813
TOTAL MECHANICAL & EQUIPMENT				160,001
TOTAL INLET SEWAGE PUMP STATION				700,167

Table 30: Cost Estimate Perumnas Civil Works, Mechanical & Equipment

Civil Works				
Truck offload (whole):	1	LS	60,000	60,000
Treatment				
SBR	1	LS	1,596,672	1,596,672
Buffer Tank	1	LS	135,354	135,354
Sludge Treatment - Screw	1	LS	450,000	450,000
Foundation	1	LS	315,000	315,000
Landscaping, greenbelt	1	LS	250,000	250,000
TOTAL CIVIL WORKS				2,807,026
Mechanical & Equipment				
Screening: automatic cleaning, 30 mm step screens	1	LS	278,883	278,883
Degritting: vortex grit units quoted from Pista Grit	1	LS	118,213	118,213
Chlorine Contact Tank	1	LS	230,000	230,000
Facilities (Admin/Lab Building, fencing, drainage etc)	1	LS	250,000	250,000
Blower Building & Power Cabin	1	LS	25,000	25,000
Electrical & Control:	1	LS	661,393	661,393
Piping:	1	LS	352,743	352,743
Site Prep. / Alteration	1	LS	132,279	132,279
Testing & Commissioning (Allowance)	1	LS	70,000	70,000
Contractor Markup (15% on Civil Works)	1	LS	661,393	661,393
TOTAL MECHANICAL & EQUIPMENT				2,779,904

2-47. According to Component 1 and the preliminary engineering design costs Rusaunawa WWTP will cost 80% of the cost for the wastewater treatment plant in Perumnas and Halim treatment plant will cost the same, the costs are \$5,029,677 and \$6,287,097 respectively:

Table 31: Cost Estimate Rusaunawa WWTP

Wastewater Treatment Plant (WWTP) Rusaunawa			USD	5,029,677
<i>Footnote: 80% of costs for Perumnas</i>				
<i>Of which:</i>				
Civil Works	51%			
Mechanical & Equipment	49%			

Table 32: Cost Estimates Halim WWTP

Wastewater Treatment Plant (WWTP) Halim			USD	6,287,097
<i>Footnote: 80% of costs for Perumnas</i>				
<i>Of which:</i>				
Civil Works	51%			
Mechanical & Equipment	49%			

2-48. Environment and Social mitigation costs are estimated at \$557,060 and consist of national compliance activities, such as displaying the results publicly, laboratory testing, public consultation, and management aspects associated with public disclosure. In addition, there are estimated costs for operations and management of the monitoring and evaluation activities. Refer Table 33.

Table 33: Cost Estimates for Environmental & Social Mitigation

Environmental and Social Mitigation		Unit	Total Months	Total \$000's
A AMDAL Preparation				
	Public display of activities prior to work	Unit	1	0.15
	Public display of activities prior to environmental certificate	Unit	1	0.15
1	Laboratory Testing			
	at WTP location - Water, Soil, Air, Noise	Unit	1	0.11
	at Pump Station - Water, Soil, Air, Noise	Unit	1	0.11
	Biology Test	Lump Sum	1	0.08
	Social Survey	Lump Sum	1	0.11
	Traffic analysis	Lump Sum	1	0.11
2	Presentation			
	KA ANDAL	Unit	2	0.30
	ANDAL, RKL, RPL	Unit	2	0.30
3	Public Consultation			
	Public consultation	Lump Sum	1	0.38
4	Office Consumables			
	Office Consumables - (environmental Office)	Month	6	0.14
5	Transport			
	Hire 4WD Twin Cab Pickup Truck	Month	6	3.60
6	Communications			
	Communications (Environmental Office)	Month	6	0.05
7	Reports and Communications			
	Reports & Communications	Lump Sum	1	0.02
8	AMDAL Team (6 staff x Assistant)	Lump Sum	1	52.54
9	Environmental Permit Process	Lump Sum	1	1.50
B Environmental & Social Mitigation				
1	Laboratory Testing - Water, Soil, Air, Noise	Unit	16	18.02
2	Transport - Hire 4WD Twin Cab Pickup Truck	Month	24	14.41
3	M&E Staff	Unit	4	210.18
4	Landscaping / Tree planting & Mangroves (Zone 3)	Lump Sum	4	8.00
5	Flood Embankment (Zone 3) or levee (design and construction)	Lump Sum	4	20.00
6	Operations			
	Project team leader	p-month	4	18.00
	Infrastructure engineer	p-month	22	99.00
	Environmental Expert	p-month	22	99.00
	Office Consumables - (environmental Office)	month	24	5.40
	Communications (Environmental Office)	month	24	1.80
	Reports & Communications	month	24	3.60
Subtotal Environment and Social Mitigation				557.06

Cost Estimates for Consulting Services

2-49. There are three types of Consulting Services envisaged for the Bekasi implementation, (i) the Construction Supervision Consultant, (ii) the Design Consultant – contracted under the ADB ESP Project, and (iii) the Capacity Building Consultant. Under the costs for the Capacity Building Consultant costs are included for both the Startup of operations and for capacity development for outreach, enabling and O&M training. ADB ESP Project has provided the cost estimates for the Design Consultant.

Table 34: Cost Estimates for Construction Supervision Consultants (USD 000's)

a. Construction Supervision		Months	Cost \$	Total Cost
a	Construction Supervision Engineer (1)	p-month	60	4.50
b	Sanitation Engineer (2)	p-month	60	4.50
c	Construction Supervision Engineer (2)	p-month	60	4.50
d	Sanitation Engineer (3)	p-month	60	4.50
e	Construction Supervision Engineer (3)	p-month	60	4.50
f	Geotechnical/Materials Engineer	p-month	60	4.50
g	Chief Surveyor (1)	p-month	60	4.50
h	Chief Surveyor (2)	p-month	60	4.50
i	Chief Surveyor (3)	p-month	60	4.50
Subtotal Construction Supervision				1,944.00

Table 35: Cost Estimates for Design Consultants (USD 000's)

b. Detailed Design				
	Consultants Hired through ADB ESP Project	Lump Sum	1	4,680.00
	Subtotal Detailed Engineering Design			4,680.00

Table 36: Cost Estimates for the International Capacity Building Consultants

c. Capacity Building			Months	Cost \$000's	Total Cost
1	International Consultants - Capacity Building Bekasi				
	Advisor to team leader/senior planner	p-month	30	20.00	540.00
	Financial Management	p-month	8	20.00	160.00
	Contract Management	p-month	18	20.00	360.00
	CDD/ Training advisor	p-month	6	20.00	120.00
	Infrastructure specialist/advisor	p-month	15	20.00	240.00
	M&E specialist	p-month	2	20.00	40.00
	Resettlement Expert	p-month	8	20.00	160.00
	Specify - description	p-month	-	20.00	-
	Specify - description	p-month	-	20.00	-
	Specify - description	p-month	-	20.00	-
	International Travel	return trip	32	2.50	72.50
	Per Diem	Days	2,610	0.09	218.70
	Subtotal International Consultants - Capacity Building				1,911.20

Table 37: Cost Estimates for the National Capacity Building Consultants

2 National Consultants - Capacity Building			Months	Cost \$000's	Total Cost
	Project team leader	p-month	60	4.50	216.00
	Infrastructure engineer	p-month	60	4.50	216.00
	Contract Manager	p-month	60	4.50	216.00
	Financial Management - Assistant Trainer	p-month	1.0	4.50	4.50
	Assistant Trainer - Institutional	p-month	0.7	4.50	3.30
	Assistant Trainer - Comparative Study	p-month	0.7	4.50	3.00
	Training coordinator	p-month	12	4.50	54.00
	M&E expert	p-month	6	4.50	27.00
	Workshop Facilitator	p-month	10.0	4.50	45.00
	Community Outreach - Deputy Team Leader	p-month	1.5	4.50	6.75
	Customer Management - Deputy Head Trainer	p-month	0.3	4.50	1.50
	Asset Management Trainer (Covered by Construction Supervision)	p-month	48.0	4.50	216.00
	Regulatory, institutional, planning and tariff expert trainer	p-month	36.0	4.50	162.00
	Financial Management - Assistant Trainer: Utility Management	p-month	24.0	4.50	108.00
	Utility management - Assistant Trainer	p-month	0.3	4.50	1.50
	HRM Development Expert	p-month	1.0	4.50	4.50
	Procurement Specialist	p-month	1.0	4.50	4.50
	Specify - description	p-month	-	4.50	-
	Specify - description	p-month	-	4.50	-
	Specify - description	p-month	-	4.50	-
	Per Diem - Site Visits	Days	4,839	0.05	177.425
	Per Diem - Relocation	p-month	-	1.50	-
	Subtotal National Consultants - Capacity Building				1,466.98

2-50. For implementation there will be some service contracts, workshops and car rentals from time to time. The following is estimated for this project in Bekasi:

Table 38: Cost Estimates for Service Contracts

3 Consultants - Service Contracts				
Surveys, formative studies	Contract	5	2.00	8.000
Specify - description	Contract	-	5.00	-
				8.00
Subtotal Consulting Services - Capacity Building				3,386.18
				Foreign Content
4 Workshops				
Bekasi Aceh Workshops				
ADB Disbursements, Financial Management, Reporting & Auditing	Workshop	2	0.02	0.04
Public Awareness - Stakeholder Workshops - 2 day	Workshop	5	0.02	0.10
Public Awareness - Stakeholder Workshops - 1 day	Workshop	3	0.02	0.06
PA Journalists' orientation/press conference	Workshop	6	0.02	0.12
Financial Management	Workshop	1	0.02	0.02
Procurement	Workshop	1	0.02	0.02
Training for field level sanitation campaigns				
2.1 Training of social facilitators - 5 days	OTJ/Classroom	3	0.02	0.06
2.2. Training of Socialization team members - 2 days	OTJ/Classroom	3	0.02	0.06
2.3. Training of technical facilitators/engineer - 1 day	OTJ/Classroom	3	0.02	0.06
Total Bekasi Training Workshops				0.54
5 Supply Contracts				
Promotional Materials	PCSum	-	1.00	-
Video advertisements	PCSum	2	40.00	80.00
Posters	PCSum	1	19.00	19.00
3.3 Brochures	PCSum	1	105.00	105.00
PA Personnel / staff cost	PCSum	5	574.80	2,873.99
PA Operational Costs	PCSum	1	4.16	4.16
Community Surveys - training [1 each year]	PCSum	6	59.42	356.53
Survey Piped Sewerage	PCSum	3	38.10	114.29
Community Survey Desludging	PCSum	3	2.00	4.01
Total Bekasi Supply Contracts				3,556.97
6 Courses				
Short Courses	Unit	12	1.00	12.000
Long term Courses	Unit	8	1.00	8.000
Overseas Study Tours	Unit	2	30.00	30.000
TVET Courses	Unit	54	2.00	48.000
Other Courses	Unit	9	3.00	12.000
Subtotal Capacity Building Courses				110.00
Grand Total Capacity Building				3,667.51

2-51. For project management there are several aspects. There will be a firm hired as a 'Project Implementation Support Consultant' (PISC) which will support at the central and provincial levels for project implementation. At the provincial level implementation units called "SATKERS" will be staffed by seconded and new staff and supported by the PISC, including International and National Consultants. The SATKER will be provided with mechanical and equipment as specified in the Tables below, with some minor construction and rehabilitation, together with office equipment:

Table 39: PISC International Consultants

Project Management				
1 Project Implementation Support Consultants				
a International Consultants - Project Management PIU Bekasi				
		Months	Cost \$000's	Total Cost
Supervising Project Engineer	p-month	30	22.00	660.00
Monitoring & Evaluation Specialist	p-month	25	20.00	490.00
Environmental Specialist	p-month	20	20.00	400.00
Social Safeguards Specialist	p-month	15	20.00	300.00
International Travel	return trip	36	2.50	88.75
Per Diem	p-month	90	2.70	241.65
Subtotal International Consultants - Project Management - Bekasi				2,180.40

Table 40: PISC National Consultants

b National Consultants - Project Management PIU Bekasi					
Project team leader	p-month	30	4.50	135.00	
Supervising Project Engineer	p-month	30	4.50	135.00	
Monitoring & Evaluation Specialist	p-month	30	4.50	135.00	
Environmental Specialist	p-month	20	4.50	90.00	
Social Safeguards Specialist	p-month	15	4.50	67.50	
Coordinator	p-month	15	4.50	67.50	
Training coordinator	p-month	15	4.50	67.50	
Workshop Facilitator	p-month	15	4.50	67.50	
Project assistants	p-month	15	4.50	67.50	
Driver	p-month	10	4.50	45.00	
Per Diem	Days	98	0.05	4.88	
Subtotal National Consultants - Project Management - Bekasi				582.38	

Table 41: Support Staff SATKER Bekasi

c Support Staff - Project Management PIU Bekasi					
Support Staff					
Administrator	p-month	60	0.25	15.00	
Administrative Assistant	p-month	60	0.50	30.00	
Translator/Interpreter	p-month	60	1.50	90.00	
Office Operations					
Office Consumables (PIUx1)	month	60	0.10	6.00	
Office Consumables (PIUx2)	month	60	0.20	12.00	
Communications (PIUx1)	month	60	0.10	6.00	
Communications (PIUx2)	month	60	0.50	30.00	
Reports & Communications	month	60	0.25	15.00	
Vehicle Operation & Maintenance					
Vehicle Operation & Maintenance V#1	month	60	0.50	30.00	
Vehicle Operation & Maintenance V#2	month	60	0.50	30.00	
Subtotal project Management				264.00	

Table 42: SATKER Bekasi Mechanical & Equipment

d Mechanical and Equipment					
1 Mechanical Equipment					
Air Conditioning	Unit	1	1.00	1.00	
Electrical supply	Unit	1	1.00	1.00	
Internet ADSL + wireless router	Unit	1	1.00	1.00	
Internet ADSL connection	Unit	1	1.00	1.00	
Subtotal Mechanical Equipment				4.00	
2 Minor Construction at SATKER Level (in Bekasi)					
Rehabilitation	Lump Sum?	1	1.00	1.00	
Shelves	Lump Sum?	1	0.30	0.30	
Plastering	Lump Sum?	1	0.30	0.30	
Drainage and Protective Works	Lump Sum?	1	1.00	1.00	
Maintenance	Lump Sum?	1	1.00	1.00	
Subtotal Minor Construction				3.60	
3 Vehicles					
4WD Twin Cab Pickup Truck	No	1	30.00	30.00	
Mini Bus	No	1	30.00	30.00	
Subtotal Vehicles				60.00	
4 Vehicle hire					
4WD Twin Cab Pickup Truck	month	15	1.00	15.00	
Mini Bus	month	15	1.00	15.00	
Subtotal Vehicle Hire				30.00	
5 Office and Other Equipment					
Desktop computer	No	6	0.60	3.60	
Laptop computer	No	3	0.80	2.40	
Mono printer/scanner/copier	No	1	0.35	0.35	
Colour printer (A3)	No	1	1.00	1.00	
Photocopier	No	1	1.50	1.50	
Fax machine	No	1	0.20	0.20	
Mobile phones for 6 Staff	No	12	0.20	2.40	
Mobile phone operation	year	30	0.10	3.00	
Incremental Administration					
Electricity	Month	5	0.20	1.00	
Stationery	Month	5	0.20	1.00	
Internet annual cost (subscription and use)	Month	5	0.50	2.50	
Phone line operation annual cost	Month	5	0.20	1.00	
Office rent	Month	5	0.35	1.75	
Chairs, desks, filing cabinet, bookcase	set	6	0.40	2.40	
Subtotal Equipment - Office and Other Equipment				24.10	
Total Project Management				3,448.48	

2-52. Land acquisition is discussed in a separate report, but for the cost estimates it was considered that land was needed for the WWTP. For the WWTP it is envisaged that around 3,000 m² would be required in West Bekasi sub-district and 8,000 m² for Medan Satria Village, costed at US\$300 per m² at a cost of \$900,000 and \$2,402,040.

2-53. There is an analysis of resettlement and compensation covering loss of structures (664 units), loss of business income (1 units), with compensation for emotional loss and livelihood restoration. A cost is estimated for a resettlement expert and for external monitoring.

Table 43: Land Acquisition & Resettlement

Land Acquisition and Resettlement Cost				
WWTP				
Perumnas 1 area with area of ± 3,000 m ² Kranji Subdistrict, West Bekasi Subdistrict	m ²	3,000	0.30	900.77
Rawa Pasung area, at Medan Satria Subdistrict, Medan Satria Village and Kali Baru Village (±8000 m ²)	m ²	8,000	0.30	2,402.04
Structure (Average Semi permanent)	Unit	664.00	0.14	91.48
Loss Business Income*	LS	1.00	45.08	45.08
Solatium / Emotional Loss (10% of structure loss)	LS	1	9.15	9.15
Livelihood Restoration Program (70 Persons)**	LS	1	62.57	62.57
Resettlement Plan Administrative costs (refer to PMNKR No. 10/PMNKR.02/2016, budget above Rp 100 billion to (Rp 550,000,000) + (2% x Rp 15 billion)	LS	1	63.80	63.80
External Monitoring (1%)	LS	1	35.75	35.75
Resettlement Expert	p-month	12	4.50	54.00
<small>* Based on lost income for 3 months for 42 Settled Business (IDR 234,286 per day and 2 Mobile Business (IDR 50,000 per day)</small>				
<small>** Based on estimations: (1) moving allowance; (2) waiting allowance 3 months refer to transitional life support refers to the life insurance system for transmigration. Food aid or life insurance in the form of rice and non-rice assistance. The amount of rice aid is: head of household (husband) of 17.5 kg; wife of 10 kg; and children as much as 7.5 kg. While non-rice aid is provided in the form of packets per kg, in the form of: salted fish (5 kg); sugar 98 kg; cooking oil (3 kg); kerosene (8 liters); laundry soap (1 kg); iodine salt (2 kg) green</small>				
Total Land Acquisition & Resettlement				3,664.64

2-54. The government and city administrations will provide incremental staff to the project. The city staff will most probably assist in monitoring the project implementation and coordinating departments for the construction to take place. These costs are recurrent and will be the contribution of the government to the project.

Table 44: Recurrent Costs – incremental staff

Recurrent Costs				
a Salaries				
1 Incremental Staff				
Incremental Staff - PMO (Based in City Administration)				
Project Manager	p-month	60	0.28	13.44
Accountant	p-month	60	0.20	9.60
Procurement Officer	p-month	60	0.18	8.64
Secretary	p-month	60	0.18	8.64
Drivers	p-month	60	0.20	9.60
Guards	p-month	60	0.10	4.80
Cleaner	p-month	60	0.08	3.84
Accommodation	Month	60	1.08	51.84
Operation & Maintenance	Month	60	2.08	99.84
Subtotal Incremental Staff - (City Funded)				270.24
Incremental Staff - Operator				
Project Manager	p-month	60	0.20	9.60
Administrator	p-month	60	0.10	4.80
Accountant	p-month	60	0.08	3.84
Procurement Specialist/Assistant Project Manager	p-month	60	1.08	51.84
Procurement Specialist / Deputy Head	p-month	60	2.08	99.84
Monitoring and Evaluation Specialist	p-month	60	3.08	147.84
Environmental Officer	p-month	60	4.08	195.84
Gender Specialist	p-month	60	5.08	243.84
Driver	p-month	60	3.08	147.84
Guards	p-month	60	4.08	195.84
Cleaner	p-month	60	5.08	243.84
Accommodation	Month	60	6.08	291.84
Operation & Maintenance	Month	60	7.08	339.84
Subtotal Incremental Staff - operator (City Funded)				1,976.64

Table 45: Recurrent Costs – Expenses

2 Expenses					
Electricity	Month	60	0.20		9.60
Stationery	Month	60	0.15		7.20
Internet monthly cost (subscription and use)	Month	60	0.12		5.76
Phone line operational cost	Month	60	0.10		4.80
Office rent	Month	60	1.00		48.00
Chairs, desks, filing cabinet, bookcase	Annual	60	0.25		12.00
Subtotal Incremental Administration Expenses					87.36
3 Equipment Operation and Maintenance					
Desktop computer	Unit	6	0.60		3.60
Laptop computer	Unit	3	0.80		2.40
Mono printer/scanner/copier	Unit	1	0.35		0.35
Colour printer (A3)	Unit	1	1.00		1.00
Photocopier	Unit	1	1.50		1.50
Fax machine	Unit	1	0.20		0.20
Mobile phones for Staff	Unit	6	0.20		1.20
Mobile phone operation	Monthly	60	0.10		4.80
Subtotal Incremental Administration O&M					15.05
Salaries (City Funded)					2,186.88
Operating expenses (City Funded)					87.36
Equipment Operation and Maintenance (City Funded)					15.05
Total Recurrent Costs					2,289.29

On-Site Sanitation – Bekasi

2-55. A separate costing is provided here for the on-site sanitation proposal.

2-56. The Cost estimates provided above include both the sewerage system and on-site sanitation. There are 3 key elements to on-site sanitation systems; (i) Containment, in the form of HH Septic tanks and community holding tanks, (ii) Transport – vacuum trucks and water trucks and (iii) Treatment - Septage Treatment Plants (STP).

2-57. The pilot system proposed under this project will 5,000 Septic Tanks for residential use and 1,000 tanks for commercial use for containment. For the pilot 3 vacuum trucks and a three-wheeler suction vehicle will also be provided to address the transport dimension. The project will also provide 2 Potable Temporary Septage Storage tanks (5 m³). Furthermore, there will be a construction IPLT harapan Baru with a capacity of 150 m³/day. To support the operations the project will provide GIS and MIS Development (including Hardware & software) and conduct Marketing and Socialization. The costs are (USD):

Table 46: Cost Estimates Bekasi Septage Management

Septage Management		USD		5,555,700
Mechanical & Equipment	Quantity	Unit	Unit Cost	Total Cost
Fabricated SNI Septic Tanks of 3 m3 (residential) with protection	5,000	unit	450.0	2,250,000
Fabricated SNI Septic Tanks of 5 m3 (commercial) with protection	1,000	unit	650.0	650,000
Potable Temporary Septage Storage tank (5 m3)	2	unit	4,000.0	8,000
Biosolid drying machine	-	unit	35,000.0	-
Purchase vacuum trucks 5 m3 , with GPS	3	pc	75,000	225,000
Purchase three-wheeler suction vehicles (600 liter)	1	pc	5,000	5,000
Construction of IPLT Harapan Baru 150 m3/day	1	unit	2,307,700	2,307,700
GIS and MIS Development (incl. Hardware & software)	1	unit	80,000	80,000
Portable Water Quality Testing Instrument	-	set	30,000	-
Marketing and Socialization	1	ls	30,000	30,000
TOTAL MECHANICAL & EQUIPMENT				5,555,700

2-58. Operation and maintenance is, on commissioning of the whole scheme and with access to the WWTP as an additional treatment facility, assessed at US\$176,150 per annum:

Septage Management					
Assumptions	USD	cost per m3 desludge			
Manager-annual salary	7,000	1.01			
Senior operator - annual salary	5,500	0.80			
Operator - annual salary	4,800	0.70			
Administrative assistant - annual salary	3,600	0.52			
Security - annual cost	3,600	0.52			
Laborer - housekeeping and general labor	3,600	0.52			
Cost Component	Cost/yr	Units	% of Full time	Cost/yr	Totals
Staff Salaries and Wages - Annual					
Manager	7000	1	100%	7,000	
Senior operator/engineer	5500	1	100%	5,500	
Operator/engineer	4800	4	100%	19,200	
Administrative assistant	3600	5	100%	18,000	
Security officer	3600	2	100%	7,200	
laborer	3600	10	100%	36,000	
Subtotal Salaries/Wages					92,900
Other Operating and Maintenance Costs					
a. Water Quality Testing	1000	1		1,000	
b. IPLT O&M Costs	80000	1		80,000	
c. Supplies (office and maintenance supplies)	1500	1		1,500	
d. Protective gear for operation team	750	1		750	
Subtotal - Other Operating and Maintenance Costs					83,250
TOTAL annual operating expenses					176,150

3.5. Banda Aceh City Administration

2-59. **Financial assumptions.** Cost estimates have been completed for SSDP Banda Aceh with a view to calculating the Financial Internal Rate of Return (FIRR) reflecting ADB's *Examples of Good Practice Cost Estimates and Financing Plans February 2015*, and ADB's *Handbook for Borrowers on the Financial Management and Analysis of Projects 2006* (in particular Section 3).

2-60. Component 1, funded by ADB and implemented under CDIA, provided the technical input to the project and compiled the base costs for the Preliminary Engineers Design (PED). The Detailed Engineering Design (DED) will be completed under ADB Loan Funded Technical Assistance (TA) project ADB TA 3455-INO: Accelerating Infrastructure Delivery through Better Engineering Services Project (ESP), this includes procurement documentation for civil works, equipment and Project Implementation Support Consultant (PISC). All of the economic and financial analysis is based on the PED cost estimates for civil works and equipment.

2-61. The other costs are formulated under this ADB TA 9198-INO Sewerage System Development Project (SSDP), such as: land acquisition, environment and social mitigation, construction supervision (although for civil works procurement documentation, terms of reference and recruitment will be the responsibility of ESP), capacity building program, project management and recurrent costs.

2-62. Cost Estimates are in 2018 prices

- Physical contingencies are computed on the basis of civil works 7.0%, equipment 5%, administration costs 2.0%, land acquisition 5.0%, environmental and resettlement 5.0%, project management 5% and consulting services at 5%.
- Price contingencies are based on Work Bank Commodities index April, 2018 MUV rates for foreign inflation, and Bank of Indonesia for local inflation rate forecasts.

2-64. The following Table demonstrates the assumed implementation schedule:

	Zone 1 and Zone 3												Zone 2												Zone 4											
	2020			2021			2022			2023			2024			2025			2026			2027			2028											
	Average	Low	High	Average	Low	High	Average	Low	High	Average	Low	High	Average	Low	High	Average	Low	High	Average	Low	High	Average	Low	High	Average	Low	High									
WSPF Zone 1	17%	15%	19%	18%	16%	20%	19%	17%	21%	20%	18%	22%	21%	19%	23%	22%	20%	24%	23%	21%	25%	24%	22%	26%	25%	23%	27%									
WSPF Zone 3	15%	13%	17%	16%	14%	18%	17%	15%	19%	18%	16%	20%	19%	17%	21%	20%	18%	22%	21%	19%	23%	22%	20%	24%	23%	21%	25%									
Zone Network P1	20%	18%	22%	21%	19%	23%	22%	20%	24%	23%	21%	25%	24%	22%	26%	25%	23%	27%	26%	24%	28%	27%	25%	29%	28%	26%	30%									
Zone Network P2	18%	16%	20%	19%	17%	21%	20%	18%	22%	21%	19%	23%	22%	20%	24%	23%	21%	25%	24%	22%	26%	25%	23%	27%	26%	24%	28%									
MS Connected	25%	23%	27%	26%	24%	28%	27%	25%	29%	28%	26%	30%	29%	27%	31%	30%	28%	32%	31%	29%	33%	32%	30%	34%	33%	31%	35%									
MS Connected	22%	20%	24%	23%	21%	25%	24%	22%	26%	25%	23%	27%	26%	24%	28%	27%	25%	29%	28%	26%	30%	29%	27%	31%	30%	28%	32%									
Non-Residential-Taxable	10%	9%	11%	10%	9%	12%	11%	10%	13%	12%	11%	14%	13%	12%	15%	14%	13%	16%	15%	14%	17%	16%	15%	18%	17%	16%	19%									

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Table 48: Civil Works Cost Sewer Network

Sewer Network			USD	59,949,916
Civil Works	Quantity	Unit	Unit Cost	Total Cost
Sewer Network - Main Trunk / procurement, installation & road repair				
ND 350 mm	-	m	223	-
ND 400 mm	-	m	251	-
ND 500 mm	841	m	318	267,438
ND 600 mm	586	m	408	239,088
ND 700 mm	3,003	m	532	1,597,596
ND 900 mm	1,047	m	844	883,668
ND 1000 mm	1,899	m	1,041	1,976,859
ND 1100 mm	2,411	m	1,182	2,849,802
Temp sheet piling deep locations	1,500	m	300	450,000
Sewer Network - Secondary & Teri / procurement, installation & road repair	155,490	m	200	31,098,000
Household Connections	22,213	Unit	600	13,327,800
Manholes				
Depth 3-5	288	MH	2,649	762,912
Depth 1-2.5	3,110	MH	1,531	4,761,410
River Crossing				
- Dia 200/350 mm	4	Unit	296,798	1,187,192
- Dia 500 m	1	Unit	298,151	298,151
TOTAL CIVIL WORKS				59,699,916
Mechanical & Equipment				
High Pressure Truck (8m3 Tank)	1	Unit	150,000	150,000
Sewer Maintenance Vacuum Truck (6m3 Tank)	1	Unit	100,000	100,000
TOTAL MECHANICAL & EQUIPMENT				250,000

2-66. There are two (2) WWTP to be constructed and four (4) pumping stations being wet well types. Each one includes Civil Works, materials, mechanical and equipment. The first Wet well pumping station is costed at \$681,344.

Table 49: Cost Estimates PS2 Wet Well Type Pump Station

Pump station PS2 - Wet well type			USD	681,344
Civil Works	Quantity	Unit	Unit Cost	Total Cost
Site Cleaning 7x4m	30.8	m2	12.6	389
Excavation 30m2, 7.8 m deep	264.0	m3	431.2	113,848
Pumping during excavation	30.0	d	232.9	6,988
Temporary sheet piles 15m deep	24.2	m	465.9	11,274
Pump chamber 7x4m	33.6	m2	7,320.5	245,969
Pump house (not included)	-	m2	638.9	-
Fence	29.0	m	20.0	580
TOTAL CIVIL WORKS				379,048
Mechanical & Equipment				
110 l/s, 18m, 37 kw				
Submersible Pump	3	No	19,965	59,895
Pipes, Valves & Fitting etc	3	Lot	13,310	39,930
Other Accessories (10% of material charge)	3	LS	10%	9,983
Installation Costs				
Transportation and Handling	3	Lot	2,662	7,986
Prefabrication (Pipes and Fitting)	3	Lot	3,993	11,979
Installation	3	Lot	2,662	7,986
Pipe Connection (15% of Material Charge)	3	LS	15%	4,192.65
Electrical work				
Transformer (200-KVA)	1	No	66,550	66,550
Power Cable Panel and Accessories	1	Lot	19,965	19,965
Other Accessory for Electrical (10%)	1	LS	10%	8,652
Installation Cost for Electrical (20%)	1	LS	20%	17,303
Other				
Manual bar screen, width 7m	8	m	2,662	21,296
Installation (15% of Material Charges)	3	LS	15%	3,194
Screen removal container	2	No	7,986	15,972
Emergency By pass pipe 700 mm	20	m	185	3,700
Emergency By pass excavation	20	m	113	2,263
Emergency By pass installation	20	m	73	1,451
TOTAL MECHANICAL & EQUIPMENT				302,297

Table 50: Cost Estimates PS4 Wet Well Type Pump Station

Pump station PS4 - Wet well type		USD		659,706
Civil Works	Quantity	Unit	Unit Cost	Total Cost
Site Cleaning 7x4m	30.8	m2	12.6	389
Excavation 84m2, 7.8 m deep	264.0	m3	431.2	113,848
Pumping during excavation	30.0	d	232.9	6,988
Temporary sheet piles 15m deep	24.2	m	465.9	11,274
Pump chamber 7x4m	33.6	m2	7,320.5	245,969
Pump house 20x25m (not included)	-	m2	638.9	-
Fence	29.0	m	20.0	580
TOTAL CIVIL WORKS				379,048
Mechanical & Equipment				
110 l/s, 18m, 37 kw				
Submersible Pump	3	No	13,310	39,930
Pipes, Valves & Fitting etc.	3	Lot	13,310	39,930
Other Accessories (10% of material charge)	1	LS	10%	7,986
Installation Costs				
Transportation and Handling	3	Lot	2,662	7,986
Prefabrication (Pipes and Fitting)	3	Lot	3,993	11,979
Installation	3	Lot	2,662	7,986
Pipe Connection (15% of Material Charge)	1	LS	15%	4,193
Electrical work				
Transformer (200-KVA)	1	No	66,550	66,550
Power Cable Panel and Accessories	1	Lot	19,965	19,965
Other Accessory for Electrical (10%)	1	LS	10%	8,652
Installation Cost for Electrical (20%)	1	LS	20%	17,303
Other				
Manual bar screen, width 7m	8	m	2,662	19,965
Installation (15% of Material Charges)	1	LS	15%	2,995
Screen removal container	2	No	7,986	15,972
Emergency By pass pipe 700 mm	25	m	185	4,625
Emergency By pass excavation	25	m	113	2,828
Emergency By pass installation	25	m	73	1,813
TOTAL MECHANICAL & EQUIPMENT				280,658

Table 51: Cost Estimates PS1 & PS5 Wet Well Type Pump Station

Pump station PS1 and PS5 - Wet well type		USD		703,629
Civil Works	Quantity	Unit	Unit Cost	Total Cost
Site Cleaning 7x4m	30.8	m2	12.6	389
Excavation 84m2, 7.8 m deep	264.0	m3	431.2	113,848
Pumping during excavation	30.0	d	232.9	6,988
Temporary sheet piles 15m deep	24.2	m	465.9	11,274
Pump chamber 7x4m	33.6	m2	7,320.5	245,969
Pump house 20x25m (not included)	-	m2	638.9	-
Fence	29.0	m	20.0	580
TOTAL CIVIL WORKS				379,048
Mechanical & Equipment				
110 l/s, 18m, 37 kw				
Submersible Pump	3	No	26,620	79,860
Pipes, Valves & Fitting etc	3	Lot	13,310	39,930
Other Accessories (10% of material charge)	1	LS	10%	11,979
Installation Costs				
Transportation and Handling	3	Lot	2,662	7,986
Prefabrication (Pipes and Fitting)	3	Lot	3,993	11,979
Installation	3	Lot	2,662	7,986
Pipe Connection (15% of Material Charge)	1	LS	15%	4,193
Electrical work				
Transformer (200-KVA)	1	No	66,550	66,550
Power Cable Panel and Accessories	1	Lot	19,965	19,965
Other Accessory for Electrical (10%)	1	LS	10%	8,652
Installation Cost for Electrical (20%)	1	LS	20%	17,303
Other				
Manual bar screen, width 7m	8	m	2,662	19,965
Installation (15% of Material Charges)	1	LS	15%	2,995
Screen removal container	2	No	7,986	15,972
Emergency By pass pipe 700 mm	25	m	185	4,625
Emergency By pass excavation	25	m	113	2,828
Emergency By pass installation	25	m	73	1,813
TOTAL MECHANICAL & EQUIPMENT				324,581

Table 52: Cost Estimates PS3 Wet Well Type Pump Station

Pump station PS3 - Wet well type		USD		1,144,739
Civil Works	Quantity	Unit	Unit Cost	Total Cost
Site Cleaning 9x7m	69.3	m2	12.6	873
Excavation 64m2, 7.5 m deep	528.0	m3	431.2	227,674
Pumping during excavation	50.0	d	232.9	11,645
Temporary sheet piles 15m deep	35.2	m	465.9	16,400
Pump chamber 7x12m	69.3	m2	7,320.5	507,311
Pump house 20x25m (not included)	-	m2	638.9	-
Fence	42.2	m	20.0	845
TOTAL CIVIL WORKS				764,747
Mechanical & Equipment				
110 l/s, 18m, 37 kw				
Submersible Pump	3	No	39,930	119,790
Pipes, Valves & Fitting etc	3	Lot	13,310	39,930
Other Accessories (10% of material charge)	1	LS	10%	15,972
Installation Costs				
Transportation and Handling	3	Lot	2,662	7,986
Prefabrication (Pipes and Fitting)	3	Lot	3,993	11,979
Installation	3	Lot	2,662	7,986
Pipe Connection (15% of Material Charge)	1	LS	15%	4,193
Electrical work				
Transformer (200-KVA)	1	No	66,550	66,550
Power Cable Panel and Accessories	1	Lot	19,965	19,965
Other Accessory for Electrical (10%)	1	LS	10%	8,652
Installation Cost for Electrical (20%)	1	LS	20%	17,303
Other				
Manual bar screen, width 9m	8	m	3,993	29,948
Installation (15% of Material Charges)	1	LS	15%	4,492
Screen removal container	2	No	7,986	15,972
Emergency By pass pipe 700 mm	25	m	185	4,625
Emergency By pass excavation	25	m	113	2,825
Emergency By pass Installation	25	m	73	1,825
TOTAL MECHANICAL & EQUIPMENT				379,992

2-67. The Wastewater Treatment plant in Zone 1 is estimated to cost \$15,936,412.

Table 53: Cost Estimate WWTP Zone 1

Wastewater Treatment Plant (WWTP) Zone 1			USD	15,936,412
Inlet Pump station WWTP Zone 1-Wet well/Drywell type				
Civil Works	Quantity	Unit	Unit Cost	Total Cost
Site Cleaning 12x7m	92.4	m2	12.6	1,168
Excavation 84m2, 7.5 m deep	693.0	m3	431.2	298,852
Pumping during excavation	60.0	d	232.9	13,976
Temporary sheet piles 15m deep	41.8	m	465.9	19,473
Pump chamber 7x12m	92.4	m2	7,320.5	676,414
Pump house 20x15m	300.0	m2	638.9	191,664
Fence	50.2	m	20.0	1,001
TOTAL CIVIL WORKS				1,202,548
Mechanical & Equipment				
183 l/s, 10m, 30 kw				
Submersible Pump	3	No	59,895	179,685
Pipes, Valves & Fitting etc	3	Lot	13,310	39,930
Other Accessories	1	LS	10%	21,962
Installation Costs				
Transportation and Handling	3	Lot	2,662	7,986
Prefabrication (Pipes and Fitting)	3	Lot	3,993	11,979
Installation	3	Lot	2,662	7,986
Pipe Connection (15% of Material Charge)	1	LS	15%	4,193
Electrical work				
Transformer (200-KVA)	1	No	66,550	66,550
Power Cable Panel and Accessories	1	Lot	19,965	19,965
Other Accessory for Electrical (10%)	1	LS	10%	8,652
Installation Cost for Electrical (20%)	1	LS	20%	17,303
Other				
7.50%	8	m	4,659	34,939
Installation (15% of Material Charges)	1	LS	15%	5,240.8
Screen removal container	2	No	7,986	15,972
Emergency By pass pipe 700 mm	25	m	185	4,625
Emergency By pass excavation	25	m	113	2,828
Emergency By pass installation	25	m	73	1,813
TOTAL MECHANICAL & EQUIPMENT				451,608
TOTAL INLET SEWAGE PUMP STATION				1,654,156

Other costs of WWTP 1 Zone 1 "WWTP Print" same sheet from Component 1				
Civil Works				
Truck offload (whole):	1	LS	60,000	60,000
Treatment				
- Primary Settling Tank	1	LS	310,000	310,000
- Trickling Filter	1	LS	1,970,000	1,970,000
- Secondary Settling Tank	1	LS	610,000	610,000
- Pump Station from Primary clarifier to TF				
Site Cleaning 15x10m	165	m2	13	2,086
Excavation 150m2, 3 m deep	495	m3	431	213,466
Pumping during excavation	30	d	233	6,988
Temporary sheet piles 6m deep	55	m	333	18,301
Pump chamber 15x10m	165	m2	3,993	658,845
Pump house 20x25m (not included)	-	m2	639	-
Fence	-	m	20	-
Surface Flow Wetland	1	LS	550,000	550,000
Sludge Drying Bed	1	LS	150,000	150,000
Foundation	1	LS	860,000	860,000
Landscaping, greenbelt	1	LS	400,000	400,000
Land Raising 3 m	1	LS	1,500,000	1,500,000
Site Prep. / Alteration	1	LS	350,000	350,000
TOTAL CIVIL WORKS				7,659,686
Mechanical & Equipment				
- Pump Station from Primary clarifier to TF				
450 l/s, 13m, 110 kw				
Submersible Pump	3	No	86,515	259,545
Pipes, Valves & Fitting etc	3	Lot	13,310	39,930
Other Accessories	1	LS	10%	29,948
Installation Costs				
Transportation and Handling	3	Lot	2,662	7,986
Prefabrication (Pipes and Fitting)	3	Lot	3,993	11,979
Installation	3	Lot	2,662	7,986
Pipe Connection (15% of Material Charge)	1	LS	15%	4,193
Screening: automatic cleaning, 10 mm step screens	1	LS	720,000	720,000
Degritting: vortex grit units quoted from Pista Grit	1	LS	240,000	240,000
Chlorine Contact Tank	1	LS	840,000	840,000
Facilities (Admin/Lab Building, fencing, drainage etc)	1	LS	400,000	400,000
Electrical & Control:	1	LS	1,170,000	1,170,000
Piping:	1	LS	930,000	930,000
Testing & Commissioning (Allowance)	1	LS	80,000	80,000
Contractor Markup (15% on Civil Works)	1	LS	1,750,000	1,750,000
- Pump Station from Primary clarifier to TF				
Transformer (200-KVA)	1	No	66,550	66,550
Power Cable Panel and Accessories	1	Lot	19,965	19,965
Other Accessory for Electrical (10%)	1	LS	10%	8,652
Installation Cost for Electrical	1	LS	20%	17,303
Others				
Manual bar screen, width 7m	-	m	2,662	-
Installation (15% of Material Charges)	-	%	15%	-
Screen removal container	-	no	7,986	-
Emergency By pass pipe 700 mm	50	m	185	9,250
Emergency By pass excavation	50	m	113	5,657
Emergency By pass installation	50	m	73	3,627
TOTAL MECHANICAL & EQUIPMENT				6,622,570
TOTAL Other Costs for WWTP 1 Zone 1				14,282,256

2-68. The Wastewater Treatment Plant for Zone 3 is estimated to cost \$5,064,456:

Table 54: Cost Estimate WWTP Zone 3

Wastewater Treatment Plant (WWTP) Zone 3			USD	5,064,456
Inlet Pump station WWTP Zone 3 -Dry/Wet well type	Quantity	Unit	Unit Cost	Total Cost
Civil Works				
Site Cleaning 9x7m	69.3	m2	13	876
Excavation 64m2, 7.5 m deep	528	m3	431	227,697
Pumping during excavation	50	d	233	11,646
Temporary sheet piles 15m deep	35.2	m	466	16,398
Pump chamber 7x12m	69.3	m2	7,321	507,311
Pump house 20x15m	300	m2	639	191,664
Fence	42.24	m	20	843
TOTAL CIVIL WORKS				
Pump Material Costs				
77 l/s, 10m, 12.5 kw				
Centrifugal Pump	3	Unit	33,275	99,825
Pipes, Valves & Fitting etc	3	Unit	13,310	39,930
Other Accessories			10%	13,976
Pump Installation Costs				
Transportation and Handling	3	Lot	2,662	7,986
Prefabrication (Pipes and Fitting)	3	Lot	3,993	11,979
Installation	3	Lot	2,662	7,986
Pipe Connection (15% of Material Charge)			15%	4193
Electrical work (Equipment)				
Transformer (200-KVA)	1	Unit	66,550	66,550
Power Cable Panel and Accessories	1	Unit	19,965	19,965
Other Accessory for Electrical (10%)			10%	8,652
Installation Cost for Electrical (20%)			20%	17,303
Other (Equipment)				
Manual bar screen, width 9 m	7.5	m	3993	29,948
Installation (15% of Material Charges)			15%	4,492
Screen removal container	2	no	7986	15,972
Emergency fly pass pipe 700 mm	25	m	185	4,625
Emergency fly pass excavation	25	m	113.1	2,828
Emergency fly pass installation	25	m	72.5	1,813
TOTAL MECHANICAL & EQUIPMENT				
TOTAL INLET SEWAGE PUMP STATION				1,314,456

Table 55: Cost Estimates WWTP Zone 3

Other costs of WWTP Zone 3				
Civil Works				
Leveling	1	LS	100,000	100,000
Earthmoving	1	LS	120,000	120,000
Basin waterproofing with HDPE liners	1	LS	270,000	270,000
Filling with gravel material 10-20 mm	1	LS	740,000	740,000
loading pipes for distribution system	1	LS	420,000	420,000
drainage pipes	1	LS	130,000	130,000
aeration grid	1	LS	110,000	110,000
sand for bottom layer	1	LS	30,000	30,000
pre-treatments	1	LS	100,000	100,000
concrete works for FRB pumping station	1	LS	40,000	40,000
inspection manholes	1	LS	20,000	20,000
Testing & Commissioning (Allowance)	1	LS	30,000	30,000
Contractor Markup (15%)	1	LS	270,000	270,000
Landscaping, greenbelt	1	LS	240,000	240,000
Site Prep. / Alteration	1	LS	60,000	60,000
TOTAL CIVIL WORKS				2,680,000
Mechanical & Equipment				
FRB pumping station pumps	1	LS	160,000	160,000
Automatic Valves	1	LS	130,000	130,000
Facilities (Admin/Lab Building, fencing, drainage etc)	1	LS	240,000	240,000
power cabin and blower building structures	1	LS	50,000	50,000
PLC	1	LS	30,000	30,000
electrical panels	1	LS	30,000	30,000
electrical works	1	LS	50,000	50,000
blower 35 KW con inverter	1	LS	50,000	50,000
Chlorination tank concrete structure	1	LS	80,000	80,000
chlorine dosing unit	1	LS	30,000	30,000
Pipe connections	1	LS	220,000	220,000
TOTAL MECHANICAL & EQUIPMENT				1,070,000
				3,750,000

2-69. Environment and Social mitigation costs are estimated at \$557,060 and consist of national compliance activities, such as displaying the results publicly, laboratory testing, public consultation, and management aspects associated with public disclosure. In addition, there are estimated costs for operations and management of the monitoring and evaluation activities. Refer Table 56.

Table 56: Cost Estimates for Environmental & Social Mitigation

		Detailed Costs (USD '000)		
	Unit	Total	Unit Cost	Total
Environmental and Social Mitigation		Months		
A AMDAL Preparation				
Public display of activities prior to work	Unit	1	0.15	0.15
Public display of activities prior to environmental certificate	Unit	1	0.15	0.15
1 Laboratory Testing				
at WTP location - Water, Soil, Air, Noise	Unit	1	0.11	0.11
at Pump Station - Water, Soil, Air, Noise	Unit	1	0.11	0.11
Biology Test	Lump Sum	1	0.08	0.08
Social Survey	Lump Sum	1	0.11	0.11
Traffic analysis	Lump Sum	1	0.11	0.11
2 Presentation				
KA ANDAL	Unit	2	0.15	0.30
ANDAL, RKL, RPL	Unit	2	0.15	0.30
3 Public Consultation				
Public consultation	Lump Sum	1	0.38	0.38
4 Office Consumables				
Office Consumables - (environmental Office)	Month	6	0.02	0.14
5 Transport				
Hire 4WD Twin Cab Pickup Truck	Month	6	0.60	3.60
6 Communications				
Communications (Environmental Office)	Month	6	0.01	0.05
7 Reports and Communications				
Reports & Communications	Lump Sum	1	0.02	0.02
8 AMDAL Team (6 staff x Assistant)	Lump Sum	1	52.54	52.54
9 Environmental Permit Process	Lump Sum	1	1.50	1.50
B Environmental & Social Mitigation				
1 Laboratory Testing - Water, Soil, Air, Noise	Unit	16	1.13	18.02
2 Transport - Hire 4WD Twin Cab Pickup Truck	Month	24	0.60	14.41
3 M&E Staff	Unit	4	52.54	210.18
4 Landscaping / Tree planting & Mangroves (Zone 3)	Lump Sum	4	2.00	8.00
5 Flood Embankment (Zone 3) or levee (design and construction)	Lump Sum	4	5.00	20.00
6 Operations				
Project team leader	p-month	4	4.50	18.00
Infrastructure engineer	p-month	22	4.50	99.00
Environmental Expert	p-month	22	4.50	99.00
Office Consumables - (environmental Office)	month	24	0.23	5.40
Communications (Environmental Office)	month	24	0.08	1.80
Reports & Communications	month	24	0.15	3.60
Subtotal Environment and Social Mitigation				557.06

Cost Estimates for Consulting Services

2-70. There are three types of Consulting Services envisaged for the Banda Aceh implementation, (i) the Construction Supervision Consultant, (ii) the Design Consultant – contracted under the ADB ESP Project, and (iii) the Capacity Building Consultant. Under the costs for the Capacity Building Consultant costs are included for both the Startup of operations and for capacity development for outreach, enabling and O&M training. ADB ESP Project has provided the cost estimates for the Design Consultant.

Table 57: Cost Estimates for Construction Supervision Consultants (USD 000's)

a. Construction Supervision		Months	Cost \$	Total Cost
a	Construction Supervision Engineer (1)	p-month	84	4.50
b	Sanitation Engineer (2)	p-month	84	4.50
c	Construction Supervision Engineer (2)	p-month	84	4.50
d	Sanitation Engineer (3)	p-month	84	4.50
e	Construction Supervision Engineer (3)	p-month	84	4.50
f	Geotechnical/Materials Engineer	p-month	84	4.50
g	Chief Surveyor (1)	p-month	84	4.50
h	Chief Surveyor (2)	p-month	84	4.50
i	Chief Surveyor (3)	p-month	84	4.50
Subtotal Construction Supervision				3,402.00

Table 58: Cost Estimates for Design Consultants (USD 000's)

b. Detailed Design				
Consultants Hired through ADB ESP Project		Lump Sum	1	4,680.00
Subtotal Detailed Engineering Design				4,680.00

Table 59: Cost Estimates for the International Capacity Building Consultants

c. Capacity Building					
1	International Consultants - Capacity Building Banda Aceh		Months	Cost \$000's	Total Cost
	Advisor to team leader/senior planner	p-month	36	20.00	720.00
	Financial Management	p-month	8	20.00	160.00
	Contract Management	p-month	18	20.00	360.00
	CCO/ Training advisor	p-month	6	20.00	120.00
	Infrastructure specialist/advisor	p-month	21	20.00	420.00
	M&E specialist	p-month	3	20.00	60.00
	Resettlement Expert	p-month	8	20.00	160.00
	International Travel	return trip	39	2.50	97.50
	Per Diem	Days	3,000	0.09	270.00
	Subtotal International Consultants - Capacity Building				2,367.50

Table 60: Cost Estimates for the National Capacity Building Consultants

2	National Consultants - Capacity Building		Months	Cost \$000's	Total Cost
	Project team leader	p-month	60	4.50	270.00
	Infrastructure engineer	p-month	60	4.50	270.00
	Contract Manager	p-month	60	4.50	270.00
	Financial Management - Assistant Trainer	p-month	1.0	4.50	4.50
	Assistant Trainer - Institutional	p-month	0.7	4.50	3.30
	Assistant Trainer - Comparative Study	p-month	0.7	4.50	3.00
	Training coordinator	p-month	12	4.50	54.00
	M&E expert	p-month	6	4.50	27.00
	Workshop Facilitator	p-month	10.0	4.50	45.00
	Community Outreach - Deputy Team Leader	p-month	1.5	4.50	6.75
	Customer Management - Deputy Head Trainer	p-month	0.3	4.50	1.50
	Asset Management Trainer (Covered by Construction Supervision)	p-month	48.0	4.50	216.00
	Regulatory, institutional, planning and tariff expert trainer	p-month	36.0	4.50	162.00
	Financial Management - Assistant Trainer: Utility Management	p-month	24.0	4.50	108.00
	Utility management - Assistant Trainer	p-month	0.3	4.50	1.50
	HRM Development Expert	p-month	1.0	4.50	4.50
	Procurement Specialist	p-month	1.0	4.50	4.50
	Specify - description	p-month	-	4.50	-
	Specify - description	p-month	-	4.50	-
	Specify - description	p-month	-	4.50	-
	Per Diem - Site Visits	Days	4,839	0.05	241.93
	Per Diem - Relocation	p-month	-	1.50	-
	Subtotal National Consultants - Capacity Building				1,693.48

2-71. For implementation there will be some service contracts, workshops and car rentals from time to time. The following is estimated for this project in Banda Aceh:

Table 61: Cost Estimates for Service Contracts

3 Consultants - Service Contracts				
Surveys, formative studies	Contract	\$	2.00	10.00
				10.00
Subtotal Consulting Services - Capacity Building				4,670.98
			Foreign Content	
4 Workshops				
Banda Aceh Workshops				
ADB Disbursements, Financial Management, Reporting & Auditing	Workshop	2	0.02	0.04
Public Awareness - Stakeholder Workshops - 2 day	Workshop	5	0.02	0.10
Public Awareness - Stakeholder Workshops - 1 day	Workshop	3	0.02	0.06
PA Journalists' orientation/prensa conference	Workshop	6	0.02	0.12
Financial Management	Workshop	1	0.02	0.02
Procurement	Workshop	1	0.02	0.02
Training for field level sanitation campaigns				-
2.1 Training of social facilitators - 5 days	OT./Classroom	3	0.02	0.06
2.2. Training of Socialization team members - 2 days	OT./Classroom	3	0.02	0.06
2.3. Training of technical facilitators/engineer - 1 day	OT./Classroom	3	0.02	0.06
Total Banda Aceh Training Workshops				0.54
5 Supply Contracts				
Promotional Materials	PCSum	-	1.00	-
Video advertisements	PCSum	2	40.00	80.00
Posters	PCSum	1	19.00	19.00
3.3 Brochures	PCSum	1	105.00	105.00
PA Personnel / staff cost	PCSum	5	574.80	2,873.99
PA Operational Costs	PCSum	1	4.16	4.16
Community Surveys - training [1 each year]	PCSum	6	59.42	356.53
Survey Piped Sewerage	PCSum	3	38.10	114.29
Community Survey Desludging	PCSum	3	2.00	6.01
Total Bekasi Supply Contracts				3,558.97
6 Courses				
Short Courses	Unit	12	1.00	12.000
Long term Courses	Unit	8	1.00	8.000
Overseas Study Tours	Unit	2	30.00	60.000
TVET Courses	Unit	54	2.00	108.000
Other Courses	Unit	9	3.00	27.000
Subtotal Capacity Building Courses				215.00
Grand Total Capacity Building				7,845.49

2-72. For project management there are several aspects. There will be a firm hired as a 'Project Implementation Support Consultant' (PISC) which will support at the central and provincial levels for project implementation. At the provincial level implementation units called "SATKERS" will be staffed by seconded and new staff and supported by the PISC, including International and National Consultants. The SATKER will be provided with mechanical and equipment as specified in the Tables below, with some minor construction and rehabilitation, together with office equipment:

Table 62: PISC International Consultants

Project Management				
1 Project Implementation Support Consultants				
a International Consultants - Project Management SATKER Banda Aceh				
		Months	Cost \$000's	Total Cost
Supervising Project Engineer	p-month	33	22.00	528.00
Monitoring & Evaluation Specialist	p-month	20	20.00	420.00
Environmental Specialist	p-month	20	20.00	320.00
Social Safeguards Specialist	p-month	15	20.00	240.00
International Travel	return trip	41	2.50	70.00
Per Diem	p-month	94	2.70	197.10
Subtotal International Consultants - Project Management - Banda Aceh				1,775.10

Table 63: PISC National Consultants

b National Consultants - Project Management SATKER Banda Aceh					
Project team leader	p-month	30	4.50		108.00
Supervising Project Engineer	p-month	30	4.50		108.00
Monitoring & Evaluation Specialist	p-month	30	4.50		108.00
Environmental Specialist	p-month	20	4.50		72.00
Social Safeguards Specialist	p-month	15	4.50		54.00
Coordinator	p-month	15	4.50		54.00
Training coordinator	p-month	15	4.50		54.00
Workshop Facilitator	p-month	15	4.50		54.00
Project assistants	p-month	15	4.50		54.00
Driver	p-month	13	4.50		36.00
Per Diem	Days	99	0.05		3.90
Subtotal National Consultants - Project Management - Banda Aceh					705.90

Table 64: Support Staff SATKER Banda Aceh

c Support Staff - Project Management SATKER Banda Aceh					
Support Staff					
Administrator	p-month	108	0.25		12.00
Administrative Assistant	p-month	108	0.50		24.00
Translator/interpreter	p-month	108	1.50		72.00
Office Operations					
Office Consumables (PIUx1)	month	108	0.10		4.80
Office Consumables (PIUx2)	month	108	0.20		9.60
Communications (PIUx1)	month	108	0.10		4.80
Communications (PIUx2)	month	108	0.50		24.00
Reports & Communications	month	108	0.25		12.00
Vehicle Operation & Maintenance					
Vehicle Operation & Maintenance V81	month	108	0.50		24.00
Vehicle Operation & Maintenance V82	month	108	0.50		24.00
Subtotal project Management					163.20

Table 65: SATKER Banda Aceh Mechanical & Equipment

d Mechanical and Equipment			Cost \$000's		Total Cost
1 Mechanical Equipment					
Air Conditioning	Unit	1	1.00		1.00
Electrical supply	Unit	1	1.00		1.00
Internet ADSL + wireless router	Unit	1	1.00		1.00
Internet ADSL connection	Unit	1	1.00		1.00
Subtotal Mechanical Equipment					4.00
2 Minor Construction at SATKER Level (in Banda Aceh)					
Rehabilitation	Lump Sum?	1	1.00		1.00
Shelves	Lump Sum?	1	0.30		0.30
Plastering	Lump Sum?	1	0.30		0.30
Drainage and Protective Works	Lump Sum?	1	1.00		1.00
Maintenance	Lump Sum?	1	1.00		1.00
Subtotal Minor Construction					3.60
3 Vehicles					
4WD Twin Cab Pickup Truck	No	1	30.00		30.00
Mini Bus	No	1	30.00		30.00
Subtotal Vehicles					60.00
4 Vehicle hire					
4WD Twin Cab Pickup Truck	month	15	1.00		12.00
Mini Bus	month	15	1.00		12.00
Subtotal Vehicle Hire					24.00
5 Office and Other Equipment					
Desktop computer	No	6	0.60		3.60
Laptop computer	No	3	0.80		2.40
Mono printer/scanner/copier	No	1	0.35		0.35
Colour printer (A3)	No	1	1.00		1.00
Photocopier	No	1	1.50		1.50
Fax machine	No	1	0.20		0.20
Mobile phones for 6 Staff	No	12	0.20		1.20
Mobile phone operation	year	54	0.10		2.40
Incremental Administration					
Electricity	Month	9	0.20		0.80
Stationery	Month	9	0.20		0.80
Internet annual cost (subscription and use)	Month	9	0.50		2.00
Phone line operation annual cost	Month	9	0.20		0.80
Office rent	Month	9	0.35		1.40
Chairs, desks, filing cabinet, bookcase	set	6	0.40		2.40
Subtotal Equipment - Office and Other Equipment					20.55
Total Project Management					2,753.05

2-73. Land acquisition is discussed in a separate report, but for the cost estimates it was considered that land was needed for the WWTP at Gampong Blang Oi, all other land is already owned local government.

2-74. There is very little in the way of land acquisition and resettlement costs in the proposed Aceh project.

Table 66: Land Acquisition & Resettlement

Land Acquisition and Resettlement Cost				
Pump Station				
Pump Station 1 (all of pump stations are local government land)	m2	100	0.11	11.26
Pump Station 2 (all of pump stations are local government land)	m2	100	0.11	11.26
Pump Station 3 (all of pump stations are local government land)	m2	100	0.11	11.26
Pump Station 4 (all of pump stations are local government land)	m2	100	0.11	11.26
Pump Station 5 (all of pump stations are local government land)	m2	100	0.11	11.26
WWTP				
Land Acquisition Zone 1 Gampong Blang Oi	m2	40,000	0.03	1,050.89
Land Acquisition Zone 3 Gampong Tilang (Local government land)	m2	30,000	0.03	788.17
Solatum / Emotional Loss (5 % of land price)*	LS	1	0.20	0.20
Livelihood Restoration Program (no relocation)	LS	1	0.20	0.20
Resettlement Plan Administrative costs (refer to PMN RI No. 10/PMN/02/2016, budget above Rp 100 billion to (Rp 550,000,000) + (2% x Rp 15 billion)	LS	1	1.20	1.20
External Monitoring (2 %)	LS	1	70.64	70.64
Resettlement Expert	p-months	12	4.50	54.00
*1 Solatum: Land in the location of WWTP candidate is customary land. This area is originally a rice field which is the main life source of Blang Oi residents, then the river overflows so the land becomes a swamp, a place to catch fish, fish and others, as sources of income of Blang Oi communities.				
Total Land Acquisition & Resettlement				2,021.60

2-75. The government and city administrations will provide incremental staff to the project. The city staff will most probably assist in monitoring the project implementation and coordinating departments for the construction to take place. These costs are recurrent and will be the contribution of the government to the project.

Table 67: Recurrent Costs – incremental staff

Recurrent Costs				
a Salaries				
1 Incremental Staff				
Incremental Staff - PMO (Based in City Administration)		Months	Cost \$000's	Total Cost
Project Manager	p-month	108	0.28	30.24
Accountant	p-month	108	0.20	21.60
Procurement Officer	p-month	108	0.18	19.44
Secretary	p-month	108	0.18	19.44
Drivers	p-month	108	0.20	21.60
Guards	p-month	108	0.10	10.80
Cleaner	p-month	108	0.08	8.64
Accommodation	Month	108	1.08	116.64
Operation & Maintenance	Month	108	2.08	224.64
Subtotal Incremental Staff - (City Funded)				473.04
Incremental Staff - Operator				
Project Manager	p-month	108	0.20	21.60
Administrator	p-month	108	0.10	10.80
Accountant	p-month	108	0.08	8.64
Procurement Specialist/Assistant Project Manager	p-month	108	1.08	116.64
Procurement Specialist / Deputy Head	p-month	108	2.08	224.64
Monitoring and Evaluation Specialist	p-month	108	3.08	332.64
Environmental Officer	p-month	108	4.08	440.64
Gender Specialist	p-month	108	5.08	548.64
Driver	p-month	108	3.08	332.64
Guards	p-month	108	4.08	440.64
Cleaner	p-month	108	5.08	548.64
Accommodation	Month	108	6.08	656.64
Operation & Maintenance	Month	108	7.08	764.64
Subtotal Incremental Staff - operator (City Funded)				4,447.44

Table 68: Recurrent Costs – Expenses

2 Expenses						
	Electricity	Month	108	0.20	21.60	
	Stationery	Month	108	0.15	16.20	
	Internet monthly cost (subscription and use)	Month	108	0.12	12.96	
	Phone line operational cost	Month	108	0.10	10.80	
	Office rent	Month	108	1.00	108.00	
	Chairs, desks, filing cabinet, bookcase	Annual	108	0.25	27.00	
	Subtotal Incremental Administration Expenses					196.56
3 Equipment Operation and Maintenance						
	Desktop computer	Unit	6	0.60	3.60	
	Laptop computer	Unit	3	0.80	2.40	
	Mono printer/scanner/copier	Unit	1	0.35	0.35	
	Colour printer (A3)	Unit	1	1.00	1.00	
	Photocopier	Unit	1	1.50	1.50	
	Fax machine	Unit	1	0.20	0.20	
	Mobile phones for Staff	Unit	6	0.20	1.20	
	Mobile phone operation	Monthly	108	0.10	10.80	
	Subtotal Incremental Administration O&M					21.05
Recurrent	Salaries (City Funded)					4,920.48
Recurrent	Operating expenses (City Funded)					196.56
Recurrent	Equipment Operation and Maintenance (City Funded)					21.05
	Total Recurrent Costs					5,138.09

On-Site Sanitation – Banda Aceh

2-76. The Cost estimates provided above include both the sewerage system and on-site sanitation.

2-77. There are 3 key elements to on-site sanitation systems; (i) Containment, in the form of HH Septic tanks and community holding tanks, (ii) Transport – vacuum trucks and water trucks and (iii) Treatment - Septage Treatment Plants (STP).

2-78. The pilot system proposed under this project will 2,600 Septic Tanks for residential use and 500 tanks for commercial use for containment. For the pilot 2 vacuum trucks and a three-wheeler suction vehicle will also be provided to address the transport dimension. It will also provide for treatment a Co-Septage treatment unit (100 m³/d), 2 Potable Temporary Septage Storage tanks (5 m³), and a Biosolid drying machine. Furthermore, there will be some Upgrading of JICA IPLT. To support the operations the project will provide GIS and MIS Development (including Hardware & software), portable Water Quality Testing Instrument and conduct Marketing and Socialization. The costs are (USD):

Septage Management		2,103,000
Mechanical & Equipment		Total Cost
Fabricated SNI Septic Tanks of 3 m ³ (residential) with protection		1,170,000
Fabricated SNI Septic Tanks of 5 m ³ (commercial) with protection		325,000
Potable Temporary Septage Storage tank (5 m ³)		8,000
Biosolid drying machine		35,000
Purchase vacuum trucks 5 m ³ , with GPS		150,000
Purchase three-wheeler suction vehicles (600 liter)		5,000
Upgrading JICA IPLT		250,000
GIS and MIS Development (incl. Hardware&software)		100,000
Portable Water Quality Testing Instrument		30,000
Marketing and Socialization		30,000
TOTAL MECHANICAL & EQUIPMENT		2,103,000

2-79. Operation and maintenance is, on commissioning of the whole scheme and with access to the WWTP as an additional treatment facility, assessed at US\$70,050 per annum:

Septage Management					
Assumptions	USD	cost per m3 desludge			
Manager-annual salary	7,000	1.94			
Senior operator - annual salary	5,500	1.53			
Operator - annual salary	4,800	1.33			
Administrative assistant - annual salary	3,600	1.00			
Security - annual cost	3,600	1.00			
Laborer - housekeeping and general labor	3,600	1.00			
Cost Component	Cost/yr	Units	% of Full time	Cost/yr	Totals
Staff Salaries and Wages - Annual					
Manager	7000	1	100%	7,000	
Senior operator/engineer	5500	1	100%	5,500	
Operator/engineer	4800	2	100%	9,600	
Administrative assistant	3600	2	100%	7,200	
Security officer	3600	2	100%	7,200	
laborer	3600	8	100%	28,800	
Subtotal Salaries/Wages					65,300
Other Operating and Maintenance Costs					
a. Water Quality Testing	1000	1		1,000	
b. Other Miscellaneous O&M Costs	1500	1		1,500	
c. Supplies (office and maintenance supplies)	1500	1		1,500	
d. Protective gear for operation team	750	1		750	
Subtotal - Other Operating and Maintenance Costs					4,750
TOTAL annual operating expenses					70,050

A2-4. Financial Analysis

2-80. The financial analysis takes each city in turn. In general, there are very little resources given to the sanitation sector as a stand-alone sector. Generally, it is considered that the sector should be water and sanitation, however in reality sanitation has its own issue and the approach is different than that to water.

4.1. Mataram

2-81. A financial appraisal of each sub project was undertaken using with- and without-project scenarios over 25 year operation period, with the residual value at the end of this period assumed as zero. The analysis here concerns the proposed project for Mataram. The tariff will increase in line with inflation. Financial flows were discounted overtime using the weighted average cost of capital (WACC), which was calculated based on the after-tax real interest rate. The WACC is computed at 0.61%.

Table 69: Computation of Weighted Average Cost of Capital

Item	Financing Component						Total
	ADB Loan	ADB ESP Loan	Grant	Central GOI	Mataram GI	Beneficiaries	
A. Amount (\$million)	391.81	14.04	13.41	71.89	48.14	26.26	565.55
B. Weighting (%)	69.28%	2.48%	2.37%	12.71%	8.51%	4.64%	100.00%
C. Nominal Cost (%)	2.82%	2.82%	12.00%	8.98%	9.75%	8.98%	
D. Tax Rate (%)	25.00%	25.00%	25.00%	0.00%	25.00%	0.00%	
E. Tax Adjusted Nominal Cost (%)	2.11%	2.11%	9.00%	8.98%	7.31%	8.98%	
F. Inflation Rate (%)	3.20%	3.20%	3.20%	3.5%	3.5%	3.50%	
G. Real Cost (%)	-1.05%	-1.06%	5.82%	5.29%	3.68%	5.29%	
H. Weighted Component of WACC (%)	-0.73%	-0.03%	0.13%	0.67%	0.31%	0.25%	
Weighted Average Cost of Capital (Real Terms)							0.61%

2-82. The annual domestic inflation rate is 3.5% for 2017. Given that the ADB loan is denominated in domestic currency units, the domestic inflationary applies to the real cost of this Debt. The foreign inflation rate is the manufacturers unit value index (MUV), which is generally accepted as a proxy for the price of developing country imports of manufactured goods in US dollar terms. The international inflation rate according to the MUV index is expected to be 3.1%.

2-83. Since Grant funds provided to the project also have an opportunity cost, the proposed grants has been treated similarly to equity, such that the cost of the grant is assumed to be the cost of equity. The cost of equity is assumed to be 8.98%, however for the City of Mataram who borrow on the open market it is assume that the corporate rate would be charged by commercial banks at 9.75% (at this stage the funding source of the grant has not yet been determined).

2-84. The FIRR is the discount rate at which the financial net present value of the project's cash flow becomes zero. If the FIRR is equal to or greater than the WACC, the project is considered financially viable. The FIRR was determined from incremental cash flow, with revenues from Wastewater Fees, Desludging Fees and Wastewater Disposal Fees.

2-85. The wastewater fees are based on charging only the households connected to the system which will have a coverage of 11,678 households for Stage 1, rising to 27,880 households at the end of Stage 2 and finally 49,245 households at the end of Stage 3 The wastewater fees cover only the operation and maintenance of the sewer facilities, with a full cost recovery.

2-86. The desludging fees are the cost of collection by a Vacuum truck and Vacuum Pump provided by the project and 2 private operator trucks making 1,200 entries each per year. The coverage area for the is 1,800 households and 300 businesses/institutional facilities. Inclusion of this service increases the service areas to 13,478 households for stage 1, rising to 29,680 households at the end of stage 2 and finally servicing 51,045 households at the end of stage 3.

2-87. The fee for Septage management and wastewater disposal is based on the coverage area and the associated flow rates of 5.77 m³/d for residential properties and 1.60 m³/d for commercial establishments. The fees will cover the full cost of operation and maintenance of the WWTP.

2-88. The project is otherwise according to the schedule of three Stages, as demonstrated in section D above. The analysis has been done also separately for each Stage. O&M costs have been calculated for the sewer network, including pump station one and two, the wastewater treatment plant and for Septage management. O&M costs are assumed to remain constant in real terms. The financial costs include physical contingencies, but do not consider price contingencies.

Table 70: FIRR Calculation for Mataram

FIRR, IDR million in 2018 Constant Price					
Year	Population Served	Revenues	Capital Cost	O&M Cost	Net Inflow (Outflow)
2019	0	0	190,918	0	(190,918)
2020	0	0	106,056	0	(106,056)
2021	0	0	276,833	0	(276,833)
2022	19,318	34,915	597,226	0	(562,311)
2023	38,635	927,573	109,688	11,108	806,777
2024	49,870	790,302	388,943	13,241	388,118
2025	69,902	469,975	306,703	13,241	150,031
2026	89,935	367,669	389,967	14,862	(37,160)
2027	149,494	234,883	454,971	16,483	(236,570)
2028	189,020	191,460	119,194	16,483	55,784
2029	189,020	106,086	0	16,483	89,603
2030	189,020	106,100	0	16,483	89,618
2031	189,020	17,797	0	16,483	1,315
2032	189,020	17,812	0	16,483	1,330
2033	189,020	17,827	0	16,483	1,345
2034	189,020	17,843	0	16,483	1,360
2035	189,020	17,859	0	16,483	1,376
2036	189,020	17,875	0	16,483	1,392
2037	189,020	17,892	0	16,483	1,409
2038	189,020	17,908	0	16,483	1,426
2039	189,020	17,926	0	16,483	1,443
2040	189,020	17,943	0	16,483	1,461
2041	189,020	17,961	0	16,483	1,478
2042	189,020	17,979	0	16,483	1,497
2043	189,020	17,998	0	16,483	1,515
2044	189,020	18,017	0	16,483	1,534
2045	189,020	18,036	0	16,483	1,554
2046	189,020	18,056	0	16,483	1,573
2047	189,020	18,076	0	16,483	1,594
2048	189,020	18,097	0	16,483	1,614
2049	189,020	18,118	0	16,483	1,635
2050	189,020	18,139	0	16,483	1,657
2051	189,020	18,161	0	16,483	1,678
2052	189,020	18,183	0	16,483	1,701
2053	189,020	18,206	0	16,483	1,723
NPV (IDR Million)		3,456,919	2,840,210	440,818	
NPV (IDR million)					175,891
FIRR (%)					5.70%

2-89. Sensitivity analysis of the FIRR and FNPV was conducted under the following scenarios: (i) increasing capital costs of 10%, (ii) Increase in O&M costs of 10%, (iii) Decrease in revenues of 10% and finally (iv) construction delay of one year.

Table 71: FIRR Sensitivity Analysis for Mataram

FIRRs:	% Change	NPV	FIRR	SI (IRR)	SV (IRR)	SI (NPV)	SV (NPV)
Base Case		175,891	5.70%				
Case 1 - Increase in Capital Costs	10%	(108,130)	-2.27%	15.63	6%	16.15	6%
Case 2 - Increase in O&M Costs	10%	131,809	4.93%	1.50	67%	2.51	40%
Case 3 - Decrease in Revenues	10%	(169,801)	-6.43%	23.80	4%	19.65	5%
Case 4 - Project Delayed by One Year		140,536	2.83%	0.56	20%	0.20	498%

SI = sensitivity indicator (ratio of percentage change in IRR above the cut-off rate to percentage change in selected variable).

SV = switching value (percentage change in selected variable to reduce the IRR to cut-off rate).

() = negative, FIRR = financial internal rate of return, FNPV = financial net present value, O&M = operation and maintenance.

Source: Asian Development Bank estimates.

2-90. The project is viable from a financial aspect providing the households can afford and are willing to pay the assessed wastewater charges for the sewer network, WWTP and the on-site sanitation operation and maintenance cost. However, in order to achieve this positive outcome

the City Administration will have to subsidize revenue to the amount of roughly IDR 337 billion per year until 2031 when the project becomes sustainable and self-financing.

Mataram – Stage 1 only:

2-91. For Stage 1 the wastewater fees are based on charging only the households connected to the system which will have a coverage of 11,678 households. The wastewater fees cover only the operation and maintenance of the sewer facilities, with a full cost recovery.

2-92. On-site sanitation scheme is assumed to take place completely during Stage 1 as is as stated in the total project as; the desludging fees are the cost of collection by a Vacuum truck and Vacuum Pump provided by the project and 2 private operator trucks making 1,200 entries each per year. The coverage area for the is 1,800 households and 300 businesses/institutional facilities. Inclusion of this service increases the service areas to 13,478 households for Stage 1.

2-93. The fee for Septage management and wastewater disposal is based on the coverage area and the associated flow rates of 5.77 m³/d for residential properties and 1.60 m³/d for commercial establishments. The fees will cover the full cost of operation and maintenance of the WWTP.

2-94. O&M costs have been calculated for the sewer network, including pump station one and two, the wastewater treatment plant and for Septage management. O&M costs are assumed to remain constant in real terms. The financial costs include physical contingencies, but do not consider price contingencies.

Table 72: FIRR Calculation for Mataram Stage 1

FIRR, IDR million in 2018 Constant Price					
Year	Population Served	Revenues	Capital Cost	O&M Cost	Net Inflow (Outflow)
2019	0	0	190,918	0	(190,918)
2020	0	0	106,056	0	(106,056)
2021	0	0	276,833	0	(276,833)
2022	19,318	34,915	597,226	0	(562,311)
2023	38,635	932,929	109,688	593,669	229,572
2024	49,870	894,694	0	593,669	301,025
2025	49,870	895,669	0	593,669	302,000
2026	49,870	896,664	0	593,669	302,995
2027	49,870	897,678	0	593,669	304,009
2028	49,870	898,714	0	593,669	305,045
2029	49,870	899,770	0	593,669	306,101
2030	49,870	900,847	0	593,669	307,178
2031	49,870	901,947	0	593,669	308,278
2032	49,870	903,068	0	593,669	309,399
2033	49,870	904,212	0	593,669	310,543
2034	49,870	905,379	0	593,669	311,710
2035	49,870	906,570	0	593,669	312,901
2036	49,870	907,785	0	593,669	314,116
2037	49,870	909,024	0	593,669	315,355
2038	49,870	910,289	0	593,669	316,620
2039	49,870	911,579	0	593,669	317,910
2040	49,870	912,894	0	593,669	319,225
2041	49,870	914,237	0	593,669	320,568
2042	49,870	915,606	0	593,669	321,937
2043	49,870	917,004	0	593,669	323,335
2044	49,870	918,429	0	593,669	324,760
2045	49,870	919,883	0	593,669	326,214
2046	49,870	921,367	0	593,669	327,698
2047	49,870	922,880	0	593,669	329,211
2048	49,870	924,425	0	593,669	330,756
NPV (IDR Million)		21,334,796	1,255,961	13,994,180	
NPV (IDR million)					6,168,397
FIRR (%)					20.91%

2-95. Sensitivity analysis of the FIRR and FNPV was conducted under the following scenarios: (i) increasing capital costs of 10%, (ii) Increase in O&M costs of 10%, (iii) Decrease in revenues of 10% and finally (iv) construction delay of one year.

Table 73: FIRR Sensitivity Analysis Mataram Stage 1

FIRRs:	% Change	NPV	FIRR	SI (IRR)	SV (IRR)	SI (NPV)	SV (NPV)
Base Case		6,168,397	20.91%				
Case 1 - Increase in Capital Costs	10%	6,042,801	19.18%	0.85	118%	-333.55	0%
Case 2 - Increase in O&M Costs	10%	4,777,354	17.30%	1.77	56%	-261.61	0%
Case 3 - Decrease in Revenues	10%	4,034,918	15.26%	2.78	36%	-219.40	0%
Case 4 - Project Delayed by One Year		5,273,252	13.72%	0.35	15%	-28.98	-3%

SI = sensitivity indicator (ratio of percentage change in IRR above the cut-off rate to percentage change in selected variable).

SV = switching value (percentage change in selected variable to reduce the IRR to cut-off rate).

() = negative, FIRR = financial internal rate of return, FNPV = financial net present value, O&M = operation and maintenance.

Source: Asian Development Bank estimates.

2-96. The project is most vulnerable to the project being delayed and a decrease in revenues.

2-97. The project is viable from a financial aspect providing the households can afford and are willing to pay the assessed wastewater charges for the sewer network, WWTP and the on-site sanitation operation and maintenance cost. In the case of Stage 1 there is no need for City Administration subsidies with the project being most susceptible to decrease in revenue and increase in O&M costs.

Mataram – On-site Sanitation only:

2-98. Just for clarification of the above comments on Mataram Stage 1 in regards to the on-site pilot there are two revenue streams: (i) Disposal fee of \$104.99 per truck, and (ii) fee to empty the septic tank of \$101 per tank (IDR1,349,822), assuming 467 tanks emptied per year.

2-99. The operational costs will be well covered by revenue from both private operators and the operations of the municipality. The following is the forecast for revenues:

Table 74: On-Site Sanitation Revenue Mataram

On-site Operation and maintenance						
Year	O&M Cost		Revenue (USD)		Net proceeds	
	USD	IDR Million	Desludging	Disposal	USD	IDR Millions
2019	0				-	
2020	0				-	
2021	28,250	376			(28,250)	(376)
2022	56,500	753		376	(56,124)	(748)
2023	56,500	753	299,317	753	243,569	3,245
2024	56,500	753	300,272	753	244,525	3,258
2025	56,500	753	301,247	753	245,500	3,271
2026	56,500	753	302,242	753	246,495	3,284
2027	56,500	753	303,257	753	247,509	3,297
2028	56,500	753	304,292	753	248,545	3,311
2029	56,500	753	305,348	753	249,601	3,325
2030	56,500	753	306,426	753	250,678	3,340
2031	56,500	753	307,525	753	251,778	3,354
2032	56,500	753	308,646	753	252,899	3,369
2033	56,500	753	309,791	753	254,043	3,384
2034	56,500	753	310,958	753	255,210	3,400
2035	56,500	753	312,148	753	256,401	3,416
2036	56,500	753	313,363	753	257,616	3,432
2037	56,500	753	314,603	753	258,855	3,448
2038	56,500	753	315,867	753	260,120	3,465
2039	56,500	753	317,157	753	261,410	3,482
2040	56,500	753	318,473	753	262,725	3,500
2041	56,500	753	319,815	753	264,068	3,518
2042	56,500	753	321,185	753	265,437	3,536
2043	56,500	753	322,582	753	266,835	3,555
2044	56,500	753	324,007	753	268,260	3,574
2045	56,500	753	325,462	753	269,714	3,593
2046	56,500	753	326,945	753	271,198	3,613
2047	56,500	753	328,459	753	272,711	3,633
2048	56,500	753	330,003	753	274,256	3,654

2-100. The collection fee is based on servicing the 1,800 residential customers and 300 commercial customers from the year 2013 onwards at a charge of \$25 per residential and \$41 per business. The disposal fee is based on 2 private trucks operating at 1,200 entries per year with a capacity of 5 m3 at an entrance fee of \$52.50 (IDR 699,345) per visit.

4.2. Bekasi

2-101. A financial appraisal of each sub project was undertaken using with- and without-project scenarios over 25 year operation period, with the residual value at the end of this period assumed as zero. The analysis in here concerns the proposed project for Bekasi. The tariff will increase in line with inflation. Financial flows were discounted overtime using the weighted average cost of capital (WACC), which was calculated based on the after-tax real interest rate. The WACC is computed at 0.68%.

Table 75: Computation of Weighted Average Cost of Capital

Item	Financing Component						Total
	ADB Loan	ADB ESP Loan	Grant	Central GOV	Bekasi GOV	Beneficiaries	
A. Amount (\$million)	78.37	4.68	3.76	14.72	11.43	4.90	117.85
B. Weighting (%)	66.50%	3.97%	3.19%	12.49%	9.70%	4.16%	100.00%
C. Nominal Cost (%)	2.82%	2.82%	12.00%	8.98%	9.75%	8.98%	
D. Tax Rate (%)	25.00%	25.00%	25.00%	0.00%	25.00%	0.00%	
E. Tax Adjusted Nominal Cost (%)	2.11%	2.11%	9.00%	8.98%	7.31%	8.98%	
F. Inflation Rate (%)	3.20%	3.20%	3.20%	3.5%	3.5%	3.50%	
G. Real Cost (%)	-1.05%	-1.05%	5.62%	5.29%	3.68%	5.29%	
H. Weighted Component of WACC (%)	-0.70%	-0.04%	0.18%	0.66%	0.36%	0.22%	
Weighted Average Cost of Capital (Real Terms)							0.68%

2-102. The annual domestic inflation rate is 3.5% for 2017. Given that the ADB loan is denominated in domestic currency units, the domestic inflationary applies to the real cost of this Debt. The foreign inflation rate is the manufacturers unit value index (MUV), which is generally accepted as a proxy for the price of developing country imports of manufactured goods in US dollar terms. The international inflation rate according to the MUV index is expected to be 3.1%.

2-103. Since Grant funds provided to the project also have an opportunity cost, the proposed grants has been treated similarly to equity, such that the cost of the grant is assumed to be the cost of equity. The cost of equity is assumed to be 8.98%, however for the City of Bekasi who borrow on the open market it is assume that the corporate rate would be charged by commercial banks at 9.75% (at this stage the funding source of the grant has not yet been determined).

2-104. The FIRR is the discount rate at which the financial net present value of the project's cash flow becomes zero. If the FIRR is equal to or greater than the WACC, the project is considered financially viable. The FIRR was determined from incremental cash flow, with revenues from Wastewater Fees, Connection fees for a limited time, Desludging Fees and Wastewater Disposal Fees.

2-105. The wastewater fees are based on charging only the households connected to the system which will have a coverage of 8,000 households for Rawapasung, 3,000 households for Perumnas, 2,400 households for Ruauwana and finally 3,000 households for Halim, making 16,400 in total serving a population of 65,600. When we add in the on-site services the project will serve in total 85,600 persons. The wastewater fees cover only the operation and maintenance of the sewer facilities, with a full cost recovery.

2-106. The desludging fees are the cost of collection by 3 Vacuum trucks and Vacuum Pump provided by the project and 78 private operator trucks making 1,200 entries each per year, which is around 93,600 visits annually by the private operators. The existing tariff for truck visits is IDR 25,000 per trip (around US\$1.88). The coverage area for on-site pilot is 5,000 households and 1,000 businesses/institutional facilities. Inclusion of this service increases the service areas to around 30,000 households giving a service coverage of 3% of HH at the end of construction. However, there is also a desludging fee for use of the City's Vacuum Truck which is assumed to empty 1,200 tanks a year (the same as the private sector) at a charge of IDR 2,200,000 (around \$170 per tank).

2-107. O&M costs have been calculated for the sewer network, including 3 wastewater treatment plants, in Rawapasung, Perumnas and Rusaunawa and for Septage management. O&M costs are assumed to remain constant in real terms. The financial costs include physical contingencies, but do not consider price contingencies

Table 76: FIRR Calculation for Bekasi

FIRR, IDR million in 2018 Constant Price					
Year	Population Served	Revenues	Capital Cost	O&M Cost	Net Inflow (Outflow)
2019	0	730	116,088	730	(116,088)
2020	0	4,537	131,106	4,537	(131,106)
2021	0	4,172	307,290	4,172	(307,290)
2022	10,000	7,243	262,845	4,903	(260,505)
2023	57,025	456,506	452,306	4,903	(703)
2024	85,600	799,187	58,263	4,903	736,022
2025	85,600	15,073	1,131	4,903	9,039
2026	85,600	16,499	881	4,903	10,715
2027	85,600	16,580	0	4,903	11,678
2028	85,600	16,664	0	4,903	11,761
2029	85,600	16,750	0	4,903	11,847
2030	85,600	11,935	0	4,903	7,033
2031	85,600	12,026	0	4,903	7,123
2032	85,600	12,118	0	4,903	7,216
2033	85,600	12,214	0	4,903	7,311
2034	85,600	12,311	0	4,903	7,409
2035	85,600	12,412	0	4,903	7,509
2036	85,600	12,515	0	4,903	7,612
2037	85,600	12,621	0	4,903	7,718
2038	85,600	12,729	0	4,903	7,826
2039	85,600	12,840	0	4,903	7,938
2040	85,600	12,955	0	4,903	8,052
2041	85,600	13,072	0	4,903	8,170
2042	85,600	13,193	0	4,903	8,290
2043	85,600	13,316	0	4,903	8,414
2044	85,600	13,443	0	4,903	8,541
2045	85,600	13,573	0	4,903	8,671
2046	85,600	13,707	0	4,903	8,805
2047	85,600	13,845	0	4,903	8,942
2048	85,600	13,985	0	4,903	9,083
2049	85,600	14,130	0	4,903	9,227
2050	85,600	14,279	0	4,903	9,376
2051	85,600	14,431	0	4,903	9,528
2052	85,600	14,587	0	4,903	9,685
2053	85,600	14,748	0	0	14,748
NPV (IDR Million)		1,572,216	1,296,903	143,281	
NPV (IDR million)					132,032
FIRR (%)					3.25%

2-108. Sensitivity analysis of the FIRR and FNPV was conducted under the following scenarios: (i) increasing capital costs of 10%, (ii) Increase in O&M costs of 10%, (iii) Decrease in revenues of 10% and finally (iv) construction delay of one year.

Table 77: FIRR Sensitivity Analysis Bekasi

FIRRs:	% Change	NPV	FIRR	SI (IRR)	SV (IRR)	SI (NPV)	SV (NPV)
Base Case		132,032	3.25%				
Case 1 - Increase in Capital Costs	10%	2,342	0.71%	9.85	10%	9.82	10%
Case 2 - Increase in O&M Costs	10%	117,704	3.01%	0.94	106%	1.09	92%
Case 3 - Decrease in Revenues	10%	(25,188)	0.21%	11.79	8%	11.91	8%
Case 4 - Project Delayed by One Year		109,917	2.37%	0.34	17%	0.17	597%

SI = sensitivity indicator (ratio of percentage change in IRR above the cut-off rate to percentage change in selected variable).

SV = switching value (percentage change in selected variable to reduce the IRR to cut-off rate).

() = negative, FIRR = financial internal rate of return, FNPV = financial net present value, O&M = operation and maintenance.

Source: Asian Development Bank estimates.

2-109. The project is viable from a financial aspect giving a positive FIRR of 3.25% providing the households can afford and are willing to pay the assessed connections fees, wastewater charges for the sewer network, WWTP and the on-site sanitation operation and maintenance

cost. However, in order to achieve this positive outcome the City Administration will have to subsidize revenue to the amount of roughly IDR 4.424 billion per year until 2029 when the project becomes sustainable and self-financing. The sensitivity analysis shows that the FIRR is robust but is most vulnerable to decreases in revenue.

4.3. Banda Aceh

2-110. A financial appraisal of each sub project was undertaken using with- and without-project scenarios over 25 year operation period, with the residual value at the end of this period assumed as zero. The analysis here concerns the proposed project for Banda Aceh. The tariff will increase in line with inflation. Financial flows were discounted overtime using the weighted average cost of capital (WACC), which was calculated based on the after-tax real interest rate. The WACC is computed at 0.82%.

Table 78: Computation of Weighted Average Cost of Capital

Item	Financing Component						Total
	ADB Loan	ADB ESP Loan	Grant	Central GOV	Banda GOV	Beneficiaries	
A. Amount (\$million)	104.58	4.68	7.85	23.15	10.92	7.26	158.43
B. Weighting (%)	66.01%	2.95%	4.95%	14.61%	6.89%	4.58%	100.00%
C. Nominal Cost (%)	2.82%	2.82%	12.00%	8.98%	9.75%	8.98%	
D. Tax Rate (%)	25.00%	25.00%	25.00%	0.00%	25.00%	0.00%	
E. Tax Adjusted Nominal Cost (%)	2.11%	2.11%	9.00%	8.98%	7.31%	8.98%	
F. Inflation Rate (%)	3.20%	3.20%	3.20%	3.5%	3.5%	3.50%	
G. Real Cost (%)	-1.05%	-1.05%	5.82%	5.29%	3.68%	5.29%	
H. Weighted Component of WACC (%)	-0.70%	-0.03%	0.28%	0.77%	0.25%	0.24%	
Weighted Average Cost of Capital (Real Terms)							0.82%

2-111. The annual domestic inflation rate is 3.5% for 2017. Given that the ADB loan is denominated in domestic currency units, the domestic inflationary applies to the real cost of this Debt. The foreign inflation rate is the manufacturers unit value index (MUV), which is generally accepted as a proxy for the price of developing country imports of manufactured goods in US dollar terms. The international inflation rate according to the MUV index is expected to be 3.1%.

2-112. Since Grant funds provided to the project also have an opportunity cost, the proposed grants has been treated similarly to equity, such that the cost of the grant is assumed to be the cost of equity. The cost of equity is assumed to be 8.98%, however for the City of Banda Aceh who borrow on the open market it is assume that the corporate rate would be charged by commercial banks at 9.75% (at this stage the funding source of the grant has not yet been determined).

2-113. The FIRR is the discount rate at which the financial net present value of the project's cash flow becomes zero. If the FIRR is equal to or greater than the WACC, the project is considered financially viable. The FIRR was determined from incremental cash flow, with revenues from Wastewater Fees, Connection fees for a limited time, Desludging Fees and Wastewater Disposal Fees.

2-114. The wastewater fees are based on charging only the households connected to the system which will have a coverage of 15,647 households for Zone 1, and 6,566 households for Zone 3. The wastewater fees cover only the operation and maintenance of the sewer facilities, with a full cost recovery.

2-115. The desludging fees are the cost of collection by a Vacuum truck and Vacuum Pump provided by the project and 13 private operator trucks making 1,200 entries each per year, which is around 15,600 visits annually by the private operators. The existing tariff for truck visits is IDR 10,000 per trip (around US\$0.75). The coverage area for on-site pilot is 2,600 households and 500 businesses/institutional facilities. Inclusion of this service increases the service areas to around 24,813 households giving a service coverage of 38% of HH at the end of construction. However, there is also a desludging fee for use of the City's Vacuum Truck which is assumed to empty 1,200 tanks a year (the same as the private sector) at a charge of IDR 500,000 (around \$40 per tank).

2-116. O&M costs have been calculated for the sewer network, including 4 pump stations, 2 wastewater treatment plants, one in Zone 1 and one in Zone 2 and for Septage management. O&M costs are assumed to remain constant in real terms. The financial costs include physical contingencies, but do not consider price contingencies.

Table 79: FIRR Calculation for Banda Aceh

FIRR, IDR million in 2018 Constant Price					
Year	Population Served	Revenues	Capital Cost	O&M Cost	Net Cashflow (Outflow)
2019	0	0	103,130	0	(103,130)
2020	0	0	212,395	2,791	(215,186)
2021	0	0	479,773	2,836	(482,609)
2022	4,050	0	561,306	7,015	(568,321)
2023	78,512	153,544	123,211	7,948	22,385
2024	78,512	153,581	98,154	7,948	47,478
2025	78,512	158,014	74,986	10,027	73,001
2026	108,059	208,882	70,827	10,027	128,028
2027	108,059	208,921	34,115	10,027	164,779
2028	208,017	381,599	10,611	10,027	360,961
2029	208,017	18,158	0	10,027	8,132
2030	208,017	18,740	0	10,027	8,713
2031	208,017	19,339	0	10,027	9,312
2032	208,017	19,958	0	10,027	9,931
2033	208,017	20,597	0	10,027	10,570
2034	208,017	21,256	0	10,027	11,229
2035	208,017	21,936	0	10,027	11,909
2036	208,017	22,638	0	10,027	12,611
2037	208,017	23,362	0	10,027	13,336
2038	208,017	24,110	0	10,027	14,083
2039	208,017	24,881	0	10,027	14,855
2040	208,017	25,678	0	10,027	15,651
2041	208,017	26,499	0	10,027	16,473
2042	208,017	27,347	0	10,027	17,321
2043	208,017	28,222	0	10,027	18,196
2044	208,017	29,126	0	10,027	19,099
2045	208,017	30,058	0	10,027	20,031
2046	208,017	31,019	0	10,027	20,993
2047	208,017	32,012	0	10,027	21,985
2048	208,017	33,036	0	10,027	23,010
2049	208,017	34,094	0	10,027	24,067
2050	208,017	35,185	0	10,027	25,158
2051	208,017	36,310	0	10,027	26,284
2052	208,017	37,472	0	10,027	27,446
2053	208,017	38,672	0	10,027	28,645
NPV (IDR Million)		1,740,753	1,712,936	272,929	
NPV (IDR million)					(245,112)
FIRR (%)					-0.92%

2-117. The project is not viable from a financial aspect if only the users are paying a fee. The connection fee alone would be more than the households can afford and are willing to pay. Even if the City Administration will subsidize revenue to the amount of roughly IDR 3.8 billion for the first 5-years the project is not sustainable and self-financing. The resulting FIRR is negative.

2-118. Sensitivity analysis of the FIRR and FNPV was conducted under the following scenarios: (i) increasing capital costs of 10%, (ii) Increase in O&M costs of 10%, (iii) Decrease in revenues of 10% and finally (iv) construction delay of one year.

Table 80: *FIRR Sensitivity Analysis Banda Aceh*

FIRRs:	% Change	NPV	FIRR	SI (IRR)	SV (IRR)	SI (NPV)	SV (NPV)
Base Case		(245,112)	-0.92%				
Case 1 - Increase in Capital Costs	10%	(416,405)	-1.87%	-5.45	-18%	-6.99	-14%
Case 2 - Increase in O&M Costs	10%	(272,404)	-1.14%	-1.27	-79%	-1.11	-90%
Case 3 - Decrease in Revenues	10%	(419,187)	-2.21%	-7.38	-14%	-7.10	-14%
Case 4 - Project Delayed by One Year		(288,103)	-1.10%	-0.10	-18%	-0.18	-570%

SI = sensitivity indicator (ratio of percentage change in IRR above the cut-off rate to percentage change in selected variable).

SV = switching value (percentage change in selected variable to reduce the IRR to cut-off rate).

(-) = negative, FIRR = financial internal rate of return, FNPV = financial net present value, O&M = operation and maintenance.

Source: Asian Development Bank estimates.

2-119. On the other hand, if the project cost is integrated into the total population and all households will contribute through wastewater fees, given the health and environmental benefit to the population at large then we have a positive FIRR. One assumption is that the City will subsidize the households tariff as the HH connections are made, finally ceasing the Subsidies when all connection are complete.

Table 81: *FIRR with total City Population Charged*

FIRR, IDR million in 2018 Constant Price					
Year	Population Served	Revenues	Capital Cost	O&M Cost	Net Inflow (Outflow)
2019	0	0	103,130	0	(103,130)
2020	0	0	212,395	0	(212,395)
2021	0	0	479,773	0	(479,773)
2022	4,050	0	561,306	0	(561,306)
2023	78,512	276,966	123,211	7,948	145,807
2024	78,512	279,703	98,154	7,948	173,601
2025	78,512	286,662	74,986	10,027	201,650
2026	108,059	340,671	70,827	10,027	259,817
2027	108,059	343,610	34,115	10,027	299,468
2028	208,017	519,626	10,611	10,027	498,988
2029	208,017	153,680	0	10,027	143,653
2030	208,017	156,880	0	10,027	146,854
2031	208,017	160,158	0	10,027	150,131
2032	208,017	163,514	0	10,027	153,487
2033	208,017	166,952	0	10,027	156,925
2034	208,017	170,472	0	10,027	160,445
2035	208,017	174,077	0	10,027	164,050
2036	208,017	177,769	0	10,027	167,742
2037	208,017	181,550	0	10,027	171,523
2038	208,017	185,423	0	10,027	175,396
2039	208,017	189,388	0	10,027	179,362
2040	208,017	193,450	0	10,027	183,423
2041	208,017	197,609	0	10,027	187,582
2042	208,017	201,869	0	10,027	191,842
2043	208,017	206,231	0	10,027	196,204
2044	208,017	210,699	0	10,027	200,672
2045	208,017	215,274	0	10,027	205,247
2046	208,017	219,960	0	10,027	209,933
2047	208,017	224,759	0	10,027	214,732
2048	208,017	229,674	0	10,027	219,647
NPV (IDR Million)		5,100,738	1,712,936	224,184	
NPV (IDR million)					3,165,446
FIRR (%)					12.98%

2-120. Sensitivity analysis of the FIRR and FNPV was conducted under the following scenarios: (i) increasing capital costs of 10%, (ii) Increase in O&M costs of 10%, (iii) Decrease in revenues

of 10% and finally (iv) construction delay of one year, and the project was seen to be robust in all cases.

Table 82: FIRR Sensitivity Analysis - Total Population

FIRRs:	% Change	NPV	FIRR	SI (IRR)	SV (IRR)	SI (NPV)	SV (NPV)
Base Case		3,165,446	12.98%				
Case 1 - Increase in Capital Costs	10%	2,994,152	11.48%	1.23	81%	132.15	1%
Case 2 - Increase in O&M Costs	10%	3,143,210	12.92%	0.05	1933%	136.24	1%
Case 3 - Decrease in Revenues	10%	2,655,372	11.26%	1.41	71%	118.33	1%
Case 4 - Project Delayed by One Year		2,945,664	11.15%	0.15	7%	13.02	8%

APPENDIX 3: ECONOMIC ANALYSIS

A3-1. Economic Analysis

3-1. The economic costs of the project in comprise (i) capital investment, which includes civil works, mechanical and equipment, project management, land acquisition and resettlement, social and environmental mitigation as well as consulting services for construction supervision, detailed design and capacity development; and (ii) operation and maintenance after construction, excluding taxes, duties, and financing charges during implementation.

3-2. Financial costs were converted to economic costs in line with ADB's published guidelines. The economic analysis was conducted based on the world price numeraire. A distinction was made between traded (on average only 16%) and non-traded goods (applying foreign content of 10%) for all cost items. A standard conversion factor (SCF) of 0.97 was applied to non-traded goods. A shadow wage rate factor (SWRF) of 1.0 was applied for skilled labor and 0.64 for unskilled labor. The SWRF was calculated in accordance with Appendix 12 of the ADB Guidelines for the Economic Analysis of Projects (footnote 5).

3-3. A distinction between traded and non-traded goods and shadow pricing was carried out for maintenance costs in the same way as in case of the investment costs, with labor and mechanical cost separated. A residual salvage value of the sewer network and wastewater treatment plant is assumed to be equivalent to zero percent of the investment cost.

3-4. Population growth rates were assumed at Mataram 2.00%, Banda aceh at 2.4% and Bekasi at 2.67%.

Table 83: Assumed Beneficiaries Mataram

Mataram				
Population	Person per HH 3.7		Beneficiaries	
	No. HH	Persons	No HH	Persons
Mataram	130,744	483,751		
Stage 1 [year 2023]			11,678	43,210
Stage 2 [year 2026]			16,257	60,152
Stage 3 [year 2028]			21,365	79,052
			49,301	182,413
On-site Sanitation			1,800	6,660

Table 84: Assumed Beneficiaries Bekasi

Bekasi				
Population (2015)	Person per HH 4.00		Beneficiaries	
	No. HH	Persons	No HH	Persons
Bekasi (2015)	700,821	2,803,283		
Household Connections Rawapasung			8,000	32,000
Household Connections Perumnas			3,000	12,000
Household Connections Rusuwana			2,400	9,600
Household Connections Halim			3,000	12,000
			16,400	65,600
			16,400	65,600
On-site Sanitation		Domestic	5,000	20,000
		Commercial	1,000	

Table 85: Assumed Beneficiaries Banda Aceh

Banda Aceh				
Population (2017)	Person per HH 4.5		Beneficiaries	
	No. HH	Persons	No HH	Persons
Banda Aceh (2017)	55,623	250,303		
Phase 1: Short Term: 2017-2022		Zone 1 (2022)	15,647	70,412
Phase 2: Short/Medium Term: 2023-2027		Zone 3 (2025)	6,566	29,547
			22,213	99,959
On-site Sanitation			1,800	8,100

1.1. Economic Benefits

3-5. The economic benefits for the wastewater and sanitation subprojects were quantified in terms of health benefits. The health benefits were measured using the disability-adjusted-life-year (DALY) approach⁵. The DALY approach measures overall disease burden and expresses it as the number of years lost due to ill health, disability, or early death⁶. The World Health Organization (WHO) estimated the total DALYs in Indonesia at 25,103 per 100,000 population⁷. The WHO also estimated that 5.6% of the total DALYs in Indonesia were related to water, sanitation, and hygiene issues, whilst 7.5% were due to environmental factors⁸. For this analysis the environmental factors are taken at full value on the assumption that detrimental human environment is caused substantially by water, sanitation and hygiene issues. Following the WHO approach, the analysis calculated the annual economic value of a DALY as equivalent to the country's per capita gross national income (GNI) in a given year. The country's estimated per capita GNI in 2017 was US\$10,839, based on purchasing power parity. Real GNI growth was assumed at 4% per annum⁹. Savings in DALYs attributable to the SSDP Project was assumed at 85% of the calculated economic value of DALYs.

3-6. Each City is analyzed separately in the following paragraphs.

A3-2. Mataram – Economic Analysis

Results of the economic evaluation

3-7. The results of the economic and sensitivity analysis are summarized in the table below. The Mataram Project for all 3 Stages is economically viable in the base case scenario and the Projects' economic performances are most sensitive to decrease in benefits and increases in Capital cost, the performances meet the required threshold levels of ADB's 9% for economic internal rate of return.

⁵ The approach was developed by Harvard University for the World Bank in 1990 for a study that provided a comprehensive assessment of mortality and disability from diseases, injuries and risk factors. The World Health Organization (WHO) adopted the method in 1996. DALY determination is continually revised by the WHO.

⁶ A DALY is an indicator of life expectancy combining mortality and morbidity into one summary measure of population health to account for the number of years lived in less than optimum health.

⁷ World Health Organization. 2004. World Health Report. Geneva.

⁸ WHO. 2007. Environmental Burden of Disease Series No. 15 (Water, Sanitation and Hygiene). Geneva.

⁹ Source: WB 2017 World Development Indicators. Source: WB 2017 World Development Indicators 2011 to 2017 Consultant Calculations

Table 86: EIRR Calculation for Mataram

EIRR, IDR million in 2018 Constant Price					
Year	Population Served	Benefits	Capital Cost	O&M Cost	Net Inflow (Outflow)
2019	0	0	179,720	0	(179,720)
2020	0	0	99,835	0	(99,835)
2021	0	0	260,596	0	(260,596)
2022	19,318	87,145	562,196	0	(475,051)
2023	38,635	181,261	103,254	10,872	67,135
2024	49,870	243,328	366,130	12,960	(135,762)
2025	69,902	354,716	288,714	12,960	53,042
2026	89,935	474,627	367,094	14,546	92,987
2027	149,494	820,501	428,285	16,133	376,083
2028	189,020	1,078,937	112,202	16,133	950,602
2029	189,020	1,122,094	0	16,133	1,105,962
2030	189,020	1,166,978	0	16,133	1,150,845
2031	189,020	1,213,657	0	16,133	1,197,524
2032	189,020	1,262,203	0	16,133	1,246,071
2033	189,020	1,312,692	0	16,133	1,296,559
2034	189,020	1,365,199	0	16,133	1,349,067
2035	189,020	1,419,807	0	16,133	1,403,674
2036	189,020	1,476,599	0	16,133	1,460,467
2037	189,020	1,535,663	0	16,133	1,519,531
2038	189,020	1,597,090	0	16,133	1,580,957
2039	189,020	1,660,974	0	16,133	1,644,841
2040	189,020	1,727,413	0	16,133	1,711,280
2041	189,020	1,796,509	0	16,133	1,780,376
2042	189,020	1,868,369	0	16,133	1,852,237
2043	189,020	1,943,104	0	16,133	1,926,971
2044	189,020	2,020,828	0	16,133	2,004,696
2045	189,020	2,101,661	0	16,133	2,085,529
2046	189,020	2,185,728	0	16,133	2,169,595
2047	189,020	2,273,157	0	16,133	2,257,024
2048	189,020	2,364,083	0	16,133	2,347,951
2049	189,020	2,458,647	0	16,133	2,442,514
2050	189,020	2,556,992	0	16,133	2,540,860
2051	189,020	2,659,272	0	16,133	2,643,140
2052	189,020	2,765,643	0	16,133	2,749,510
2053	189,020	2,876,269	0	16,133	2,860,136
ENPV (IDR Million)		8,139,443	1,720,588	110,364	
ENPV (IDR million)					6,308,491
EIRR (%)					28.42%

3-8. Sensitivity Analysis

Table 87: EIRR Sensitivity Analysis for Mataram

EIRRs:	% Change	NPV	EIRR	SI (IRR)	SV (IRR)	SI (NPV)	SV (NPV)
Base Case		6,308,491	28.42%				
Case 1 - Increase in Capital Costs	10%	6,136,432	26.69%	0.89	112%	0.27	367%
Case 2 - Increase in O&M Costs	10%	6,297,455	28.38%	0.02	4642%	0.02	5716%
Case 3 - Decrease in Benefits	10%	5,494,547	26.48%	1.00	100%	1.29	78%
Case 4 - Benefits Delayed by One Year		5,574,455	25.23%	0.16	12%	-0.86	-117%

SI = sensitivity indicator (ratio of percentage change in IRR above the cut-off rate to percentage change in selected variable).

SV = switching value (percentage change in selected variable to reduce the IRR to cut-off rate).

3-9. The EIRR is most vulnerable to a delay in benefits, decrease in benefits and increases in capital costs.

3-10. **For Stage 1** only the economic performances are still positive and is found to be economically viable in the base case scenario with EIRR of 19.4% and the EIRR is most sensitive to decrease in benefits, followed by increases in Capital cost. The performances meet the required threshold levels of ADB's 9% for economic internal rate of return.

Table 88: EIRR Calculation for Mataram Stage 1

EIRR, IDR million in 2018 Constant Price					
Year	Population Served	Benefits	Capital Cost	O&M Cost	Net Inflow (Outflow)
2019	0	0	188,825	0	(188,825)
2020	0	0	104,893	0	(104,893)
2021	0	0	273,798	0	(273,798)
2022	19,318	87,145	590,679	0	(503,534)
2023	38,635	181,261	108,485	8,047	64,729
2024	49,870	243,328	0	8,047	235,281
2025	49,870	253,061	0	8,047	245,014
2026	49,870	263,183	0	8,047	255,136
2027	49,870	273,711	0	8,047	265,663
2028	49,870	284,659	0	8,047	276,612
2029	49,870	296,045	0	8,047	287,998
2030	49,870	307,887	0	8,047	299,840
2031	49,870	320,203	0	8,047	312,156
2032	49,870	333,011	0	8,047	324,964
2033	49,870	346,331	0	8,047	338,284
2034	49,870	360,185	0	8,047	352,137
2035	49,870	374,592	0	8,047	366,545
2036	49,870	389,576	0	8,047	381,528
2037	49,870	405,159	0	8,047	397,111
2038	49,870	421,365	0	8,047	413,318
2039	49,870	438,220	0	8,047	430,172
2040	49,870	455,748	0	8,047	447,701
2041	49,870	473,978	0	8,047	465,931
2042	49,870	492,937	0	8,047	484,890
2043	49,870	512,655	0	8,047	504,608
2044	49,870	533,161	0	8,047	525,114
2045	49,870	554,488	0	8,047	546,440
2046	49,870	576,667	0	8,047	568,620
2047	49,870	599,734	0	8,047	591,687
2048	49,870	623,723	0	8,047	615,676
ENPV (IDR Million)		2,364,647	961,903	56,604	
ENPV (IDR million)					1,346,141
EIRR (%)					19.40%

3-11. Sensitivity Analysis

Table 89: EIRR Sensitivity Analysis for Mataram Stage 1

EIRRs:	% Change	NPV	EIRR	SI (IRR)	SV (IRR)	SI (NPV)	SV (NPV)
Base Case		1,346,141	19.40%				
Case 1 - Increase in Capital Costs	10%	1,249,951	17.91%	0.79	127%	8.02	12%
Case 2 - Increase in O&M Costs	10%	1,340,480	19.29%	0.06	1762%	7.88	13%
Case 3 - Decrease in Benefits	10%	1,109,676	17.72%	0.89	112%	8.24	12%
Case 4 - Benefits Delayed by One Year		1,107,766	16.89%	0.13	18%	-5.30	-19%

SI = sensitivity indicator (ratio of percentage change in IRR above the cut-off rate to percentage change in selected variable).

SV = switching value (percentage change in selected variable to reduce the IRR to cut-off rate).

3-12. As is the case for the total project, for Stage 1 the EIRR is again susceptible to delays, decrease in benefits and increases in capital costs.

A3-3. Bekasi – Economic Analysis

Results of the economic evaluation

3-13. The results of the economic and sensitivity analysis are summarized in the table below. The Bekasi Project is economically viable in the base case scenario and the Projects' economic performances are most sensitive to delay in Benefits and decrease in benefits the performances meet the required threshold levels of ADB's 9% for economic internal rate of return.

Table 90: EIRR Calculation for Bekasi

EIRR, IDR million in 2018 Constant Price					
Year	Population Served	Benefits	Capital Cost	O&M Cost	Net Inflow (Outflow)
2019	0	0	111,412	0	(111,412)
2020	0	0	125,825	0	(125,825)
2021	0	0	294,914	0	(294,914)
2022	10,000	45,112	252,258	0	(207,146)
2023	57,025	267,542	434,089	4,857	(171,404)
2024	85,600	417,670	55,916	4,857	356,897
2025	85,600	434,377	1,085	4,857	428,435
2026	85,600	451,752	846	4,857	446,049
2027	85,600	469,822	0	4,857	464,965
2028	85,600	488,615	0	4,857	483,758
2029	85,600	508,159	0	4,857	503,303
2030	85,600	528,486	0	4,857	523,629
2031	85,600	549,625	0	4,857	544,769
2032	85,600	571,610	0	4,857	566,754
2033	85,600	594,475	0	4,857	589,618
2034	85,600	618,254	0	4,857	613,397
2035	85,600	642,984	0	4,857	638,127
2036	85,600	668,703	0	4,857	663,846
2037	85,600	695,451	0	4,857	690,595
2038	85,600	723,269	0	4,857	718,413
2039	85,600	752,200	0	4,857	747,343
2040	85,600	782,288	0	4,857	777,431
2041	85,600	813,579	0	4,857	808,723
2042	85,600	846,123	0	4,857	841,266
2043	85,600	879,968	0	4,857	875,111
2044	85,600	915,166	0	4,857	910,310
2045	85,600	951,773	0	4,857	946,916
2046	85,600	989,844	0	4,857	984,987
2047	85,600	1,029,438	0	4,857	1,024,581
2048	85,600	1,070,615	0	4,857	1,065,759
2049	85,600	1,113,440	0	4,857	1,108,583
2050	85,600	1,157,977	0	4,857	1,153,121
2051	85,600	1,204,296	0	4,857	1,199,440
2052	85,600	1,252,468	0	4,857	1,247,612
2053	85,600	1,302,567	0	0	1,302,567
ENPV (IDR Million)		4,307,780	931,039	35,347	
ENPV (IDR million)					3,341,394
EIRR (%)					30.12%

3-14. Sensitivity Analysis

Table 91: EIRR Sensitivity Analysis for Bekasi

EIRRs:	% Change	NPV	EIRR	SI (IRR)	SV (IRR)	SI (NPV)	SV (NPV)
Base Case		3,341,394	30.12%				
Case 1 - Increase in Capital Costs	10%	3,248,290	28.07%	0.97	103%	0.28	359%
Case 2 - Increase in O&M Costs	10%	3,337,860	30.10%	0.01	8638%	0.01	9453%
Case 3 - Decrease in Benefits	10%	2,910,616	27.84%	1.08	90%	1.29	78%
Case 4 - Benefits Delayed by One Year		2,962,002	26.08%	0.19	11%	-0.85	-118%

SI = sensitivity indicator (ratio of percentage change in IRR above the cut-off rate to percentage change in selected variable).

SV = switching value (percentage change in selected variable to reduce the IRR to cut-off rate).

3-15. The EIRR is most vulnerable to a delay in benefits and a decrease in benefits.

A3-4. Banda Aceh – Economic Analysis

Results of the economic evaluation

3-16. The results of the economic and sensitivity analysis are summarized in the table below. The Banda Aceh Project is economically viable in the base case scenario and the Projects' economic performances are most sensitive to decrease in benefits and increases in Capital cost,

the performances meet the required threshold levels of ADB's 9% for economic internal rate of return.

3-17. The project is viable giving an EIRR of 32.96% and an EIRR of 24.83% when the project is spread over all the city.

Table 92: EIRR Calculation for Banda Aceh

EIRR, IDR million in 2018 Constant Price					
Year	Population Served	Benefits	Capital Cost	O&M Cost	Net Inflow (Outflow)
2019	0	0	99,794	0	(99,794)
2020	0	0	205,524	0	(205,524)
2021	0	0	464,253	0	(464,253)
2022	4,050	18,270	543,148	0	(524,878)
2023	78,512	368,348	119,225	7,805	241,318
2024	78,512	383,082	94,979	7,805	280,298
2025	78,512	398,405	72,560	9,846	315,999
2026	108,059	570,274	68,536	9,846	491,892
2027	108,059	593,085	33,012	9,846	550,227
2028	208,017	1,187,381	10,268	9,846	1,167,267
2029	208,017	1,234,877	0	9,846	1,225,031
2030	208,017	1,284,272	0	9,846	1,274,426
2031	208,017	1,335,642	0	9,846	1,325,797
2032	208,017	1,389,068	0	9,846	1,379,222
2033	208,017	1,444,631	0	9,846	1,434,785
2034	208,017	1,502,416	0	9,846	1,492,570
2035	208,017	1,562,513	0	9,846	1,552,667
2036	208,017	1,625,013	0	9,846	1,615,167
2037	208,017	1,690,014	0	9,846	1,680,168
2038	208,017	1,757,614	0	9,846	1,747,768
2039	208,017	1,827,919	0	9,846	1,818,073
2040	208,017	1,901,036	0	9,846	1,891,190
2041	208,017	1,977,077	0	9,846	1,967,231
2042	208,017	2,056,180	0	9,846	2,046,314
2043	208,017	2,138,407	0	9,846	2,128,561
2044	208,017	2,223,943	0	9,846	2,214,097
2045	208,017	2,312,901	0	9,846	2,303,055
2046	208,017	2,405,417	0	9,846	2,395,571
2047	208,017	2,501,633	0	9,846	2,491,787
2048	208,017	2,601,699	0	9,846	2,591,853
2049	208,017	2,705,766	0	9,846	2,695,921
2050	208,017	2,813,997	0	9,846	2,804,151
2051	208,017	2,926,557	0	9,846	2,916,711
2052	208,017	3,043,619	0	9,846	3,033,773
2053	208,017	3,165,364	0	9,846	3,155,518
ENPV (IDR Million)		8,966,823	1,235,554	69,598	
ENPV (IDR million)					7,661,671
EIRR (%)					32.96%

3-18. Sensitivity Analysis

Table 93: EIRR Sensitivity Analysis Banda Aceh

EIRRs:	% Change	NPV	EIRR	SI (IRR)	SV (IRR)	SI (NPV)	SV (NPV)
Base Case		7,661,671	32.96%				
Case 1 - Increase in Capital Costs	10%	7,538,115	31.17%	0.75	134%	0.16	620%
Case 2 - Increase in O&M Costs	10%	7,654,711	32.94%	0.01	8998%	0.01	11008%
Case 3 - Decrease in Benefits	10%	6,764,988	30.96%	0.83	120%	1.17	85%
Case 4 - Benefits Delayed by One Year		6,793,143	28.57%	0.18	11%	-0.92	-108%

SI = sensitivity indicator (ratio of percentage change in IRR above the cut-off rate to percentage change in selected variable).

SV = switching value (percentage change in selected variable to reduce the IRR to cut-off rate).

3-19. The EIRR is robust to all sensitivity analysis and is only slightly vulnerable to a delay in benefits and a decrease in benefits.

APPENDIX 4: TARIFF ANALYSIS

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A4-1. Introduction

1.1. Objective

4-1. The purpose of the paper is to identify alternative strategic options for the financing of urban utility services, in particular Wastewater Treatment services in Indonesia.

4-2. The Government faces many challenges in facilitating sustainable economic growth across Indonesia. As elsewhere in the World, economic growth in Indonesia is closely associated with urbanization and the associated increasing pressures on the urban environment. Indonesia is thus following the same development pathway and similar challenges to those previously experienced in developed countries and currently being experienced by many other developing countries. This means international experience and comparisons are valid in considering strategic financing options for Indonesia. This paper therefore draws on relevant international experience, but more specifically on experiences within the region and on countries with similar characteristics to Indonesia.

4-3. In considering international experiences and lessons it must be remembered that Indonesia is still a country facing many challenges in development. The current urban service standards, practices and financial performance of public utilities in developed countries are therefore very much a long term vision. Also cultural and political differences exist between the most developed countries (predominantly western or western influenced democracies) and South East Asian countries. Therefore more lessons relevant to the immediate future may well be learned from other developing Asian countries which are on the same development path as Indonesia.

4-4. This paper focuses mostly on the services of wastewater collection and treatment. However, many of the principles and issues referred to in this paper are also common to other urban utility services, such as water supply, electricity, urban drainage, and gas supply. They also have potential application to other urban services such as crematoria, toll roads/bridges, public transport and parking areas.

1.2. Structure of Paper

4-5. The structure of this Paper is as follows:

- **INTERNATIONAL APPROACHES:** Gives an overview of the approach taken by developed countries such as USA, United Kingdom, New Zealand, Germany and Canada
- **ASIAN REGIONAL APPROACHES:** Giving an overview of the approaches that have been taken in Singapore, People's Republic of China, Japan, Hong Kong, Philippines, Malaysia, Vietnam, Cambodia and the approach currently used in Indonesia.
- **GENERAL CONSIDERATIONS IN FINANCING SERVICES:** This considers the different options available to finance sanitation services such as the use of general taxation, direct charge to users of services and the polluters and grants and subsidies in conjunction with user fees.
- **CHARGING OBJECTIVES AND PRINCIPLES OF TARIFF DESIGN:** This section considers such topic as; equity and fairness, charges v costs relationship, ease of administration and collection, economic efficiency, usage of the service (public v private good) and cross subsidization.
- **ALTERNATIVE TARIFF STRUCTURES:** There are numerous possible tariff types and structures. Before discussing the most appropriate structure for Indonesia and indeed the individual cities in the project we will consider these simple tariff types and then how these can be adopted for this project.

- **POSSIBLE OPTIONS FOR TARIFFS IN INDONESIA:** At this point we present a preliminary view of what may work in Indonesia and particularly in our project areas; Banda Aceh, Bakasi and Mataram.
- **POLICY OBJECTIVES IN TARIFFS:** briefly outlines and explains some common policy objectives of Government in the management of wastewater treatment services. The section is intended mainly as a reminder and scene-setter
- **INSTITUTIONAL CHALLENGES AND REFORM:** There are many actors in the sector and in this section we attempt to identify those actors. With so many actors the main challenge is to get them all to agree to an approach, this is discussed in this section.

1.3. Considering Customer Needs

4-6. Successful businesses only survive in the longer term if they meet the needs of their customers. The same principle is true in the provision of wastewater treatment services, because if there is widespread customer dissatisfaction then there will be growing pressure to change the arrangements for providing those services. The general needs of the customers of wastewater operators include:

- reliability of service
- quality of service
- economy / value for money
- to be fairly treated (and understand what they are paying for)
- ease of payment
- effective means of recourse when things go wrong

The needs of the service user are paramount in considering the reform of management and financing arrangements.

4-7. Providers of urban services must be made accountable to meet the needs of urban residents. The needs of the service user are therefore paramount in considering the reform of management and financing arrangements.

A4-2. International Approaches

2.1. United States of America

4-8. At the federal level in the USA, a key agency is the United States Environmental Protection Agency¹⁰ (EPA or sometimes U.S. EPA) which covers a broad spectrum of environmental activities, including the regulation monitoring and control of air pollution, water pollution, hazardous waste and solid waste. This agency also, historically, played a quite major role in allocating funding for drinking water and wastewater projects, although this is no longer the case.

4-9. Although the EPA plays a role in major projects, much of the work in allocation of funds and environmental monitoring is allocated to the 50 States and 14 Territories. Each State has two separate revolving funds, one for drinking water and one for clean water, which are partly funded by the EPA (typically 20% federal contribution) and partly by matching grants from the States.

4-10. The States are served through 10 EPA Regions. Regional Administrators are delegated a degree of authority and independence to respond to local conditions.

4-11. Each of the States has considerable authority for water pollution control planning within the State boundaries. In addition, the States typically combine their efforts where joint river basin

¹⁰ Agency of the federal government of the United States which was created for the purpose of protecting human health and the environment by writing and enforcing regulations based on laws passed by Congress.

planning is required. The Ohio River Sanitary Commission, for example, has membership from eight States and continues to function independently even though it cuts across the boundaries of four EPA Regions.

4-12. Three levels of water quality planning were stipulated by the 1972 Clean Water Act. Section 303 covers planning for watersheds or river basins. This planning includes definition of required levels of treatment along reaches of a river. Section 208 covers planning for large metropolitan areas including number and locations of treatment plants. Section 201 covers planning for particular wastewater systems. States play a leading role in Section 303, regional planning authorities are involved in Section 208 and metropolitan and municipal sewerage authorities carry out tasks under Section 201. These metropolitan and municipal authorities operate and maintain wastewater systems including treatment plants and they are also responsible for monitoring and control of industrial wastewater within their service areas.

4-13. Services are generally provided on a combined basis with drinking water supply, although separate provision of the two services is applied in several of the larger metropolitan area such as Los Angeles, which has a population in excess of 3.9 million persons¹¹. As long as a wastewater system is financially self-sufficient and paid for largely by the users, there is no specific requirement in the USA that a wastewater authority be a legally autonomous corporation. In large metropolitan areas it is relatively common for the wastewater authority to be founded under State law as a corporation so that it can issue bonds for financing projects and can act as a wholesaler of wastewater interception, treatment and disposal for communities served.

4-14. There is a long tradition of private water supply companies in the USA, but under the historical evolution of the wastewater sector there have been very limited number of private wastewater companies. Around 50% of public water systems are managed by private companies (serving 15% of the population). Conversely only around 20% of wastewater systems are privately owned and these are typically quite small (serving around 3% of the total population). Private sector participation has been primarily in operation and maintenance of wastewater facilities, where public ownership of such facilities is retained. BOT for wastewater facilities is seldom the preferred option under normal circumstances.

Typically private sector participation in wastewater systems has been limited to operation and maintenance contracts with development of treatment facilities through such options as BOT being quite rare.

4-15. Almost all funding for wastewater services in the USA comes from local users and local taxpayers. A 1999 AMSA survey of 102 wastewater systems indicated only 2% of revenues came from federal or state (provincial) grants. In the 1970s the EPA provided 75% grant funds for publicly owned treatment works. This was typically matched by 15% additional grants from state (provincial) governments. This tended to result in conservative designs and systems which were designed for abnormally low maintenance costs since O&M costs did not attract subsidies. Such subsidized financing is no longer applied and authorities obtain funds from a variety of sources which typically apply interest rates at below market levels. These sources include:

Excessive levels of grant funding in the USA led to conservative designs and abnormally low cost O&M systems.

- special water and wastewater state revolving funds, which provide funds at 0% to 4% interest;
- tax-free state (provincial), municipal and water-Utility bonds; and
- municipal capital improvement budgets.

4-16. From a service viewpoint water supply and sewerage are estimated to require almost equal levels of investment during an annual period. The average billing for combined water and

¹¹ As at 2016: US Census Bureau

https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=&cad=rja&uact=8&ved=0ahUKEwjM5-GuzPTXAhXMhZQKHQJbAqWQkh8IMsgA&url=https%3A%2F%2Fwww.census.gov%2Fprograms-surveys%2Fpopest.html&usq=AOvVaw3W_n1a8alNQVo0jcYwYwZ

sewerage services is around 0.5% of average household income, but this is expected to virtually double in the next 20 years to around 1.0%. O&M costs account for around 64% of water service charges with debt service accounting for the remainder.

4-17. The key issues which are currently being addressed by investment projects include:

- control of combined storm overflows in locations where services were developed on combined rather than separate water borne systems, and
- non-point source pollution control initiatives.

2.2. United Kingdom

4-18. The United Kingdom is one of the world's wealthiest nations. The quality of both the natural water sources and drinking water supplies is good reflecting the high levels of investment that have been made in the water and wastewater services. The main parts of the United Kingdom comprise England, Wales, Scotland and Northern Ireland. Somewhat different local political systems operate in each of the four regions with differing levels of autonomy from the central government. As a consequence of this, different arrangements for managing the water sector have evolved.

4-19. England and Wales are two areas which form the majority of the geographical area and contain most of the main centers of population which have water sector management arrangements more dictated from the center. In both Scotland and Northern Ireland there is more involvement on the part of local government, especially in Northern Ireland where water and wastewater services are still fully Government managed. Over 96% of UK properties, including those in rural areas, are connected to wastewater collection systems and have their waste treated.

4-20. For the purpose of this international review we focus on the arrangements that apply in England & Wales and use the Thames Water Company¹², which serves the London area and the Thames valley, as the main role model.

4-21. In the area served by Thames Water over 99.5% of properties are connected to a sewer and have their wastewater treated. The company provides wastewater services to a population of some 15 million and water supplies to some 8 million.

4-22. Each day Thames Water takes away 4.4 million liters of waste from 15 million customers. It is transported through 67,000 miles of sewer pipes before it arrives at one of Thames Water 350 sewage treatment works. Every day, it supplies around 2,600 million liters of tap water to 9 million customers across London and the Thames Valley.

4-23. Almost all of the waste will be recycled and put to good use. In 2014, Thames Water created enough electricity from waste to provide 12 percent of its own energy needs - that's enough to power a city the size of Langsa in Aceh, Banjar in West Java and Madiun in east Java. Wastewater charges have increased by around 3.6 per cent on average for 2016/17 prices. This includes inflation and infrastructure investments such as the Thames Tideway Tunnel.

4-24. Historically water supplies and wastewater services were locally organized. In 1973 there were approximately 100 public water boards and 29 private water companies. In 1974, responsibility for all the publicly owned water and wastewater units in England and Wales were transferred to 10 newly created multi-functional "Water Authorities". These Water Authorities were public (Government owned) and each was given a service area covering one or two river catchments. Their responsibilities also included water resources management and, river management (including setting targets for river quality) and flood control. They were run by large public Boards with Board members mostly nominated by the local governments they served, but with some nominees from Central Government.

¹² <https://corporate.thameswater.co.uk/About-us/Our-business/Our-supply-area>

4-25. In 1981 the government decided to make the large Water Authority boards more commercial in nature and less influenced by local Government. The large boards were therefore replaced by small corporate style boards of typically 10 to 12 persons, all appointed by Central Government. In 1988 the Government decided to proceed with the privatization of the industry having concluded that it would operate more efficiently in the private sector.

4-26. The result was the UK Government passing laws in 1989 that transferred the main utility functions of water supply and provision of wastewater services to newly formed companies which were then sold by flotation on the UK stock market. At the same time a new national public body (the National Rivers Authority, more recently subsumed into the National Environmental Agency) was set up to run the functions that were to remain in public control. These were management of water resources, land drainage and pollution control activities.

4-27. Because they were to be natural monopolies for the services they provide, additional controls on the new companies were required. These are to ensure the companies do not abuse their monopolistic position. A new body was therefore set up to regulate the companies on the prices they could charge, on service standards and to have proper regard for customer interests. This body OFWAT (Office of Water Services) is closely modelled on similar regulatory bodies set up for the telecommunications, gas and electricity industries.

4-28. A fully privatized industry requires a comprehensive and rigorous framework of regulation. This is provided by three national bodies. OFWAT is responsible for the economic regulation of the private companies. This includes prescribing and enforcing both service standards and tariff levels. Environmental regulation is now the responsibility of the Environment Agency (formerly the National Rivers Authority) that prescribes, monitors, and enforces compliance across the natural water environment. The Drinking Water Inspectorate (DWI), a part of the Central Environment Ministry, is responsible for ensuring that drinking water quality standards are complied with.

4-29. Regulators are independent of ministers but the Director must make an annual report to the Secretary of State that is laid before Parliament and published. The Director also documents for public inspection its approach towards regulation issues and the reasoning behind decisions that it reaches.

4-30. The Director reviews company price limits every five years. The Director sets the annual price increase, or 'K' factor, for each company to reflect what it needs to charge to finance the provision of services to customers. The Director sets price limits (or caps) that give companies the incentive to make efficiencies. Companies that increase efficiency and hence profitability, can share these rewards between shareholders and customers.

4-31. If a company acts against the public interest by misusing its monopoly position, the Director can refer the case to the Competition Commission (which is another independent non-governmental agency set up to monitor and take action against anti-competitive practices). OFWAT's powers are, thus, considerable. In making determinations OFWAT takes a number of factors into account for each company. They include performance over the previous period, both financial and operational, forward commitments, asset condition and current investment levels, operating costs, and productivity assessments.

4-32. Each year the water and sewerage companies in England and Wales are required to provide OFWAT with information on their performance against various aspects of service. There are eight levels of service indicators, however, only four of these are of relevance to wastewater management:

- Flooding from sewers – records problems caused by inadequate drainage.
- Billing contacts - the number of billing contacts received by a company and the time taken to deal with them.
- Written complaints - the number of written complaints received by a company and the time taken to deal with them.

- Ease of telephone contact - the ease with which customers can make telephone contact including speed of response, abandoned calls, and engaged lines.

4-33. Strong and effective arrangements for the independent representation of the interests of customers are vitally important in the regulation of a monopoly utility such as the water industry:

- Customers cannot take their business elsewhere and from time to time they need help and advice in resolving complaints against their service company.
- Representation on behalf of customers ensures that companies are aware of, and are responsive to, concerns about the range and quality of their services.
- The interests of customers must be represented to OFWAT, which cannot carry out its job as economic regulator properly without such knowledge.

4-34. In England and Wales, customer interests are represented by Customer Service Committees (CSCs) established and maintained by the regulator. The CSCs are concerned solely with the interests of water customers and do not share the wider duties of the regulator.

4-35. The Environment Agency (EA) which was formed in 1996 from the National Rivers Authority and smaller pollution control bodies undertakes environmental regulation in England and Wales. It has a headquarters, which handles policy issues, and eight regional offices. The agency's duties devolve from the 1995 Environment Act and include responsibility for river basin management, water abstraction licensing, the monitoring and enforcement of effluent discharges to the natural environment, pollution control, and natural water quality.

4-36. The Drinking Water Inspectorate (DWI) is responsible for ensuring that drinking water supplies comply with national standards, which incorporate the requirements laid down in the EU Drinking Water Directive. Although the DWI relies mainly on data submitted by the water companies, it carries out extensive audits of their operations and methods and investigates customer complaints.

4-37. A beneficial economic consequence of privatization, from the government's viewpoint, was that it provided a means of financing water industry improvements through private investment, rather than public borrowings.

4-38. The UK is somewhat unique in that historically most non-industrial water supplies were not metered. Prior to 1978 non-metered water was charged in direct proportion to the property tax levied and no alternative means of charging was made available to customers. However, a Government report in that year, whilst rejecting the economics of universal metering drew attention to the failings of the (then) current charging system. As a result of this report the concept of voluntary metering (at a customer's request) was introduced. Thus customers who thought the use of property as a charging basis treated them unfairly could opt for metering (provided they paid the installation cost).

4-39. The same Government report also drew attention to the fact that a significant element of water supply costs and even larger element of wastewater costs are fixed as a consequence of making the service available, regardless of the actual level of consumption. This led to both water and wastewater charges being split into two components – a fixed availability charge and a variable element based on either actual consumption (where supplies are metered) or the property tax as a proxy for consumption.

4-40. Both the fixed charge of the annual wastewater tariff and the wastewater infrastructure charge are based on the size of the incoming metered water supply. It is argued (without any serious challenge thus far) that the incoming pipe/meter size constrains the amount of sewerage and Sewerage Treatment (ST) capacity that a particular property requires and is thus the best way of charging for availability of sewerage and ST facilities.

4-41. Tariff structures and detailed charges to be levied are actually decided by the water and wastewater companies, but they must do so in accordance with key charging principles contained in UK law and in accordance with overall pricing limits set by OFWAT.

4-42. In UK a typical household would pay roughly the same in wastewater charges as for water supply charges.

4-43. Most UK customers receive a combined water supply and wastewater bill. No taxes are applied to either the water supply or wastewater charge. Billing is done half-yearly for most residential customers. All bills (and reminders) are issued by post. Payment can be made by cash to local Post offices, or banks, by postal remittance using personal check, or by direct debit. Water companies try to encourage payment by direct debit as being a low cost, quicker and more reliable means of income collection. Domestic customers are given the opportunity to pay their bills by monthly installments, if they so prefer. Charges are payable for all properties connected directly or indirectly to the public wastewater system or which have the benefit of these services and will include elements of foul water, surface water and highway drainage. If your property only benefits from surface water drainage, you pay a fixed fee. Where a household customer is not connected to the sewers for the purpose of discharging surface water, then a bill reduction can be claimed.

2.3. New Zealand

4-44. The provision of water supply and sanitation in New Zealand is generally of good quality in urban areas. It is provided by local government called Territorial Authorities which include 14 city councils in urban areas and 53 district councils in rural areas. The legal framework includes the Health Act 1956 amended in 2007, the Local Government Act 2002 and the Resource Management Act 1991.

4-45. Much of rural New Zealand relies on collection of rainwater for water supply and septic tanks for sewage disposal.

4-46. The main metropolitan area of New Zealand is Auckland with a population similar to North Jakarta, South Tangerang in Banten and Makassar in South Sulawesi around 1.4 million.

4-47. Water Care (WC) is the service delivery vehicle and is New Zealand's largest company in the water and wastewater industry and therefore we use this as the role model. WC supply around 354 million liters of water to Auckland every day. It draws water from 23 sources, treats it and supplies it to homes and businesses via a vast network of pipes. It collects, treats and disposes of around 392 million liters of wastewater daily, including trade waste from industry. It also carries out significant work to upgrade and build infrastructure, so that it can maintain levels of service and provide capacity for a fast-growing population.

4-48. WC 18 treatment plants are working night and day. Each day, the system collects about 400 million liters of wastewater and treat it to a very high standard. It maintains and operates the wastewater system up to the connection point at the owners property, taking care to avoid odors and overflows.

4-49. The wastewater network consists of:

- 7999 kilometers of wastewater pipes
- 18 treatment plants
- 518 wastewater pump stations
- 167,264 manholes

Domestic

4-50. There are two parts to the wastewater bill:

Fixed charge: this pays for maintaining the wastewater network.

Volumetric charge: this pays for collecting and treating wastewater outflow.

Fixed wastewater charge:

4-51. All properties with a water meter pay a fixed wastewater charge as well as the volumetric water charge. This pays for maintaining the public wastewater network. Each month, the bill shows the pro rata (proportional) wastewater charge for that billing period (number of days).

4-52. For example, if the annual fixed wastewater charge is \$205, the daily rate is 205 divided by 365 days = 56 cents. So for 30 days the charge would be about \$16.

Volumetric wastewater charge:

4-53. The base for wastewater charges is on 78.5 percent of the water volume coming into a property, as measured by the water meter. This assumes that, on average throughout the year, 78.5 per cent of the water becomes wastewater by going down the drain via the kitchen sink, dishwasher, shower, bath, washing machine, toilet, etc.

4-54. Understand the billing categories for residential and business accounts:

4-55. Charges are based on whether the water meter is classified as domestic or non-domestic. If a property has both domestic and non-domestic meters, it will have separate accounts and receive separate bills.

Domestic: When the activity at the property involves only living and sleeping, the meter will usually be classified as domestic.

Non-domestic: All other meters are classified as non-domestic. This includes providing commercial accommodation. Indicators that there is a business at the property include; signage advertising the business, being GST registered, designated parking, a business website and requiring potable water to meet government and local government regulations (e.g. for food hygiene).

Non-Domestic

4-56. Pricing plans are valid from 1 July 2017

4-57. The wastewater tariff system has five wastewater pricing plans for businesses.

Table 94: Five Pricing Plans

Pricing Plan	Annual Fixed Charge (per Meter)	Volumetric Charge per 1,000 liters	Suitable for the following volumes
Low User Plan	\$184 (IDR1,720,353)	\$4.13 (IDR 38,632)	less than 1,314 kL
Moderate User Plan	\$460 (IDR 4,301,211)	\$3.92 (IDR 36,668)	1,314 kL up to 10,083 kL
High User Plan	\$6,510 (IDR 60,893,924)	\$3.32 (IDR 31,055)	10,083 kL up to 87,959 kL
Industry Plan	\$69,840 (IDR 653,276,754)	\$2.60 (IDR 24,313)	87,959 kL or more
Notional*	\$757 (IDR 7,081,470)	n/a	
<p>* Non-domestic customers who do not have a metered water supply but are connected to the wastewater network will typically pay the notional \$757.00 fixed charge. This charge may be adjusted to better reflect actual discharge volumes.</p> <p>Exchange rates as at 6 December 2017</p>			

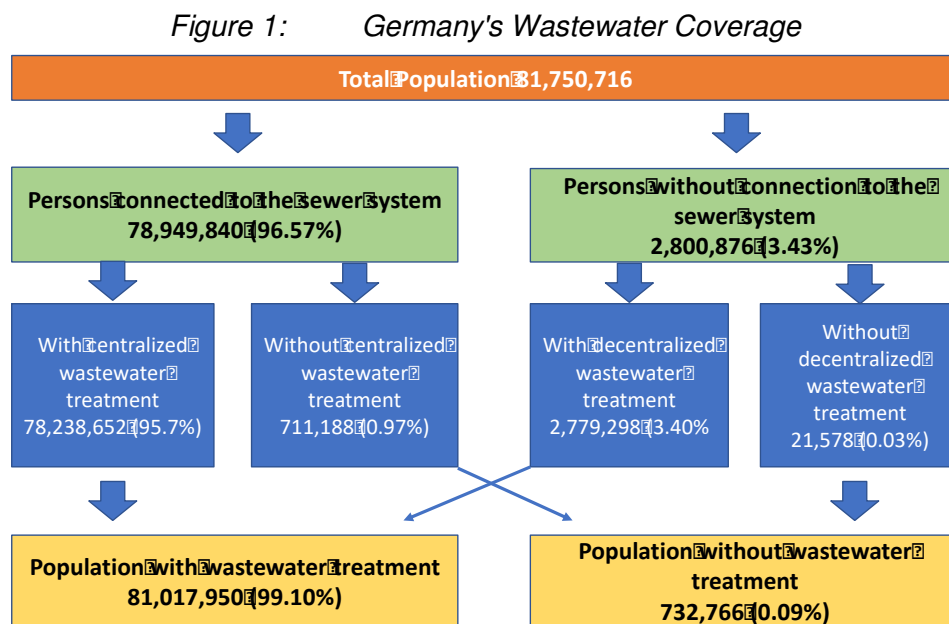
4-58. How is the volumetric charge calculated?

4-59. WC would calculate the amount of wastewater charged for each water meter by assigning an industry type with a corresponding wastewater percentage. The wastewater percentage represents the proportion of the water use that will be charged for volumetric wastewater services, ranging from 5 percent to 95 percent. The exact figure depends on the type of industry operating in. For example, a concrete manufacturer, which typically discharges a low amount of wastewater, would be charged at 5 percent. A restaurant, which discharges a high volume of wastewater, would be charged at 95 percent.

2.4. Germany

4-60. In Germany municipalities are obliged to handle wastewater disposal. It is managed in various ways; institution under public law, owner-operated municipal utility, ancillary municipal entity, special purpose association and other less significant arrangements.

4-61. The structure of the sector in 2010¹³ for wastewater treatment is:



4-62. **Tariffs:** Prices and charges mostly consist of a volume-independent and a variable fee component together. In Germany the volume-independent fee component is traditionally low. However, the conversion of the pricing is gaining significance both for water suppliers as well as wastewater disposal utilities. Many utilities have already adapted their fee systems or are planning to change the existing system in order to achieve a better approximation to the actual cost structure by increasing the amount of volume-independent revenue.

4-63. In Germany, drinking water prices and wastewater charges are additionally increased by special state charges like the water abstraction levy or the wastewater tax. The utilities pay the water abstraction levy and the wastewater tax to the respective federal state and have to invoice this accordingly through the water fee and wastewater charge. The wastewater tax accounts for more than 2 percent of a citizen's annual wastewater costs (Source: DWA Economic data 2014, data for 2013).

4-64. **Water fees and wastewater charges:** Since 2005, the prices and charges for drinking water have only increased by 12.2 percent, for waste- water disposal by a mere 10.9 percent,

¹³ Water Management and Waste Water Treatment in Germany, Ecologic Institute, Berlin, September 6th, 2016

whereas inflation increased by 14.3 percent and the cost of living rose by a total of 15.3 percent. Thus, the development of fees, both for wastewater and drinking water, is below the rate of inflation and the water supply and wastewater disposal remain at a constant low.

4-65. **Tax Regime:** There is no uniform taxation for water supply and wastewater disposal in Germany. While water supply is fundamentally subject to a reduced uniform turnover tax rate, taxation of the wastewater disposal sector is more differentiated. Public wastewater disposal utilities as sovereign undertakings are exempt from corporate income and turnover tax. If a utility responsible for wastewater disposal uses a private third party to discharge this obligation, the latter is subject to the full turnover tax rate with the possibility of input-tax deduction.

2.5. Canada

4-66. Water supply and sanitation in Canada is nearly universal and generally of good quality. Water use in Canada is high compared to Europe, since water tariffs are low and 44% of users are not metered. Despite a commitment by the federal government to promote increased cost recovery, only 50% of the cost of maintaining and operating water infrastructure is actually being recovered from users through tariffs, the rest being financed through taxes. Concerning sanitation, nearly 75% of Canadians are serviced by municipal sewer systems. The remaining 25 percent of the Canadian population is served by septic disposal systems.

4-67. For our study we choose Calgary which has a population similar to Auckland, North Jakarta, South Tangerang in Banten and Makassar in South Sulawesi at around 1.4 million.

4-68. The City of Calgary Water Utility operates on a cost recovery model, which is a surcharge program to recover the costs associated with treating higher strength wastewater. The costs are the responsibility of those contributing to it. The rates or charges described below are shown for the years 2015 to 2018, and must apply in the calendar year indicated (from January 1 to December 31, inclusive).

Sewer (wastewater) service surcharge program

4-69. The sewer service surcharge is billed in addition to regular sewer service charges when laboratory tests show that a business is releasing over-strength wastewater into the sewer system.

Effluent meter customers

4-70. In addition to any charge in the above table, a charge equal to the service charge and the usage rate according to the following table for the equivalent amount of water with which the property is served from other sources.

Table 95: *Effluent Metered Users Charge*

{Canadian Dollars = IDR 10,658}	2015	2016	2017	2018
Service Charge (\$ per 30 days)	\$20.60	\$23.66	\$24.72	\$25.69
Usage rate (\$ per cubic meter of wastewater released into The City's wastewater system)	\$1.3648	\$1.5685	\$1.6417	\$1.7281

Residential Metered

4-71. A residential metered customer is a single or two-family dwelling that has a water meter installed that measures the amount of water used.

Table 96: Residential Metered Charges

{Canadian Dollars = IDR 10,658}	2015	2016	2017	2018
Water service charge (\$ per 30 days)	\$15.80	\$15.85	\$15.59	\$15.33
Water usage rate (\$ per cubic meter)	\$1.7698	\$1.7904	\$1.7474	\$1.6652
Wastewater service charge* (\$ per 30 days)	\$20.60	\$23.66	\$24.72	\$25.69
Wastewater usage rate (\$ per cubic meter of water used)	\$1.1028	\$1.3051	\$1.3956	\$1.4852
Drainage service charge (\$ per 30 days)	\$10.96	\$13.05	\$14.02	\$15.05

*Wastewater produced is estimated to be 90 per cent of water usage over a year reflecting that some water (e.g. outdoor watering) is not returned to the treatment plants.

General Service

4-72. This customer group is charged a basic monthly service charge based on the size of water meter.

Table 97: General Service Customer Charges

Service charge according to water meter size (\$ per 30 days)	Various meter sizes	2015	2016	2017	2018
General service regular = less than 75 mm	20 mm**	\$22.15	\$26.98	\$28.02	\$30.44
	25 mm	\$28.28	\$32.95	\$34.22	\$37.17
	40 mm	\$46.01	\$56.39	\$58.57	\$63.63
	50 mm	\$71.59	\$76.78	\$79.75	\$86.63
General service large = equal to or greater than 75 mm	75 mm	\$89.28	\$121.37	\$159.95	\$173.76
	100 mm	\$109.27	\$161.39	\$223.34	\$242.62
	150 mm	\$149.20	\$252.47	\$373.90	\$406.18
	200 mm	\$283.25	\$428.77	\$601.34	\$653.25
	250 mm	\$630.05	\$783.73	\$972.54	\$1,056.48
Wastewater service charge (\$ per 30 days)		\$20.60	\$23.66	\$24.72	\$25.69
Wastewater usage rate (\$ per cubic meter of water used)		\$1.2283	\$1.4116	\$1.4776	\$1.5552

Drainage service charge (\$ per 30 days)	\$10.96	\$13.05	\$14.02	\$15.05
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4-73. Usage rates for general service customers inside city limits.

Table 98: General Services Charges Outside the City

Based on size of meter (\$/cubic meter)	2015	2016	2017	2018
Less than 75 mm	\$1.3516	\$1.3655	\$1.3898	\$1.4099
Equal to or greater than 75 mm	\$0.9968	\$1.0425	\$1.1195	\$1.2977

Table 99: Wastewater Return Factor

Customer class	Return factor
General Service metered	0.90

Table 100: Irrigation Services

	2015	2016	2017	2018
Irrigation Services (\$ per cubic meter)	\$2.8886	\$2.7402	\$2.6803	\$2.5911

Hauled wastewater and septage

4-74. Customers that have a permit to dispose of hauled wastewater and septage into a public disposal station need to apply for an account allowing them to dispose hauled wastewater and septage to those depots. The customer may pay a fee of \$25.00 for each access card (fee refundable on return of card), in addition to payment of a service charge and volume charges, as described below.

Table 101: Hauled Wastewater Charges

	2015	2016	2017	2018
Service Charge (\$ per 30 days)	\$20.60	\$23.66	\$24.72	\$25.69
Volume Charge (\$ per cubic meter)	\$17.5818	\$20.3597	\$21.3913	\$22.4483

A4-3. Asian Regional Approaches

4-75. The level of development of wastewater systems in several Asian countries is far below that of the so-called western countries such as USA, Germany, UK, New Zealand and Australia. Drawing on Asian experience is therefore fairly limited.

4-76. The issue of cost recovery for environmental services was the subject of December, 2004, the CIDA – AIT Partnership promoted a “Professional Training Program on Financing and Cost Recovery for the Provision of Urban Environmental Infrastructure Services”. The Program was organized by the South East Asia Urban Environmental Management Applications Project (SEA-UEMA). The training was based on case studies and current practices in a number of South East Asian countries, including Vietnam, Cambodia, Bangladesh, Indonesia, Thailand, Malaysia and Philippines.

3.1. Singapore

4-77. The Urban drainage system is separated from the sewerage system and consists of a series of open drains feeding into rivers and reservoirs. Funding for O&M comes from the general fees levied for water and sewerage. The tariff consists of a consumption block of below 40 m³ per month and above 40 m³ per month for domestic and other users, in addition there is a percentage charge for water conservation tax and a water borne fee which covers sewerage. There is an additional charge to cover SWM on the same bill. For industrial waste there is a further fee levied. In essence all these revenues just fund the Public Utilities Board who is also responsible for wastewater treatment. The report shows the up-to-date tariffs and forecasted tariffs to 2018.

4-78. The methodology is a volume based scheme by customer class.

4-79. The water price goes towards meeting the cost of water treatment, reservoir operations, NEWater¹⁴ production, desalination, used water collection and treatment, and the maintenance and expansion of the island-wide network of water pipelines.

4-80. In 2017 Singapore has made some key revisions to the water price which are:

A 30% increase in water price, phased over 2 years, starting from 1 July 2017.

Restructuring of the Sanitary Appliance Fee and the Waterborne Fee into a single, volume-based fee.

4-81. The domestic charge structure is:

Figure 2: Domestic Charges In Singapore

		Current		From 1 July 2017		From 1 July 2018	
		Water Price (\$/m ³)		Water Price (\$/m ³)		Water Price (\$/m ³)	
		0 - 40m ³	> 40m ³	0 - 40m ³	> 40m ³	0 - 40m ³	> 40m ³
Potable Water	Tariff	\$1.17	\$1.40	\$1.19	\$1.46	\$1.21	\$1.52
	Water Conservation Tax (% of water tariff)	\$0.35 (30% of \$1.17)	\$0.63 (45% of \$1.40)	\$0.42 (35% of \$1.19)	\$0.73 (50% of \$1.46)	\$0.61 (50% of \$1.21)	\$0.99 (65% of \$1.52)
Used Water	Waterborne Fee	\$0.28	\$0.28	\$0.78	\$1.02	\$0.92	\$1.18
	Sanitary Appliance Fee	\$2.80 per fitting*		Combined into Waterborne Fee		Combined into Waterborne Fee	
Total Price		\$2.10	\$2.61	\$2.39	\$3.21	\$2.74	\$3.69

Note: Water is charged per cubic metre (m³), which is equivalent to 1000 litres. All figures are before GST.

*For the calculation of total price, the Sanitary Appliance Fee is converted to its volumetric equivalent.

¹⁴ The name given to water that is recycled using reclamation plants for treatment

4-82. In Singapore every drop of used water is collected via a separate network of sewers and channeled to the water reclamation plants for treatment, after which it is further purified into NEWater.

4-83. Currently, the Sanitary Appliance Fee (SAF) and Waterborne Fee (WBF) go towards meeting the cost of treating used water and maintaining the used water network. The SAF is a fixed charge based on the number of sanitary appliances in a household or premise. The WBF is charged based on the volume of water usage.

4-84. From July 2017 onwards, the SAF and WBF will be restructured into a single, volume-based fee. This is more reflective of the volume of used water discharged.

4-85. For Non – Domestic (Businesses) use there is a Potable Water Price, Figure 3, a NEWater Price as shown in Figure 4, an Industrial Water Price Figure 5 and finally Potable Water Price for Shipping Customers Figure 6.

Figure 3: Sanitary Appliance Fee Singapore

		Current	From 1 July 2017	From 1 July 2018
		Water Price (\$/m ³)	Water Price (\$/m ³)	Water Price (\$/m ³)
Potable Water	Tariff	\$1.17	\$1.19	\$1.21
	Water Conservation Tax (% of water tariff)	\$0.35 (30% of \$1.17)	\$0.42 (35% of \$1.19)	\$0.61 (50% of \$1.21)
Used Water	Waterborne Fee	\$0.56	\$0.78	\$0.92
	Sanitary Appliance Fee	\$2.80 per fitting*	Combined into Waterborne Fee	Combined into Waterborne Fee
Total Price		\$2.15	\$2.39	\$2.74

* For the calculation of total price, the Sanitary Appliance Fee is converted to its volumetric equivalent.

Note: All figures are before GST.

Figure 4: Waterborne Fee / NEWater

		Current	From 1 July 2017	From 1 July 2018
		Water Price (\$/m ³)	Water Price (\$/m ³)	Water Price (\$/m ³)
NEWater	Tariff	\$1.22	\$1.28	\$1.28
	Water Conservation Tax (% of NEWater tariff)	—	\$0.13 (10% of \$1.28)	\$0.13 (10% of \$1.28)
Used Water	Waterborne Fee	\$0.56	\$0.78	\$0.92
Total Price		\$1.78	\$2.19	\$2.33

Note: All figures are before GST.

Figure 5: Waterborne Fee / Used Water

		Current	From 1 July 2017	From 1 July 2018
		Water Price (\$/m ³)	Water Price (\$/m ³)	Water Price (\$/m ³)
Industrial Water	Tariff	\$0.65	\$0.66	\$0.66
	Waterborne Fee	\$0.56	\$0.78	\$0.92
Total Price		\$1.21	\$1.44	\$1.58

Note: All figures are before GST.

Figure 6: Waterborne Fee / Shipping Customers

		Current	From 1 July 2017	From 1 July 2018
		Water Price (\$/m ³)	Water Price (\$/m ³)	Water Price (\$/m ³)
Potable Water	Tariff	\$1.92	\$1.92	\$1.92
	Water Conservation Tax (% of water tariff)	\$0.58 (30% of \$1.92)	\$0.67 (35% of \$1.92)	\$0.96 (50% of \$1.92)
Used Water	Waterborne Fee	\$0.56	\$0.78	\$0.92
Total Price		\$3.06	\$3.37	\$3.80

Note: All figures are before GST.

3.2. People's Republic of China:

4-86. For wastewater tariffs, China, with the help of the Asian Development Bank, have produced a master plan for all cities and municipalities to follow in which future tariff structures are to be based on:

1. Uniform charge for all customers of domestic strength effluent,
2. Industry based on a two part tariff based on
 - volume and
 - pollutant loading charge

4-87. This is quite an ambitious plan as there has to be very good systems and monitoring to determine the pollutant loading in the wastewater from every industrial customer.

4-88. Currently China collects a water resources fee, a water supply tariff for hydraulic engineering, an urban water supply tariff, a wastewater collection and treatment tariff, and a pollutant discharge fee.

4-89. In recent years, China has increased its focus and efforts towards combating the high levels of environmental pollution in the country, the result of its accelerated economic growth. In 2012, China declared war on pollution, and put aside RMB 3.7 trillion for the battle, with over half of the funds reserved for water pollution. The 13th Five Year Plan targets this issue, and in 2015, the government published the Water Pollution Prevention and Control Action Plan, aiming to halt heavily polluting sectors from contaminating water sources.

4-90. However, China's most recent environmental report remains negative, suggesting that 61.5 percent of groundwater and 28.8 percent of key rivers were classed as 'not suitable for human contact'. The contamination is largely caused by industrial and agricultural industries, and the resulting pollution has permeated the earth down to the water table. The report found that usable and safe water is scarce, and over half of China's cities suffer from water shortages, especially in the arid northern regions. While China has 20 percent of the world's population, it only possesses seven percent of the world's water resources. What's more, these water resources are not reliable and are distributed unevenly among provinces and administrative regions.

China's existing wastewater treatment facilities

4-91. China has developed multiple technologies to treat wastewater, and now has the world's second-highest sewerage processing capacity, with around 3,340 wastewater treatment plants as of 2012. 80 percent of these plants use the following three technologies and remove contaminants from sewerage:

Oxidization ditches: A modified activated sludge biological treatment process utilizing long solids retention times to remove biodegradable organic matter. Used in both municipal and industrial wastewater treatment;

Anaerobic Anoxic OXic (ANANOX) process: A patented low energy, biological denitrification process utilizing anaerobic pre-treatment and settler chamber; and,

Sequencing batch reactors: Oxidizes wastewater or sewerage from anaerobic digesters or mechanical biological treatment facilities in batches, with aeration and sludge settlement occurring at the same time in one tank.

4-92. China also utilizes 'constructed wetlands' as an alternative ecological method of treating wastewater, and addressing runoff issues and flood water retention. Constructed wetlands are man-made biological environments combining hydrology, vegetation and flow paths which provide effective means of treating biochemical oxygen demand, soluble solids, nitrogen, phosphorus, heavy metals, organic pollutants and pathogens. They can be constructed and customized by either biotic or abiotic mechanisms to target certain types of occurring pollutants depending on locational needs. Constructed wetland systems are the cheapest method of wastewater treatment, requiring about 30 to 50 percent of the cost of conventional treatment methods.

4-93. In 2015 the Ministry of Finance and Ministry of Housing and Urban-Rural Development issued a 'Notice on Issues of Setting and Adjustment of Wastewater Treatment Fee Standard'¹⁵.

4-94. That notice referred to the central government announcement that domestic wastewater tariffs nationwide must reach RMB0.95/m³ (USD0.15/m³) in urban areas and RMB0.85/m³ (USD0.14/m³) in rural areas by the end of 2016. Of the 26 major cities covered in GWI's 2014 Tariff Survey, only six currently meet this minimum tariff: Shanghai, Beijing, Nanjing, Chongqing, Kunming and Zibo. Tariff reform has been focused on water supply, with the 32 largest cities due to implement increasing block tariffs this year.

4-95. The government also urged cities, counties and towns without wastewater treatment plants to bring the necessary infrastructure online by the end of 2017. Although wastewater treatment is widely available in cities, this policy will drive investment in underserved semi-rural communities.

4-96. Urban drainage management in China is currently considered a non revenue-generating public service, there is no legal provision for levying a user charge, and the service is funded from the local government budget. This means urban drainage management budgets are subject to whatever resource constraints apply from time to time on the local government budget. This approach to funding leads to uncertainty in planning and, on occasions, restricts funds for necessary operation and maintenance of systems. Responsibility for service provision is vested

¹⁵ <http://chinawaterrisk.org/notices/china-to-increase-wastewater-treatment-fees-by-2016/>

in local governments and is normally undertaken by local direct labor units, although some governments assign/contract day to day operations to the local wastewater utilities, albeit funded by the local Finance Bureau.

4-97. Minimum non-residential wastewater tariffs will also increase, to RMB1.40/m³ (\$0.22/m³) for urban users and RMB1.20/m³ (\$0.19/m³) for rural users.¹⁶

4-98. The Notice adjusted the existing wastewater treatment fee standard and sets the following targets by the end of 2016¹⁷.

4-99. Urban wastewater treatment (WWT) fees to be no less than CNY0.95/tonne for residential users and CNY1.40/tonne for non-residential users (such as industries); and

4-100. County/designated-town WWT fees to be no less than CNY0.85/tonne for residential users and CNY1.20/tonne for non-residential users.

4-101. If the local WWT fee meets the above new WWT fee standard, the Notice encourages the WWT fee to be increased to provide acceptable profitability for WWT operators.

4-102. For places where WWT fees are currently not being collected, the Notice also urged them to start fee collection by the end of 2015 and also make wastewater treatment plants operational within the following 3 years.

4-103. That means, all the cities, counties and designated-towns should fully implement the WWT fee by the end of 2015 and have WWT plants in operation during the following three years.

3.3. Japan - Tokyo:

4-104. Wastewater is the responsibility of a public company, Tokyo Bureau of Sewerage, wholly owned by the Tokyo Metropolitan Government. Tokyo focuses on a fixed band tariff which is used to cover everything – there is no differentiation between drainage and sewerage and water supply charged are based on a 1.05 multiplication of the waste water charge. They had a five year plan (starting in 2004) to separate drainage in some areas only, where a high degree of treatment of sewerage is required.

3.4. Hong Kong:

4-105. Working on a “polluter pays” principal there are wastewater charges added to the water bill, however O&M for drainage which is a separate system is funded from public revenues. There are two types of charges (i) the sewerage charge (SC), and (ii) Trade Effluent Surcharge (TES). The SC aims at recovering the cost of collecting and treating wastewater at or below domestic strength. The TES aims at recovering the additional cost of treating trade effluent with pollution strength exceeding the domestic sewage. Different classes of industry and services are specified – many hundreds of different businesses!

3.5. Philippines:

4-106. In Philippines water supply and sanitation was privatized through concession agreements. In 2001 sewerage charges were 50% of water bill for households and an extra 10% of water bill was charged for “environment fee” to those who were not connected to the main system. Plans were for increases to 150% of water bill which did not happen and replacement of “environment fee” with “sanitation fee” of 75% which also did not happen. This has caused a great deal of friction between the concessionaires and the municipalities.

4-107. The situation in 2015¹⁸:

¹⁶ <https://www.globalwaterintel.com/news/2015/5/china-steps-wastewater-tariff-reform.html?source=email>

¹⁷ <http://chinawaterrisk.org/notices/china-to-increase-wastewater-treatment-fees-by-2016/>

¹⁸ Environmental Management Bureau Region 3, Report 2015

- In the Philippines, only 10% of wastewater is treated while 58% of the groundwater is contaminated;
- Only 5% of the total population is connected to a sewer network. The vast majority uses flush toilets connected to septic tanks;
- Since sludge treatment and disposal facilities are rare, domestic wastewater is discharged without treatment;
- Major sources of pollution:
 - Inadequately treated domestic wastewater or sewage (48%)
 - Agricultural wastewater (37%)
 - Industrial wastewater (15%)
- In Metro Manila, only 11% of the total population is directly/indirectly connected to a sewerage system, 85% are served by over 2 million ill-maintained septic tanks and 4% of the population has no toilet.
- Septic tanks are prevalent:
 - Manila: > 85% Philippines: >70%
 - General conditions: undersized, many are single- chambered, commonly the bottom is “unlined”, and regular desludging is not practiced. Most of the time, discharge is directed to drainage canals
 - In Metro Manila, it was estimated that septic tanks provide only 10% treatment (without desludging)

4-108. In the Philippines, the national government instituted the National Sewerage and Septage Management Program (NSSMP) as mandated by the Clean Water Act of 2004, to encourage local government units (LGUs) to implement sewerage and sanitation projects. The national government, through the Department of Public Works and Highways, can provide subsidy of up to 40% of the total cost of sewerage projects of highly urbanized cities. However, as of this writing, there are no takers yet of the NSSMP subsidy among the LGUs. The reasons for the non-usage of the subsidy include the (i) absence of feasibility studies, (ii) delay in the passage of local ordinance that would support the sewerage project, and (iii) preference of LGUs to implement septage projects which are less costly compared with sewerage systems. The NSSMP guidelines are currently being reviewed by oversight agencies with proposed revisions to allow provision of subsidy (i) not only for sewerage projects but also for septage projects, and (ii) directly to water districts rather than through the LGUs¹⁹.

3.6. Malaysia:

4-109. Sewerage services in Malaysia were privatized in 1994 and are managed by Indah Water Konsortium Sdn. Bhd. which operates in 86 local authorities areas except those in Johor Bahru, Kelantan, Sabah and Sarawak. Households are charged a flat rate irrespective of volume, but there is a differentiation between those connected to the system and those with septic tanks. Industrial entities are treated a little differently. Premises receiving connected sewerage services pay a flat rate according to a “per head” basis, in addition there is another rate again based on a “per head” situation for those with septic tanks.

4-110. Then according to the value of the property there is another charge to the industrial user again segregated according to connection to the system or operating a septic tank.

¹⁹ Financing mechanisms for Wastewater & Sanitation, ADB Publication, 2016

3.7. Vietnam

4-111. The philosophy in Vietnam is that the full costs of operation and maintenance for urban drainage are met by the provincial governments. These provincial governments are generally financially constrained, and levels of service vary between provinces.

4-112. Government development targets and policies for sanitation are reflected in the Orientation Plan for Urban Drainage Development to 2020. It seems to be implicit in the Orientation Plan, that the self-financing extends not just to O&M but also to capital related costs, i.e. depreciation charges for fixed assets, and any financing charges.

4-113. Decree 67/2003 provides for a 10% addition to the water supply company billings, with special provisions for those organizations without access to the water supply company. In particular, with regard to industrial self-supply, provision was made for the introduction of pollutant loading based charges.

4-114. With regard to the attachment to the water supply company billing, some provinces have implemented to 10%, some have opted for a flat rate addition, and some have adopted differential rates for domestic and non-domestic customers. The part of the Decree relating to industrial self-supply pollutant loading based charges has not been fully implemented. Implementation of this type of charge requires specific institutional arrangements and resources, which do yet appear to be in place.

3.8. Indonesia

4-115. In Indonesia, in the limited number of locations where water borne sewerage systems have been provided, around 3% of the urban population, tariffs for the service are collected as a surcharge on the water supply billing, typically 30%. In order to address the self-supply problem, the introduction of an additional 0.5% on the sales tax of those industries classified as polluters is currently under consideration. A raw water abstraction fee is charged, based on the rated abstraction capacity.

3.9. Cambodia

4-116. In Cambodia (Phnom Penh), provision is made for wastewater charges to be added to the water supply bills.

3.10. Thailand

4-117. In Thailand, the billing systems are mixed some use the provincial water companies to bill and collect, whilst others use the water companies to bill, but have separate collecting systems. In each case, however, using the water supply company database does not capture those organizations having their own wells. With regard to Bangkok the issue of wastewater tariffs was the subject of a detailed study in 2001, and is currently the subject of discussion in a second study. It is considered likely that tariff collection will be placed under the responsibility of the Bangkok Metropolitan Water Authority.

- Excessive levels of grant funding in the USA led to conservative designs and abnormally low cost O&M systems.
- Typically private sector participation in wastewater systems has been limited to operation and maintenance contracts with development of treatment facilities through such options as BOT being quite rare.

A4-4. General Considerations in Financing Services

Strategic Financing Alternatives

4-118. These can be summarized as:

- Use of taxes

- Directly Charging Users of Services and Polluters
- Grants/Subsidies in conjunction with user fees. (however these are unlikely to be available as a long term means of funding, and there should be a clear rationale for them).

4-119. It should be noted that loans are not a strategic funding option as they must be repaid, from either charges or taxes. They are of course a means of providing initial finance to commence a program of improvements or for future expansion, or can be used to manage cash flows.

Use of Taxation

4-120. Considerations in the use of general taxation to finance Utility services include:

- If a Utility service is wholly financed from general taxation then the taxpayer rather than the user of the service bears the cost.
- Financing Utility services by taxation therefore removes the incentive for users to restrict their consumption (i.e. be economical in the use of the service)
- Real costs of providing services can easily become obscured (this is particularly likely to be the case if the services are run directly by Government and government accounting conventions are followed)
- Taxation is normally viewed as a fair and legitimate means of financing projects giving general public benefit, or services where users are unable to influence demand.
- To the extent the taxation system shelters financially disadvantaged members of society then this "shelter" is extended to users of Utility services that are financed wholly or partly from taxation.

Charging Users for Services

4-121. Considerations in direct charging of users include:

- Costs of services fall directly on those who use them.
- If charges relate to usage, then a direct incentive for economy of use exists.
- Charging for a service is consistent with the polluter pays principle, and the principle that those who benefit from a service (or project) should contribute to its cost.
- Real costs of service are readily apparent, as these are almost invariably measured and taken into account in determining the level of charges.
- A user charge creates a dedicated source of revenue for a service, which could be important in institutional reforms that involve corporatization and/or private sector involvement.
- The financially disadvantaged are not sheltered from charges unless special rebate schemes are introduced.

4-122. Clearly the financing decision needs to be taken on a service by service basis and having regard to wider economic and social considerations. It is also quite possible for a service to be partly financed through taxation and partly by the levying of charges directly on users. For example very often some or all initial financing of new infrastructure may be financed from taxation, with user charges being applied to finance O&M and replacement of infrastructure.

Conclusions

4-123. Conclusions which may be drawn from the above analysis are:

- If influencing demand for the service, or otherwise influencing the behavior of service users, is important then direct charging according to usage is preferred.

- Taxation is more appropriate where there is a general public benefit, and influencing customer behavior/demand is not an issue. Taxation may also be appropriate where usage cannot readily be measured, except where a dedicated source of revenue is needed to promote institutional reform and/or accountability on the part of the service provider.
- Where charges are used for vital public services then consideration needs to be given to arrangements to ensure the genuine poor can still access those services as a livelihood protection measure.

4-124. It should be emphasized that these are preliminary and general conclusions which might be modified by detailed examination of the specific requirements of individual services.

4-125. The reader is directed to ADB Publication dated 2015 on ***Financing Mechanisms for Wastewater and Sanitation*** for a whole host of financing structures used around the region, which may be considered in Indonesia.

A4-5. Charging Objectives in Tariff Design

Charging Objectives

4-126. Charging objectives for public services provided under monopoly conditions are fundamentally different from commercial pricing objectives. Commercial pricing objectives relate almost solely to profit maximization. In contrast public Utility charging objectives are more complex and relate closely to government policy objectives:

- The economic objective is to promote the efficient use and allocation of resources.
- The financial objective is to provide adequate income to keep the Utility on a sound financial footing, and having regard to any financial objectives and targets that have been set.
- The social objective is to have regard to relevant government social policies and to consider the impact of pricing on the quality of life etc
- The administrative objective is for tariffs, methods of measuring service consumption, and billing procedures to be practicable, and comprehensible to customers.

4-127. It is not at all unusual for some of these objectives to conflict to a significant degree. Final tariff design and the setting of price will normally involve a degree of compromise between conflicting objectives.

4-128. Having identified a number of potentially conflicting objectives in the determination of Utility pricing it is worth developing these into a more detailed set of principles that the ideal tariff structure would comply with. We do this to assist in deciding the more important objectives/principles for a particular service/city and those which it would be acceptable to compromise on, if that became necessary.

Charging Principles

4-129. There are a number of common principles that should be considered when designing a tariff structure. These are discussed briefly below:

Equity and Fairness

4-130. Are the charges levied fair and equitable? Considerations here include:

- Is it reasonable to charge users (tax v charge issue)?
- Is the means of measurement fair?
- Are differences in charge levels from one user to another fair?
- Is the level of charge reasonable?

4-131. This principle of equity and fairness has proved to be a particularly important one in tariff design. Where customers have challenged tariffs levied on them then a "demonstration" of equity and fairness of treatment has proved most important in the defense of the charging regime. Equity and fairness issues also come into the consideration of several of the other charging principles.

Charges should relate to Costs

4-132. Where possible a user of a Utility service should pay a charge that reflects the costs that their use of the service imposes on the service provider. This raises the problem of understanding the cost structure of the Utility and how different forms and levels of service use affects costs. If many costs are "fixed" then is a charge based purely on volume of service justifiable? Where economic and financial costs differ which should be used? (These points will be developed further in later sessions of this Paper).

Ease of Administration (Costs of Collection)

4-133. The charging structure of the Utility must be capable of practical administration. The administrative arrangements for calculating and collecting charges must not be unduly complex so as to significantly increase costs.

Customer Understanding

4-134. Charges must not only be fair they must "be seen to be fair". That is they must be generally perceived by the majority of customers as fair. Customers need to understand what they are being charged for and how that charge has been arrived at. It has been shown that complex charging structures often confuse customers leading to suspicions of unfairness (equity and fairness challenged) and in increased costs of administration in dealing with customer enquiries.

Economic Efficiency

4-135. Is the tariff structure efficient in its influence over demand for the Utility's service and in the achievement of economic objectives? For example a charge based wholly on consumption will be more efficient in influencing demand than one with a large standing (fixed) charge element.

Charges to relate to Usage of Service

4-136. Where possible the level of charge should be related to the level of usage of a service. That is, the more a customer uses the service the greater the charge. This is a similar principle to the "related to costs" principle as there is normally a close correlation between consumption volumes and costs. However costs might also be influenced by factors other than volume. For example quality of a wastewater discharge will affect treatment costs.

Consistent with Social Objectives

4-137. Tariffs should where possible be consistent with social objectives, rather than run contrary to them. Several countries have tried to design tariff structures that give specific protection to low volume users, many of whom are often also in the financially disadvantaged category. This type of tariff design can also help overcome general criticisms of financing through charging users as opposed to use of taxation.

No Undue Discrimination (Cross Subsidization)

4-138. Undue discrimination or cross-subsidization in charging occurs where either on an individual basis or collectively, the costs of the Utility service fall more heavily on one customer (or customer group) than another, having regard to costs and/or usage. Thus, if one charge level is applied on industry and a much lower one on institutions or domestic customers the likelihood is industry will pay an unfair proportion of total costs. This raises issues of equity and economic effects. If one set of users is subsidized they will be less likely to be economic in their use of the service thus increasing total costs. If industry has to pay an unfair share of costs in its charges this will increase the industries own cost base and perhaps threaten its competitiveness. Issues of subsidies and cross-subsidization have been the cause of much debate in the European

Community, particularly in relation to energy pricing where one country's practice has been viewed as giving its own Industries unfair market advantage over those of other countries.

A4-6. Alternative Tariff Structures

4-139. There are numerous possible tariff types and structures. To consider these we will first consider simple tariff types and then secondly how these can be developed into more sophisticated structures. There are four basic types of tariff:

- unmeasured flat rate fees,
- license fees,
- assessed charges, and
- volume charges.

Unmeasured Flat Rate Fees

4-140. These are fees that are charged on a time basis; that is monthly, quarterly or annually. They give the customer the right to use the service in question for the given period of time. No attempt is made to differentiate between customers for differences in their individual usage of the service.

4-141. An example of such a fee is a flat rate per head of population (or per household) for the collection and disposal of domestic solid waste.

4-142. Advantages of flat rate fees include:

- they are easy to administer
- income is easy to forecast
- they are easily understood by customers

4-143. Disadvantages of flat rate fees include:

- they are not related to costs
- they are not related to usage
- there is no incentive for customers to economize
- they are unlikely to be equitable
- cross-subsidization is inevitable
- they will be viewed more like a tax than a charge.

Licence Fees

4-144. These are fees paid that give the customer the right to a service(s), with the fee determined by one or more pre-defined criteria. At their simplest a license fee may be no different from a flat rate fee unless the license fee is banded in some way. However most licensing systems and charges do incorporate different fees for different types of use or differences in potential use.

4-145. An example is water service connection charges and in some cases water abstraction charges for self-supply water systems.

4-146. Advantages of license fees include:

- they are relatively easy to administer
- they are easily understood by customers
- they can be related to capacity costs (as is done with UK wastewater connection charges)

4-147. Disadvantages of license fees include:

- they do not related to usage
- they are not related to costs unless capacity costs dominate
- there is no incentive for customers to economize.

Assessed Charges

4-148. Under this charging system individual customers charges are assessed using criteria that act as a proxy to the customer's actual use of the service.

4-149. For example, a solid waste charge on a restaurant might be based on the number of tables, or in the case of a hotel on the number of beds. In US urban drainage charges are sometimes assessed based on the land area as a proxy for run-off.

4-150. Advantages of assessed charges include:

- they are fairly easy to administer (assuming assessment criteria are kept simple)
- they are equitable(as long as assessment criteria seen as fair)
- they are understandable to customers(as long as assessment criteria simple)
- income forecasting becomes relatively straight-forward

4-151. The disadvantages of assessed charges include:

- the assessment criteria may be challenged
- administration and customer understanding difficulties are experienced if assessment criteria are complex
- charges are not related to actual usage
- there is no incentive for customers to economize

Volume Charges

4-152. Volume charges are levied on customers based on their measured consumption of the service.

4-153. Examples include metered water supply charges.

4-154. Advantages of volume charges include:

- charges relate directly to use
- customers have an incentive to economize
- charges are easily understood by customers
- charges are equitable and fair

4-155. Disadvantages of volume charges include:

- they may not relate to costs if fixed costs predominate
- they are more expensive to administer
- income forecasting is more complex and less certain

More Complex Tariff Structures

4-156. These use a combination of elements from the basic tariff types in an attempt to design a tariff that more closely meets the Utility's objectives and/or gives greater adherence to charging principles. Two or more of the basic tariff types may be incorporated into a particular tariff design. The most common types include:

- standing charges

- rising block tariffs
- reducing block tariffs
- seasonal tariffs
- maximum demand tariffs
- peak time of day tariff
- tariffs that differentiate the quality of service

Standing Charges

4-157. A fixed or graduated standing charge is introduced as an additional element to a volume tariff. This is normally done to reflect fixed costs the Utility has to bear in providing the service, so that the tariff more closely reflects the costs of service provision. If the fixed costs are viewed as being imposed equally by all customers then a fixed standing charge common to all customers would be appropriate. Many telephone Utilities use such an approach. If some customers impose a greater burden of fixed costs on the Utility than others then a scale of graduated standing charges may be more appropriate. Many water and wastewater companies use pipe size as a means of graduation, reflecting the additional "fixed" capacity costs the larger pipe will impose.

4-158. Issues and considerations

- Standing charges reduce the variable element of customer bills and therefore reduce the extent to which customers can affect their total bill by economizing in the use of the service. The higher the standing charge, the less incentive to economize.
- Which Utility costs should be allocated to be recovered via the standing charge is a matter of judgement. As we identified in our consideration of cost structures it can be argued that all costs are variable in the longer term.
- Standing charges have often proved unpopular with customers.
- Standing charges can impact adversely on poorer low usage Customers. Some Utilities have responded to this by giving graduated rebates of the standing charge to very low volume users.
- Standing charges can be used in combination with an assessed charge just as readily as with volume charges, and the principles of so doing are identical.

Rising Block Tariffs

4-159. These operate by charging customers progressively more per unit volume as the customers consumption rises. The scales of charges applied to industrial customers may well be different from the scale used for domestic customers. Therefore for a typical domestic rising block tariff structure, an example of the charges in China might be:

- First 5 m³ of water use per month costs 0.4 RMB/ m³
- Second 5 m³ of water costs 0.6 RMB/ m³
- Third 5 m³ of water costs 0.9 RMB/ m³
- Any remaining water costs 1.5 RMB/ m³

4-160. The purpose of this type of tariff is to give customers a greater incentive to economize, particularly the higher volume users. The justification for such a tariff is that it is the marginal demand for services which imposes the greater cost on the Utility; therefore such a tariff is both economic and fair.

4-161. Issues and Considerations

- Rising blocks are easier to apply to homogeneous customer groups like domestic customers, than they are to apply to less homogenous groups such as industrial customers, where there may be very different characteristics between industries and hence a rising block tariff viewed as discriminatory.
- Even for domestic customers the Rising Block tariff potentially discriminates against larger households, unless the Block is calculated on a per capita basis which makes administration extremely complex.
- Rising block tariffs do provide an opportunity to shelter poorer low usage customers
- Rising blocks can be used with or without a standing charge, but obviously any standing charge reduces the effect of the rising block as an incentive to economize.
- Some Utilities incorporate a base level of usage within the standing charge and then the volume charge applies only to excess consumption.

Reducing Block Tariffs

4-162. These are the opposite of rising block tariffs whereby the unit charge for each block of consumption reduces as consumption increases. The purpose of such a tariff is to encourage greater use of the service, normally where there is considerable surplus capacity.

4-163. Issues and Considerations

- May be viewed as inequitable as low volume users pay more per unit.(as these are often the poorer customers there are also social consequences)
- Not environmentally friendly as they encourage excess consumption rather than economy.

Seasonal Tariffs

4-164. These are tariffs which impose a differential in the level of charge between one season and another. They are used where it is more important to limit demand in one season than another and/or the Utility's costs are greater in one season than another(s).

4-165. Issues and Considerations

- A seasonal tariff requires measurement of customers' usage on a seasonal basis. This has implications for meter reading and/or metering technology.
- The reasons for needing to reduce seasonal demand may be social, financial, economic or operational. Often these reasons will be linked to costs.
- To gain customer acceptability the reasons for the seasonal distinction need to be readily understood and comprehensible.
- Seasonal tariffs can be combined with standing charges and/or rising blocks.
- Incorporation of standing charges will reduce the desired demand management effects of the seasonal tariff and is therefore not commended for use with a seasonal tariff. On the contrary use of a rising block can further increase the incentive to economize.

Maximum Demand Tariffs

4-166. These are tariffs which charge by the customer's maximum demand as measured over a defined period, rather than by the customer's actual total use. They are common in the electricity supply industry and are often combined with seasonal differentials.

4-167. Issues and Considerations

- Probably not appropriate to most urban services, unless peak demand over short periods is an issue.

- This type of tariff requires the installation of advanced metering technology in order to measure the maximum demand in each period. This technology is expensive and for mass billings in the water industry largely unproven.

Peak Time of Day Tariff

4-168. These tariffs introduce charging differentials depending on what time of day the service is consumed. They are therefore used as a means of managing fluctuations in demand during the 24 hour period, by encouraging customers to switch their consumption to the cheaper periods. For example, a telephone system is normally operating under capacity outside normal business hours. Peak electric demand is often the evening loading, depending on the domestic/industrial customer mix.

4-169. Issues and Considerations

- They are largely untried in the water/wastewater industry other than through limited pilot trials.
- They require advanced metering technology (see also maximum demand tariffs)

Tariffs that Differentiate the Quality of Service

4-170. These tariffs introduce charging differentials which reflect differences in the quality of service made available or consumed. This is a generally accepted principle in a market economy where consumers expect to pay more for a quality product than one of inferior quality. However, is this principle valid to some or all of the common urban management services? Obviously for it to apply there has to be clear distinctions in the quality of service offered/provided to different customers. For example in the case of wastewater companies should there be differential charging based on the quality of wastewater the customer discharges to the sewerage system. Several Chinese cities are experimenting with such a system. In UK and in Hong Kong such a system operates whereby the treatability of industrial wastewater discharges are assessed on their levels of suspended solids and combined oxygen demand relative to the normal levels found in domestic wastewater.

4-171. Issues and Considerations

- Are there real differences in service standards/quality that justify differential charging?
- Do these differences make a significant impact on the costs of providing the service?
- Can these differences in quality of service be readily measured so as to allow differential charges to be levied. Are there other administrative complications. Will there be problems in customers understanding.

Social Considerations

4-172. In the future planning and operation of public wastewater services, it is useful to assess **Affordability** and **Ability to Pay** for present and future levels of service for both residential and industrial consumers/users. This will give the decision-maker and the planner additional information concerning the impact of a proposed investment and the likely effect of new or higher tariffs for the service concerned. These relationships becoming more important in countries such as China and Vietnam as the open-market policy continues to develop and the prices for public services are adjusted to reflect real resource costs and satisfy the objective of full cost recovery.

4-173. In future, it is also recommended that sample surveys of consumers and users of public services should be conducted regularly as a means of measuring public use and satisfaction with a particular service. Such surveys offer an important opportunity to assess consumer/user **Willingness to Pay** for an improved or expanded service. The increased inter-action with the public will generate increased awareness, highlight problem areas and enhance efficiency in the utilization of available resources.

4-174. The conventional method for carrying out affordability tests is to relate present and projected Utility prices to present and projected household income. This indicates what percentage of household income is required to satisfy the projected tariff requirements. The decision-maker and the planner will then be able to make a judgement as to whether the projected percentages will be acceptable or not. For example, the international lending agencies (e.g. World Bank and Asian Development Bank) generally use 5% of household income as an acceptable level of expenditure for water and sewerage tariffs.

4-175. One of the important measures in carrying out **Affordability Tests** is to assess the impact on **Low Income Households** (lowest 10%). These family units may or may not have some difficulty in paying the present and projected residential tariffs. Therefore, the service provider and local government should be aware of this potential problem as it may have an impact on any proposed tariff structure.

A4-7. Alternative Solutions for Indonesia

4-176. There are two aspects to the Indonesian experience (i) a connection charge and (ii) the sewerage charge.

4-177. *Connection Charge:* Connection charges vary by city, and are currently in the range \$15 to \$70 equivalent. In order to increase the number of connections, cities offer installment payment facilities to consumers, e.g., Cirebon, Medan, and Surakarta. In Cirebon, a community cooperative, Mitra Swadaya, provides loans to its members for payment of the sewer connection charge. In Cirebon and Medan, the connection charge is below cost.

4-178. *Sewerage Charge:* A range of practices are in vogue with regard to the monthly charge for sewerage. In Bandung, Cirebon, Medan and Surakarta, where the water utility manages the sewerage system, the sewerage charge is included in the water bill, either as a surcharge to the water bill or through a tariff based on water use. In Jakarta the sewerage charge is based on floor area, while in Yogyakarta it is based on the number of residents. Unfortunately, in some cases the customer is not billed at all, e.g., those connected to the PERUMNAS system in Tangerang and the old Dutch systems in Surakarta and Cirebon.

4-179. The following are some initial conclusions and considerations concerning the applicability of international experience to the current situation in Indonesia. As the general trend for the financing of public services moves from being financed principally from taxation to financing from user charges, a similar policy review appears appropriate for the urban wastewater and sanitation service.

4-180. Almost half of Indonesia's population of around 252 million people live in urban areas and the need for safe wastewater management services is growing rapidly. Although access to sanitation in urban Indonesia is high, about 77% in 2014, this only considers the basic criteria of access to a facility as defined by the World Health Organization Joint Monitoring Program, and not safe collection and disposal of wastewater (WW) and septage, which is low, at only 1% and 4%, respectively, leading to environmental degradation and poor health of the urban population. Due to traditional gender roles, women are exposed to poorer sanitation, often resulting in higher water borne disease incidence.

4-181. The approach in Indonesia is that investment needs are to be financed by central government, local government, private sector and community contributions, although no specific amounts are targeted or monitored. The private sector role is limited to providing services only with secured revenue stream, such as sludge collection and disposal, although mostly unregulated. Unless the sector is regulated to provide a level playing field for competing service providers and the risk of an un-secured revenue stream is mitigated, no substantial financial contribution from the private sector is expected.

4-182. This project promotes a holistic approach to WWM investment by supporting the supply side through infrastructure development; the demand side through social marketing and hygiene awareness-raising; and the creation of an enabling environment by establishing effective delivery

mechanisms supported by adequate legal, institutional and financial reforms. Private sector investment will be encouraged by creating legislation to structure tariff levels, fee collections systems, secure local government contribution (budget management), and initiating good practices (build-operate-transfer and regulated service contracts).

4-183. For this project it is stated that a significant part (21%) of the investment will have to come from provincial and local governments. Given that local governments generally spend less than 2% of their total development budget on sanitation (and given that many have only limited room to increase it) this will be a major challenge.

4-184. So the project will have to be innovative in its approach to financing the interventions.

4-185. However, complex charging systems for this service do not seem appropriate under current circumstances. And this service is one which most countries continue to finance from public budgets. There may be a case for continuing to finance infrastructure from taxation whilst introducing charges or some dedicated tax levy to finance operations and maintenance. This would give greater assurance this vital service is adequately financed.

4-186. If it is seen as necessary to levy a charge then this should be kept simple and (for residences and small businesses) could perhaps be levied as a flat rate fee along with the solid waste charge.

4-187. It is recommended to add the wastewater tariff to the water bills to reduce the administrative cost of collection and application (the system is already in place). However, the approach is different as seen below of each city.

A4-8. Policy Objectives

4-188. The policy objectives of the Indonesian Government and its cities in managing urban services should be closely associated with user needs and generally centre on the following principles:

- To avoid uneconomic provision of service capacity it must manage demand.
- To ensure financial sustainability it must have full cost recovery of O&M and look towards building funds for reinvestment in future infrastructure improvements. However, if it is assumed that waste water treatment is 100% a public good then one must apply the social policy of the central government if it entails a reduction in the extent of recovery after applying a public good subsidy.
- Promote service efficiency (including promoting competition and private sector involvement where this is relevant) so that charges are set at a level no higher than they need be.
- Encourage service levels that meet the needs of service users and offer improved livelihood conditions
- Facilitate universal access to vital services (ensuring the poor have access to services and are not driven further into poverty as a result of user charges)
- Ensure environmental protection in line with the guidelines provided by the Ministry of Environment and Forestry which is principally regulated by Law No. 32 on Environmental Management and Protection.

4-189. The policy objectives of Government in managing urban services should be closely associated with user needs and generally center around:

- Managing demand (to avoid uneconomic provision of service capacity)
- Cost recovery (to ensure financial sustainability)
- Service efficiency (including promoting competition and private sector involvement where this is relevant) so that charges are set at a level no higher than they need be.

- Service levels that meet the needs of service users and offer improved livelihood conditions
- Universal access to vital services (ensuring the poor have access to services and are not driven further into poverty as a result of user charges)
- Environmental protection

4-190. If services are provided free or are heavily subsidized then there is no or little incentive for service users to economize in their consumption of the service. Demand can be managed by pricing a service to encourage an economic level of consumption or by rationing a service. A market economy generally adopts pricing as the principle means of managing demand.

4-191. The cost recovery objective seeks to ensure that services can be financed from user charges. There are different levels of cost recovery that can be attempted. At a low level of cost recovery income from user charges only recovers part or all of operations and maintenance costs. At the next level of cost recovery user charges also cover asset consumption (as measured by the depreciation of asset values in financial statements), at the highest level user charges are sufficient to recover all costs, including debt servicing and a contribution to new infrastructure. The minimum level of financial sustainability is normally considered to be user charges that cover operations and maintenance costs. Higher levels of cost recovery are often longer term objectives - especially where development is at a relatively early stage. However, the paradox is that it is normally the less developed cities that can afford to subsidize services and provide capital for infrastructure improvements.

A market economy generally adopts pricing as the principle means of managing demand.

4-192. Many Utility services are natural monopolies and therefore promoting competition and achieving service efficiency is less straight-forward than where natural market forces can be brought to bear. This problem exists whether services are provided directly by government, by government owned companies, or by private companies. Checks and balances need to be introduced by Government to regulate the natural monopolistic situation and ensure the different interests of service users, service providers and their employees are kept in balance. As an example of this problem there is currently a public debate in the Chinese media over potential electricity price increases, and whether these are justified given the relative low efficiency of Chinese electricity supply companies and the fact these State owned companies pay wages that are much higher than national averages.

4-193. Service levels should as far as possible be set at levels that users want and can afford. As normally public Utility service levels cannot be varied for individual customers there needs to be an effective way of getting collective user feedback on service levels and service problems. There also needs to be a scientific way of assessing user affordability (as further discussed in Social Considerations below).

4-194. Economic development in its early stages has frequently been associated closely with environmental degradation - in recent decades China is the most prominent example of this, but it applied equally to many western European countries in the 19th century and also more recently in Eastern Europe after the 2nd World war. All these experiences demonstrate that in following an economic growth strategy due attention must also be paid to environmental protection and the environmental costs of development as expressed in economic terms. Principles such as “the polluter pays” are now almost universally recognized and openly endorsed by governments worldwide.

Principles such as “the polluter pays” are now almost universally recognized and openly endorsed by governments worldwide.

A4-9. Institutional Challenges and Reform

4-195. Policy and regulatory responsibilities for the water and sanitation sector are shared among several ministries namely Ministry of Public Works, Ministry of Home Affairs, Ministry of

Finance, Ministry of Health, State Minister for Environment, Ministry of Mines and Energy and etc. Below are responsibilities relates to water among each departments:

- **Ministry of Public Works (MPW)**

4-196. MPW has the responsibility for determining policies and standards in the water sector, including water supply and sanitation, at a national level. As a technical department, Ministry of Public Works (MPW), is responsible for the development of water resources, roads and bridges, water supply and sanitation, and spatial planning. Beside policy making functions, the Ministry of Public Works also issues and publishes technical regulations, covering Norms, Standards, Guidelines and Manuals.

- **Ministry of Home Affairs (MOHA)**

4-197. Issues guidelines on: (i) drinking water tariffs, (ii) PDAM management, (iii) management of loans, (iv) accounting systems, (v) financial performance assessment and monitoring. The Ministry of Home Affairs (MoHA) through its Directorate General of Regional Development (PUOD) is responsible for the supervision and monitoring of local governments and the performance of their principal personnel.

- **Ministry of Finance (MOF)**

4-198. The Ministry of Finance (MoF) with respects to water supply development is actually the owner of all assets under the State-Owned Regional Water Works Enterprises that enjoyed state funding either in the form of foreign loan (debt) or government equity. These enterprises are then obliged to pay its debt to the MoF. Any transfer or disposal of state assets therefore must be approved by the MoF. MoF through its Directorate General Budget is responsible for allocating funds for sector's development projects and through its Directorate General Financial Institution manages subsidiary loan agreements, whereby local governments and their incorporated businesses (such as a water works enterprise) can borrow money provided through externally assisted project financing at the central level.

- **Ministry of Health**

4-199. In the water supply sector, the Ministry of Health (MoH) is responsible for the issuance of the quality standards for clean water and potable water. The water providers shall comply with these standards, and the MoH has the right to inspect and monitor the clean and potable water produced by water treatment plants.

- **State Minister for Environment**

4-200. The State Ministry of Environment establishes policies on water pollution control and environmental issues. It also plans the implementation of environmental programs, support public participation in environmental affairs, and coordinates the operational activities of Bappedal (The Environmental Impact Management Board). Bappedal, established in 1990, is directly responsible to the President, but its operation is coordinated by the State Ministry of the Environment. It assists in policy formulation regarding the implementation of pollution control, including toxic and hazardous waste management. The ministry also acts as reference center on environmental pollution, and promotes public participation in environmental impact assessment.

- **Ministry of Mines and Energy**

4-201. The Ministry of Mines and Energy is responsible for groundwater exploration and its relevant data collection, as well as the granting of exploration permits through its Directorate of Environmental Geology under Directorate General of Geology and Mineral Resources.

- **National Development Planning Agency (Bappenas)**

4-202. Bappenas is responsible for preparation of long and medium term national development programs, and in particular the sectoral target and its budget. Other functions are program coordination, evaluation of project effectiveness and proposal for future program planning.

- **Local Government and PDAMs.**

4-203. In Indonesia, all the water services are provided by local government through their local government own corporation named Perusahaan Daerah Air Minum (PDAM, Local Government Owned Corporation on Drinking Water)

- **Indonesian Consumer Foundation Institute (YLKI)**

4-204. An NGO engages in advocating the issue of consumer protection.

- **Indonesian Association of Water Works Enterprise (PERPAMSI).**

4-205. A professional organization of water utilities

Table 102: Profile of Water Supply Sector

Function		Institutions
Regulator	National	Ministry of Public Works Ministry of Home Affairs Ministry of Health Ministry of Finance Ministry of Environmental Issue
	Local/regional	Local/regional Local Government (Province, City, Municipality) Regional Regulatory Body
Operator	Local/regional	PDAM, Local Government Owned Corporation on Drinking Water Concession's holder (private sector, smallholders, cooperatives)
Civil Society Organization		YLKI Perpamsi

Source: <http://petrowater.com/news/?action=show&id=137&start=2>

4-206. Historically, and almost universally, most public Utility services were provided either directly by government or via government owned/controlled companies or agencies. There was a traditional view that government provision safeguarded customer interests and was the best assurance against misuse of monopoly. The few exceptions to this traditional approach included private water supply companies operating in UK and in France. In North America private sector service provision of electricity supply and telephone services became acceptable from a relatively early stage in the development of those services.

4-207. However, the traditional thinking remained prevalent in most countries until the late 1970's when it started to become increasingly challenged, partly on political grounds - too large a government sector was inherently a bad thing and led to an unbalanced economy - but also increasingly on economic grounds, that reforms were necessary to improve performance and accountability. Opponents to the traditional thinking pointed to low service efficiencies, customer dissatisfaction with service levels and prices that appeared to be rising unchecked. Another common argument was that an increased proportion of the future investment burden should be financed by private sector sources rather than from government budget.

... too large a government sector was inherently a bad thing and led to an unbalanced economy ...

4-208. The result has been that many countries, both developed and developing have first experimented and progressively adopted alternative institutional models for the provision of Utility services. These models vary in their detail from country to country and from service to service. It is fair to say there is probably no single best model for any of the services - rather that an

appropriate institutional model needs to be designed by each country for each service having regard to its local circumstances - political, economic, and social.

4-209. However, whilst single best practice institutional models do not really exist there are some readily accepted best practice principles that have emerged and become largely accepted over the past 30 years:

- Government service provision is rarely if ever able to offer high service standards and required efficiency (Singapore and Hong Kong certainly offer high standards, but their service efficiency and economic use of investment capital are questionable)
- Government as policy maker, regulator and service provider inevitably creates serious issues of conflicts of interest and safeguarding customer interests
- A Utility company is generally considered as the preferred institutional model for service delivery
- Well designed and regulated private sector arrangements have been shown to offer service improvements and increases in efficiencies (but equally badly designed or regulated private sector arrangements have a detrimental effect – the Philippines is a good example of this).
- Effective regulation is critical to achieving high service performance whether or not service delivery is via a private company, or a government service provider.
- Effectiveness of regulation has been shown to depend on independence of regulation, accountability of the regulator, transparency of regulatory decisions, and an appeals process whereby regulatory decisions can be challenged. However, the relative importance of these principles appears to depend on political systems used. For example, in China, independence of the regulator is not seen as anything like as important as it is in most western countries.
- Even the most effective of regulatory regimes are less effective than market competition as a means of achieving better performance at lower cost. Therefore regulation should not be considered as a substitute for competition where this can be introduced in an economic manner. For example, outsourcing of activities can be used to reduce the size and scope of natural monopolies.

4-210. The creation of a public Utility company to deliver services has certain specific benefits which are worth stating. These include:

- Reduced conflicts of interest
- Greater financial certainty (if services are financed from an assured stream of user charges rather than budget allocation from general municipal finances)
- Company management can focus on service delivery
- Facilitating enhanced competition & efficiency
- A more appropriate accounting methodology, allowing performance to be more readily measured
- Potential access to new funding sources

It is important to ensure adequate separation of the roles of policy maker, regulator and service provider.

4-211. It should be noted that these benefits potentially apply whether or not the Utility is government owned, however some rely on financial and management autonomy. Therefore, if Government retains ownership it should nevertheless ensure the Utility company has a genuine degree of autonomy compatible with its obligations to serve its customers.

4-212. Specific review questions that might be asked of existing or proposed new institutional arrangements include:

- Is there adequate separation between the roles of policy maker, regulator and service provider?
- Is accountability for service performance clear? and, how might this be improved?
- Is there scope for increased corporatization?
- Do service providers have an adequate incentive to improve performance?
- Are regulatory and supervision arrangements over service providers adequate? and how might these be improved?
- Do institutional arrangements offer appropriate economies of scale? (which can be an important issue for technical, managerial and financial capacity of the service provider)
- Do institutional arrangements facilitate or constrain new sources of investment (including private investment).
- Do institutional arrangements promote feedback from users and the constructive use of such feedback?
- Are there potential benefits from horizontal integration of service provision? (for example managing wastewater networks with treatment plants rather than separately, or creating joint water/wastewater Utilities).
- Are there potential benefits from vertical integration? (a large city Utility takes over and provides services in surrounding towns)

4-213. Answering the above questions will not necessarily produce the detailed design of a new institutional arrangement, but can be used to assess whether improvements are needed and whether a proposed reform will likely improve or worsen the existing arrangement.

A4-10. Tariff Options for Mataram, Bekasi and Banda Aceh

4-214. There are several options for applying the tariff to recover the cost of operation and maintenance of the sewer system and the wastewater treatment plant (WWTP). Whilst it is comparatively easy to mathematically apply a number to recover the costs we have to make sure that we have two items in sync (i) the tariffs have to be affordable and (ii) the cost of collection and administration should be at least cost of burden and affordable to the city administration.

4-215. Policy states that for the Project of SSDP to ensure financial sustainability it must have full cost recovery of O&M and look towards building funds for reinvestment in future infrastructure improvements. However, if it is assumed that waste water treatment is 100% a public good then one must apply the social policy of the central government if it entails a reduction in the extent of recovery after applying a public good subsidy.

4-216. The Project has taken the view and interpretation of policy that it must cover full O&M and that is reflected in the tariff structures below.

Mataram

4-217. Levels of cost recovery. For the total project the service area, including the pilot one-site sanitation scheme peaks at 32% of the city population in year 2028 at the end of construction and then decreases, as the population of the city naturally increases, to 19% by the year 2053.

4-218. The operation and maintenance costs include the sewer network, pump station 1, pump station 2, wastewater treatment station and septage management.

4-219. The monthly fee after construction in 2029, if the charge is restricted to only those households connected to the sewer and WWTP System is IDR 26,596 per month. This compares with a fee for wastewater of IDR 10,026 per month for a city wide charge.

4-220. The Socio-economic survey shows that currently 53.1% of households pay less than IDR 15,000 per month on wastewater. Household income is on average IDR 2.4 million per month. 54% of households agree that the sewerage system is very important.

4-221. The Willingness to Pay (WTP) to connect to a sewage system is divided between (i) 89% saying IDR 15,000 per month, (ii) 6% agreeing to IDR 100,000 per month, and (iii) the remainder indicating between IDR 150,000 and 550,000 per month. Unfortunately, this is short of the costs of connection of \$600 or IDR 7.9 million as determined by the preliminary engineering design completed by Component 1.

4-222. On a monthly basis the WTP varies almost exactly between 10% of the surveyed population saying IDR 1,000, 10% saying IDR 5,000 and 10% indicating IDR 10,000. The rest are spread through these numbers but around 20% are at the higher level of between IDR 10,000 and IDR 25,000. It appears therefore that the tariff level of IDR 10,026 per month across the city would be acceptable and the user pay level for IDR 26,596 would be difficult to gain acceptance.

4-223. There is an overwhelming 97% of households willing to pay for desludging and the vast majority are willing to pay IDR 10,000. However, this does not meet the costs associated with the desludging of approximately US\$100 or IDR 1.3 million.

4-224. The cost of household connection is included in the capital costs.

4-225. In order to administer a collection scheme it is suggested that the wastewater fees are added to the PDAM water fees to reduce the need for the City Administration the burden of collection and management of the fee charging system. It is recommended that the PDAM retain (say) 1.5% of the collections to cover administrative costs associated with the management of the wastewater fee. The effect of wastewater fees are:

Table 103: Current Profile of Mataram Fee Collections

PEMAKAIAN AIR				
31-Dec-17				
Wilayah Pelayanan: Mataram				
No	Kelompok Pelanggan / Customer Groups	Pelanggan Aktif / Active subscribers	Pemakaian Air / Water Usage (m3)	Jumlah Pendapatan Air / total water income (Rp)
1	Social	867	490,040	1,134,510,520
2	Household	56,842	14,174,552	47,758,723,224
3	Low Income Household	10,114	1,255,853	3,230,466,080
4	Government & Industry	6,267	1,487,327	11,609,913,221
4	Commercial			
JUMLAH		74,090	17,407,772	63,733,613,045

4-226. From the above Table the rate households are currently paying for water for the social group is IDR 109,046 per month and for the Household group is IDR 70,017. Concentrating just on the user household group a wastewater charge for users only of IDR 29,529 would result in an increase cost to the household of 27% and using a city-wide approach the increase of IDR10,024 would be equal to 14% increase in fees.

4-227. The following Table shows the affordability levels:

Table 104: Mataram Affordability Profile

Affordability Test			
		2023	
		Average HH	Low Income
Monthly Wastewater Fee (IDR), 2018 Real Price		99,858	99,858
Monthly Water Charge (IDR), 2018 Real Price		6,570	2,930
Total Water and Wastewater Charges (IDR)		106,428	102,788
VAT @ 10%		10,643	10,279
Total Monthly Water and Wastewater Bill (IDR)		117,070	113,066
Average Monthly Household Income (IDR)		2,435,045	1,000,000
% of HH Income on Water & Wastewater Charges		4.8%	11.3%

Stage 1 only

4-228. The annual O&M costs for Stage 1 reach a peak in 2023 of US\$ 593,669 per annum. The coverage area of Stage 1 is 11,678 households for the sewerage system.

4-229. From a user pays scenario this then means a household charge of US\$51 per annum, IDR 677,229 annually or IDR 56,436 per month.

4-230. Using the result of the Socio-economic survey, identifying that 50% households currently pay less than IDR 15,000 per month for wastewater, this would then represent a significant increase in cost to the household. The willingness to pay for a sewage system does not even reach these levels.

4-231. However, if the approach was to be a city-wide solution then the annual fee would be around IDR 19,371 annually per household and IDR 1,614 per month.

4-232. Using the PDAM again as the conduit for fee collection, the user charge approach would result in an increase in tariff of 59%, or using the city-wide approach the increase in tariff would be 2%.

4-233. The following Table shows the affordability status for Stage 1 only:

Table 105: Mataram Stage 1 Affordability

Affordability Test			
		2023	
		Average HH	Low Income
Monthly Wastewater Fee (IDR), 2018 Real Price		56,436	56,436
Monthly Water Charge (IDR), 2018 Real Price		6,570	2,930
Total Water and Wastewater Charges (IDR)		63,006	59,366
VAT @ 10%		6,301	5,937
Total Monthly Water and Wastewater Bill (IDR)		69,306	65,302
Average Monthly Household Income (IDR)		2,435,045	1,000,000
% of HH Income on Water & Wastewater Charges		2.8%	6.5%

Bekasi

4-234. Levels of cost recovery. For the project the service area, including the pilot on-site sanitation scheme peaks at 1.3% of the city population in year 2028 and then decreases, as the population of the city naturally increases, to 0.7% by the year 2053.

Table 106: Service area coverage after construction in year 2028

Year 2028		Service Area			Percentage		
		Sewer Syst	On-site	Total	Sewer Syst	On-site	Total
Forecast Population	3,648,401	47,701	19,000	66,701	1%	1%	2%
Forecast Households	960,106	12,553	5,000	17,553	1%	1%	2%

4-235. The operation and maintenance costs include the sewer network, with 5 pump station of the Wet Well type, wastewater treatment plant in each of the two zones 1 and 3, septage management and vehicle maintenance.

4-236. The monthly fee if the charge is restricted to only those households connected to the sewer and WWTP System is IDR 17,057 per month per HH. This compares with a fee for wastewater of IDR 10,474 per month per HH for a city wide charge.

4-237. HH will connect to the system during construction and would have to pay much more than this to cover the ensuing O&M, so it is suggested that the HH rate during construction will be limited at the rate to be levied when everyone is connected at IDR 17,057. This means the city will have to provide a subsidy to meet the O&M during construction of an average of IDR 524,630 per HH per annum.

4-238. Household income is not available at the current time from the Socio-economic survey, but there is some information that identifies that households currently pay around IDR 10,000 per month for wastewater. 20% of households agree that the sewerage system is urgently needed while another 19% would agree to the system is the fee adequately reflects the benefits. The willingness to pay for a sewage system is equally divided between (i) IDR 1,000 per month, (ii) IDR 5,000 per month, and (iii) IDR 10,000 per month, the rest spread too thinly to be considered. Only 1% expressed a willingness to over IDR 25,000. It appears therefore that the tariff level of IDR 10,024 per month would be more easily acceptable.

4-239. There is an overwhelming 97% of households willing to pay for desludging and the vast majority are willing to pay IDR 10,000.

4-240. Interestingly, 52% of households are willing to pay for a connection to the sewer network, with the vast majority at almost 50% willing to pay a connection fee of IDR 50,000. However, in the financial analysis this revenue stream has been ignored as the suggested tariff focuses just on the recovery of O&M to the exclusion of any connection fee. The cost of household connection is included in the capital costs.

4-241. In order to administer a collection scheme it is suggested that the wastewater fees are added to the PDAM water fees to reduce the need for the City Administration the burden of collection and management of the fee charging system. It is recommended that the PDAM retain (say) 1.5% of the collections to cover administrative costs associated with the management of the wastewater fee. The effect of wastewater fees are:

Table 107: Current Profile of Bekasi PDAM Fee Collections

Banda Aceh Water PDAM (Water Consumption)		m3	Water Supply	Administration	Total Revenue	Revenue per M3	No. HH	Revenue/HH	Per Month/HH
Dec-17	Household A	62,921	188,996,300	33,622,500	222,618,800	3,538	4,483	49,658	4,138
	Household B	325,861	1,137,466,300	144,084,500	1,281,550,800	3,933	19,209	66,716	5,560
	Household C	223,984	868,576,550	73,470,000	942,046,550	4,206	9,796	96,166	8,014
	Household D	92,953	398,203,000	21,157,500	419,360,500	4,512	2,821	148,657	12,388
		705,719	2,593,242,150	272,334,500	2,865,576,650	4,061	36,309	78,322	6,577

4-242. From the above Table the rate Households are currently paying for water in the largest social group B is IDR 5,560 per month and for the lowest Household group is IDR 4,138. Concentrating just on the largest Household group B a wastewater charge for users only of IDR 17,057 would result in an increase cost to the household of around 400% and using a city-wide approach the increase of IDR10,024 would be equal to around 250% increase in fees.

4-243. Using the result of the Socio-economic survey, identifying that households currently pay around IDR 10,000 per month for wastewater, this would then represent a significant increase in cost to the household. The willingness to pay for a sewage system does not even reach these levels.

4-244. However, if the approach was to be a city-wide solution then the annual fee would be around IDR 19,368 annually per household and IDR 1,614 per month.

4-245. Using the PDAM again as the conduit for fee collection, the user charge approach would result in an increase in tariff of 59%, or using the city-wide approach the increase in tariff would be 2%.

Table 108: Bekasi Affordability Analysis

Affordability Test			
		2022	
		Average HH	Low Income
Monthly Wastewater Fee (IDR), 2018 Real Price		29,333	29,333
Monthly Water Charge (IDR), 2018 Real Price		92,953	62,921
Total Water and Wastewater Charges (IDR)		122,286	92,254
VAT @ 10%		12,229	9,225
Total Monthly Water and Wastewater Bill (IDR)		134,515	101,480
Average Monthly Household Income (IDR)		2,969,325	1,500,000
% of HH Income on Water & Wastewater Charges		4.5%	6.8%

Banda Aceh

4-246. Levels of cost recovery. For the project the service area, including the pilot on-site sanitation scheme peaks at 36% of the city population in year 2027 and then decreases, as the population of the city naturally increases, to 19% by the year 2053.

Table 109: Banda Aceh coverage area after 2027

		Service Area			Percentage		
		Sewer System	On-site	Total	Sewer System	On-site	Total
Forecast Population	309,860	99,959	11,700	111,659	32%	4%	36%
Forecast Households	68,858	22,213	2,600	24,813	32%	4%	36%

4-247. The operation and maintenance costs include the sewer network, with 5 pump station of the Wet Well type, wastewater treatment plant in each of the two zones 1 and 3, septage management and vehicle maintenance.

4-248. The monthly fee if the charge is restricted to only those households connected to the sewer and WWTP System is IDR 17,057 per month per HH. This compares with a fee for wastewater of IDR 10,474 per month per HH for a city wide charge.

4-249. HH will connect to the system during construction and would have to pay much more than this to cover the ensuing O&M, so it is suggested that the HH rate during construction will be limited at the rate to be levied when everyone is connected at IDR 17,057. This means the city will have to provide a subsidy to meet the O&M during construction of an average of IDR 524,630 per HH per annum.

4-250. Household income is not available at the current time from the Socio-economic survey, but there is some information that identifies that households currently pay around IDR 10,000 per month for wastewater. 20% of households agree that the sewerage system is urgently needed while another 19% would agree to the system is the fee adequately reflects the benefits. The willingness to pay for a sewage system is equally divided between (i) IDR 1,000 per month, (ii) IDR 5,000 per month, and (iii) IDR 10,000 per month, the rest spread too thinly to be considered.

Only 1% expressed a willingness to over IDR 25,000. It appears therefore that the tariff level of IDR 10,024 per month would be more easily acceptable.

4-251. There is an overwhelming 97% of households willing to pay for desludging and the vast majority are willing to pay IDR 10,000.

4-252. Interestingly, 52% of households are willing to pay for a connection to the sewer network, with the vast majority at almost 50% willing to pay a connection fee of IDR 50,000. However, in the financial analysis this revenue stream has been ignored as the suggested tariff focuses just on the recovery of O&M to the exclusion of any connection fee. The cost of household connection is included in the capital costs.

4-253. In order to administer a collection scheme it is suggested that the wastewater fees are added to the PDAM water fees to reduce the need for the City Administration the burden of collection and management of the fee charging system. It is recommended that the PDAM retain (say) 1.5% of the collections to cover administrative costs associated with the management of the wastewater fee. The effect of wastewater fees are:

Table 110: Current Profile of Banda Aceh PDAM Fee Collections

Banda Aceh Water PDAM (Water Consumption)		m3	Water Supply	Administration	Total Revenue	Revenue per M3	No. HH	Revenue/HH	Per Month/HH
Dec-17	Household A	62,921	188,996,300	33,622,500	222,618,800	3,538	4,483	49,658	4,138
	Household B	325,861	1,137,466,300	144,084,500	1,281,550,800	3,933	19,209	66,716	5,560
	Household C	223,984	868,576,550	73,470,000	942,046,550	4,206	9,796	96,166	8,014
	Household D	92,953	398,203,000	21,157,500	419,360,500	4,512	2,821	148,657	12,388
		705,719	2,593,242,150	272,334,500	2,865,576,650	4,061	36,309	78,922	6,577

4-254. From the above Table the rate Households are currently paying for water in the largest social group B is IDR 5,560 per month and for the lowest Household group is IDR 4,138. Concentrating just on the largest Household group B a wastewater charge for users only of IDR 17,057 would result in an increase cost to the household of around 400% and using a city-wide approach the increase of IDR10,024 would be equal to around 250% increase in fees.

4-255. Using the result of the Socio-economic survey, identifying that households currently pay around IDR 10,000 per month for wastewater, this would then represent a significant increase in cost to the household. The willingness to pay for a sewage system does not even reach these levels.

4-256. However, if the approach was to be a city-wide solution then the annual fee would be around IDR 19,368 annually per household and IDR 1,614 per month.

4-257. Using the PDAM again as the conduit for fee collection, the user charge approach would result in an increase in tariff of 59%, or using the city-wide approach the increase in tariff would be 2%.

Table 111: Banda Aceh Affordability Analysis

Affordability Test		2022		2022	
		Average HH	Low Income	Average HH	Low Income
Monthly Wastewater Fee (IDR), 2018 Real Price		17,057	17,057	10,747	10,747
Monthly Water Charge (IDR), 2018 Real Price		92,953	62,921	92,953	62,921
Total Water and Wastewater Charges (IDR)		110,010	79,978	103,700	73,668
VAT @ 10%		11,001	7,998	10,370	7,367
Total Monthly Water and Wastewater Bill (IDR)		121,011	87,976	114,070	81,035
Average Monthly Household Income (IDR)		2,456,574	1,000,000	2,456,574	1,000,000
% of HH Income on Water & Wastewater Charges		4.9%	8.8%	4.6%	8.1%

APPENDIX 5:

STAKEHOLDER COMMUNICATION STRATEGY AND PARTICIPATION PLAN

A5-1. Stakeholder Communication Strategy

Objective(s)	Key Risks / Challenges	Main Stakeholders	Messages	Means of Communication (Channels/Languages/Activities)	Timeline	Responsibility	Resources (Human, \$)
1. Ensure stakeholder support for project implementation	<ul style="list-style-type: none"> Limited influence on decision makers Competing priorities Limited financial and human resources Inefficient coordination (inactive Pokja sanitasi) 	<ul style="list-style-type: none"> Mayor & Parliament members Local and provincial government District & sub-district officials Local media Sources of CSR funding (e.g. Corporate Forum for Community Development (CFCD)) 	<ul style="list-style-type: none"> Importance of environmental sanitation Securing adequate budget Implementation process and timeline Responsibilities of the agencies, coordination mechanism (field and LG level), work plan for community outreach Risk management, minimizing negative impacts 	<ul style="list-style-type: none"> Stakeholder meetings, workshops and other events for advocacy, coordination, work planning and progress review Press conferences and other media events 	<ul style="list-style-type: none"> From beginning of the project Regular workshops to update project progress (bi-annual) 	<ul style="list-style-type: none"> CPMU TA team 	<ul style="list-style-type: none"> Workshop and logistics costs Costs of press conference & sanitation journalists' trainings
2. Increase demand for wastewater services	<ul style="list-style-type: none"> Mobilization of opinion influencers Trust of information source Harmonized and timely information, coordination with technical design and construction 	<ul style="list-style-type: none"> Beneficiary households Business and industrial establishments Local leaders, religious institutions, district & sub-district officials Civil society organizations (i.e. PKK, self- 	<ul style="list-style-type: none"> Project benefits (health, economic, modern lifestyle etc.) Branding of wastewater operator Regulations and obligations Customer rights, service quality, complaint mechanism 	<ul style="list-style-type: none"> Neighborhood meetings (socialization) Opinion influencers (local and religious leaders) Existing CSOs District and sub-district authorities, health posts' sanitarians Public exposure points (posters, billboards, videos) 	<ul style="list-style-type: none"> From beginning of the project 	<ul style="list-style-type: none"> PIU, i.e 'city social marketing/ communication manager' & 'social facilitators' Neighborhood officials, leaders and CSOs. 	<ul style="list-style-type: none"> Cost of content development and dissemination for social marketing campaigns 'city social marketing/ communication manager' & 'social facilitators'

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Objective(s)	Key Risks / Challenges	Main Stakeholders	Messages	Means of Communication (Channels/Languages/Activities)	Timeline	Responsibility	Resources (Human, \$)
	<ul style="list-style-type: none"> Acceptability of service concept and price 	<ul style="list-style-type: none"> help groups, community wastewater operators) Local media 	<ul style="list-style-type: none"> Technical requirements Sources of finance, tariff structure <p><i>Tailored messages for different stakeholders/ audiences</i></p>	<ul style="list-style-type: none"> Media (local radio and television, newspapers) Social media, citizen journalists, other participatory communication methods Print material <p><i>Focus certain channels for delivering tailored messages to particular stakeholders</i></p>			<ul style="list-style-type: none"> Cost of training workshops for opinion influencers Logistics and event costs

A5-2. Stakeholder Participation Plan

Stakeholder Group	Objective of Their Intervention	Approach to Participation	Participation Methods (e.g., workshop, participatory assessment, survey, community mobilization or service provision by CSO, participatory M&E)		Timeline		Cost Estimate
	Why Included		Method	Who Is Responsible	Start Date	End Date	
Local government agencies, Sub-district & Lingkungan	Responsible for implementation of public awareness and community outreach	Collaboration (medium); Partnership (high)	Participation in Sanitation Advocacy workshops and periodic Social Marketing & coordination workshops for implementation of the community outreach (i.e. Health agency, environmental agency, sub-district/kelurahan leaders) Implementation: conduct activities related to community outreach, i.e. community level stakeholder mapping, mobilization of community leaders and civil society groups, triggering activities, dissemination of project information Data collection and monitoring: participate in baseline data collection/situation analysis, monitoring and verification	PIU	Pre-construction	to be continued throughout construction	
Households in the service coverage area	Customers of the wastewater service and final beneficiaries of the project; consent and support is vital for the success of the project	Partnership (high)	Decision on investing in wastewater services and signing up for sewerage connection; facilitated through participation in community meetings and sanitation & hygiene triggering events and exercises organized by LG agencies and Social Facilitators Consultations for design of detailed pipe layout and cost estimate within each property Close assistance for processes related to technical (construction related) and financial (i.e. micro-finance) issues by Social Facilitators. Agreement on fair and equitable water tariff rates and addressing affordability issues, including subsidies to the low-income households; through community discussions. Complaint submission & response mechanism for construction related issues, i.e. to address issues related to construction quality and exorbitant damage; Customer satisfaction surveys for sample of customers and focus group discussions with specific target groups (i.e. poor households, technically challenging neighborhoods) Complaint & feedback mechanism for the sewerage system, incl. e.g. complaint hot-line	LG Agencies & Kelurahan/RW administrators Local leaders Civil society organizations PIU/Social facilitators Wastewater utility	Pre-construction Post-construction	to be continued throughout construction Continuous	

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Stakeholder Group	Objective of Their Intervention	Approach to Participation	Participation Methods <i>(e.g., workshop, participatory assessment, survey, community mobilization or service provision by CSO, participatory M&E)</i>		Timeline		Cost Estimate
	Why Included		Method	Who Is Responsible	Start Date	End Date	
Civil society groups, i.e. communal wastewater CBOs, Self-help groups, Family Welfare Organization (PKK), environmental and flood management CBOs, religious institutions	Representatives of civil society and community, opinion influencers in the community	Collaboration (medium)	Participate in Social Marketing workshops to become sanitation advocates in their communities Implementation: conduct activities related to community outreach, i.e. advocacy on project benefits, dissemination of project information Identification and representation of poor and vulnerable households	LG Agencies PIU	Construction	To be continued throughout construction	
Businesses, industries and public buildings in the service coverage area	Customers of the wastewater service; Consent and support is vital for the project success	Consultation (medium)	Decision on investing in wastewater services and signing up for sewerage connection facilitated by participation in public meetings and face-to-face consultations Consultation on needs and priorities of different businesses, practices that help to minimize disturbance for businesses Consultations for design of detailed pipe layout and cost estimate within each property	LG Agencies Business associations and networks PIU	Construction	To be continued throughout construction	
Communal wastewater CBOs	Beneficiaries of extended support by Wastewater operators	Partnership (High)	Participatory assessment of communal wastewater system's technical and institutional status; preparation of improvement plan Participate in trainings and other capacity building measures	Wastewater Operator/UPTD	Pre-construction		
Private Sector: septic tank sellers & constructors, septic tank desludgers, plumbers	Indirect project beneficiaries	Consultation (medium)	Consultation: assessment of service availability and accessibility by households; consultations regarding issues affecting businesses and how their businesses can best support project objectives	PIU	Pre-construction		
Communal wastewater projects (e.g. SANIMAS and Plan International in Mataram)	Other sector projects present in SSD project cities	Consultation (medium)	Consultations for lesson learning, coordination, harmonizing practices and policies (i.e. wastewater tariff & subsidies, bringing IPALDs under WW utility); through Pokja Sanitasi/AMPL meetings and face-to-face exchanges	PIU	Pre-construction		

APPENDIX 6:

SUMMARY POVERTY REDUCTION AND SOCIAL STRATEGY

SUMMARY POVERTY REDUCTION AND SOCIAL STRATEGY

Country:	Indonesia	Project Title:	Sewerage System Development Project
Lending/Financing Modality:	Project loan	Department/ Division:	SERD/SEUW

I. POVERTY AND SOCIAL ANALYSIS AND STRATEGY**Targeting classification:** Non-Income MDGs (TI-M1, M2, etc.)

The project has been identified as a targeted intervention. Access to basic sanitation has been identified as a basic human right, but such services in Indonesia are generally in poor condition. The basis for the project's targeting classification is that it will **indirectly** assist in facilitating economic growth in the regions and in the pursuit of equality through poverty alleviation. In line with the government's Medium-Term Development Plan, a specific outcome target has been set for expanding sanitation coverage to the lowest 40% income level of the project cities and specific design measures will be developed to achieve this target.

A. Links to the National Poverty Reduction and Inclusive Growth Strategy and Country Partnership Strategy

The SSDP is in line with (i) Indonesia's Medium Term Development Plan (RPJMN) for 2015 to 2019²⁰, including targets in support of universal access to sanitation; (ii) the PPSP, which provides assistance to local governments to prepare City Sanitation Strategies and streamline the implementation into local government planning and budgeting cycles; and (iii) ADB's Indonesia Country Partnership Strategy 2016–2019²¹ overall objective of supporting environmentally sustainable growth through: (a) improved infrastructure services by delivering citywide sanitation programs, and (b) better economic governance, by strengthening local government service delivery capacity.

B. Results from the Poverty and Social Analysis during PPTA

- Key poverty and social issues.**
According to official statistics, up to 10% of the populations in the target cities live below the poverty line. The SES found higher percentages: Banda Aceh 12.8%, Bekasi 16.0% and Mataram 31.1%. Most, including the poor, women, and vulnerable groups, lack proper sanitation and wastewater treatment, and experience related pollution and health problems due to the lack of infrastructure and hygiene. More than 70% of households have septic tanks but more than 90% of those do not comply with standards. Most of the grey water is disposed of to drainage channels and water bodies. The project focuses on the provision of adequate off-site and on-site wastewater management facilities which are expected to indirectly contribute to poverty alleviation.
- Beneficiaries.**
Upon completion, the program will directly benefit about 330,000 people in the immediate subproject areas in the three cities (including all 3 phases of the project in Mataram) through connections to off-site wastewater treatment systems, improvements of on-site facilities, and improved hygiene, living conditions and environmental quality. The provision of adequate off-site and on-site wastewater management facilities is expected to indirectly contribute to poverty alleviation. Targeted gender and socially inclusive interventions will benefit the poor, women, and vulnerable groups through access to sanitation facilities and services; sanitation and hygiene awareness; and participation in public consultations.
- Impact channels.**
The project promotes a holistic approach to WWM investment by supporting the supply side through infrastructure development; the demand side through social marketing and hygiene awareness raising; and the creation of an enabling environment by establishing effective delivery mechanisms supported by adequate legal, institutional and financial reforms. Private sector investment will be encouraged by creating legislation to structure tariff levels, fee collections systems and securing local government contributions.
- Other social and poverty issues.**
Based on a Presidential Instruction issued in 2010, the GOI is implementing a variety of programs aiming at poverty alleviation such as Subsidized rice, Smart Indonesia Program, Social Protection Card and Family Hope Program. These programs are implemented in the SSDP target cities.
- Design features.**
The project is designed to contribute to increased access of the population to improved sewerage connection and on-site sanitation facilities in the three cities. The poverty and socially inclusive design features are to (i) promote inclusive development through subsidies for domestic connections and monthly fees of the poor, households headed by women, and vulnerable groups; (ii) improve access to on-site individual sanitation facilities in non-sewered areas; (iii) promote employment opportunities during construction for poor and low-income people; (iv) promote increased awareness of hygiene and sanitation among local residents, including the poor to foster

²⁰ Access to sanitation and safe collection of wastewater is expected to remain a priority beyond 2019.

²¹ ADB. 2016. *Country Partnership Strategy. Indonesia 2016–2019: Towards a higher, more inclusive and sustainable growth path*. Manila.

positive behavior change that improves environmental conditions and health; and (v) ensure participation in implementing structures or working groups on sanitation and on land acquisition and resettlement.

II. PARTICIPATION AND EMPOWERING THE POOR

1. Project implementation is the responsibility of the EA and local governments. Empowerment of the poor and vulnerable in project implementation is not a part of project implementation arrangements.
2. Civil society organizations comprise local NGOs and management committees of community-based wastewater treatment systems. They are included in the preparation of city specific road maps for wastewater management development and will play a significant role in social marketing activities.
3. Civil society organization participation is envisaged during project implementation includes:

<input checked="" type="checkbox"/> M Information gathering and sharing	<input checked="" type="checkbox"/> M Consultation	<input checked="" type="checkbox"/> M Collaboration	<input checked="" type="checkbox"/> M Partnership
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5. Will a project-level participation plan be prepared to strengthen participation of civil society as interest holders for affected persons particularly the poor and vulnerable?

☒ Yes ☐ No

The participation plan is to ensure key stakeholder input in program implementation and monitoring.

III. GENDER AND DEVELOPMENT

Gender mainstreaming category:
Effective Gender Mainstreaming (EGM)

A. Key issues.

The key gender issues identified are as follows:

- (i) Toilets with septic tanks or closed pits and their regular use are now widespread, and both men and women prefer household sanitation facilities to public ones.
- (ii) There is no experience with piped sewerage systems but relatively high public awareness of the benefits of such systems.
- (iii) Both women and men are aware of the problems caused by inadequate wastewater management. While in the majority of households decisions about sanitation facilities are made jointly by husband and wife, most of them are unable to afford substantial improvements.
- (iv) The SES identified between 9 and 19 percent of female headed households in the areas surveyed, about 30% of which are categorized as poor.
- (v) Women are quite supportive of improvements to sanitation facilities and can be expected to participate in leadership positions during community participation.

B. Key actions.

Implementation of the GAP shall be carried out in the wider context of existing Government regulations and efforts aimed at promoting gender equity. As to general gender issues, there are specific regulations on gender mainstreaming such as the Presidential Decree No. 9 of 2000 and subsequent regulations. At the institutional level, agencies for women empowerment and child protection are established in all cities.

☒ Gender action plan ☐ Other actions or measures ☐ No action or measure

Key elements of the GAP are:

Organizational strengthening to increase the participation of women in the planning, design and implementation of urban sanitation services to warrant that these services are responsive to the needs of women.

A target of 30% of the overall agency staff trained in management skills are women.

Employment targets for women (10%) hired by civil works contractors.

A hygiene and sanitation information, education and communication (IEC) program implemented under SSDP equitably targets women as well as men, and includes raising awareness in women about communicable and water borne diseases as well as HIV/Aids.

IV. ADDRESSING SOCIAL SAFEGUARD ISSUES**A. Involuntary Resettlement**Safeguard Category: ☐ A ☒ B ☐ C ☐ FI

- Key impacts.
Land acquisition for WWTP sites in all subprojects will affect 189 households (561 people). All of these households will be physically displaced and need to be relocated. For individual subprojects, the displaced people and those severely affected remain well below 200. Therefore, the involuntary resettlement category for individual subprojects as well as for the overall project remains as B.
- Strategy to address the impacts.
A Resettlement Framework and Land Acquisition and Resettlement Plans have been prepared for Banda Aceh, Bekasi, and Mataram. Compensation is based on replacement costs with restoration of lost incomes and assistance for relocation, where necessary. Consultations will continue consistent with Safeguard Policy Statement guidelines including in areas traversed by sewer lines.
- Plan or other Actions.

<input checked="" type="checkbox"/> Resettlement plan	<input type="checkbox"/> Combined resettlement and indigenous peoples plan
<input checked="" type="checkbox"/> Resettlement framework	<input type="checkbox"/> Combined resettlement framework and indigenous peoples planning framework
<input type="checkbox"/> Environmental and social management system arrangement	
<input type="checkbox"/> No action	<input type="checkbox"/> Social impact matrix

B. Indigenous PeoplesSafeguard Category: ☐ A ☐ B ☒ C ☐ FI

- Key impacts. ☐ Yes ☒ No
The program is not expected to impact indigenous peoples.
- Strategy to address the impacts.
No action is needed. No indigenous peoples will be affected by the subprojects. Land to be acquired is not part of any ancestral domain.
- Plan or other actions.

<input type="checkbox"/> Indigenous peoples plan	<input type="checkbox"/> Combined resettlement plan and indigenous peoples plan
<input type="checkbox"/> Indigenous peoples planning framework	<input type="checkbox"/> Combined resettlement framework and indigenous peoples planning framework
<input type="checkbox"/> Environmental and social management system arrangement	
<input type="checkbox"/> Social impact matrix	<input type="checkbox"/> Indigenous peoples plan elements integrated in project with a summary
<input checked="" type="checkbox"/> No action	

V. ADDRESSING OTHER SOCIAL RISKS**A. Risks in the Labor Market**

- Relevance of the project for the country's or region's or sector's labor market. H high (H), medium (M), and low or not significant (L).

☒ L Unemployment ☒ L Underemployment ☒ L Retrenchment ☒ L Core labor standards

- Labor market impact.
Employment will be created during construction and sewerage operations. Risks include influx of migrant workers with poor sanitation and living conditions at work camps. Contractors will adhere to core labor standards: not hiring minors, providing women with the same pay for the same work rendered, and allowing workers the right to organize. This also applies to project management unit and service delivery organization staff. Work camps will have basic facilities for water and sanitation

B. Affordability

Property connections shall be financed by the Local Governments.
Affordable tariffs with subsidy for monthly fees for poor households shall be prepared. The beneficiaries of subsidized tariffs will not be less than the percentage below the poverty line for each city.

C. Communicable Diseases and Other Social Risks

- Indicate the respective risks, if any, and rate the impact as high (H), medium (M), low (L), or not applicable (NA):

☒ L Communicable diseases ☐ NA Human trafficking
☐ Others

2. Describe the related risks of the project on people in project area.
The risk of HIV/AIDS or other communicable diseases at work camps and in project communities shall be lessened as a result of hiring local workers. HIV/AIDS awareness campaigns will be initiated through the contractors targeting all construction workers, conducted in collaboration with village governments and women organizations. This will form part of the contract bidding documents.

VI. MONITORING AND EVALUATION

1. Targets and indicators: Summarize the performance targets and monitorable indicators (and their data sources) that address poverty reduction and inclusive social development as explained in the DMF. This would also include accountability for monitoring results and course correction, where needed.
2. Required human resources: Describe the human resources (counterparts, consultants, ADB staff) budgeted and integrated in the project implementation arrangements to monitor the poverty and social impact of the project.
3. Information in PAM: Explain what information the project review, monitoring, and completion reports included in the PAM.
4. Monitoring tools: Indicate the monitoring tools for poverty and social dimensions summarized in the project loan agreement and the PAM.

To be prepared in more detail during DED stage

APPENDIX 7:

GENDER ACTION PLAN SUMMARY

A7-1. Background

7-1. The sanitation needs assessment carried out under the Urban Sanitation Development Program (USDP)²² sought to identify how the WW targets set by Bappenas – by 2019, 85% of Indonesian population will have access to improved sanitation and the rest will rely on basic sanitation with improved sanitation comprising 85% on-site systems and 15% of off-site systems – might be expected to be achieved in Indonesian cities. Following up on this work, the Sewerage System Development Project (SSDP) project aims to contribute to safe disposal of wastewater by 100% of the population in target cities by (i) expanding centralized sewer systems and rehabilitation of wastewater treatment facilities and (ii) facilitating regulated sludge collection, treatment and disposal systems of on-site systems.

A7-2. Gender Classification

7-2. The Project is classified as effective gender mainstreaming (EGM). Women will benefit through special measures for subsidized tariffs, employment enhancement, increased participation in decision making, training, institutional and capacity building, and targets for women in project management.

A7-3. GAP Purpose and Strategy

7-3. The key gender issues identified in the Socio-economic survey are as follows:

- i. Toilets with septic tanks or closed pits and their regular use are now widespread, and both men and women prefer household sanitation facilities to public ones.
- ii. There is almost no experience with piped sewerage systems and little or no public awareness of the benefits of such systems.
- iii. Both women and men are aware of the problems caused by inadequate wastewater management. While in the majority of households decisions about sanitation facilities are made jointly by husband and wife, most of them are unable to afford substantial improvements.
- iv. The SES identified between 9 and 19 percent of female headed households in the areas surveyed, about 30% of which are categorized as poor.
- v. Women are quite supportive of improvements to sanitation facilities and can be expected to participate in leadership positions during community participation.
- vi. The Project has potential to make a contribution to the promotion of gender equity and/or empowerment of women by providing women's access to and use of opportunities, services, resources, assets, and participation in decision making.

7-4. The SSDP gender strategy will facilitate women's participation and benefits through implementation of the Gender Action Plan.

A7-4. Implementation and Monitoring Arrangements

4.4. Implementation

7-5. Implementation of the GAP shall be carried out in the wider context of existing regulations and efforts aimed at promoting gender equity. As to general gender issues, there are specific

²² Sanitation Needs Assessment 2015-2019. Urban Sanitation Development Program, August 2014

regulations on gender mainstreaming. The Presidential Decree No. 9 of 2000 (*Instruksi Presiden Republik Indonesia Nomor 9 Tahun 2000 tentang Pengarusutamaan Gender dalam Pembangunan Nasional*) and subsequent regulations, e.g. *Peraturan Menteri dalam Negeri Nomor 15 Tahun 2008 tentang Pedoman Umum Pelaksanaan Pengarusutamaan Gender di Daerah sebagaimana telah diubah dengan Peraturan Menteri Dalam Negeri Nomor 67 Tahun 2011 tentang Peraturan Menteri Dalam Negeri Nomor 15 Tahun 2008 tentang Pedoman Pelaksanaan Pengarusutamaan Gender di Daerah (Berita Negara Republik Indonesia Tahun 2011 Nomor 927); Pedoman Teknis Perencanaan dan Penganggaran Responsif Gender Bagi Daerah. Kementerian Pemberdayaan Perempuan dan Perlindungan Anak Republik Indonesia, 2010.*

7-6. Effective implementation of the GAP requires:

- a. Organizational strengthening to increase the participation of women in the planning, design and implementation of urban sanitation services to warrant that these services are responsive to the needs of women. Gender sensitization and GAP orientation training to IA, and project staff and for implementing sex-disaggregated monitoring and evaluation within the Project Performance Monitoring System (PPMS).
- b. Realistic staffing allocations whereby 30% of PMU and PIU positions are occupied by women with appropriate qualifications.
- c. A target of 30% of the overall agency staff trained in management skills are women.
- d. Employment targets for women (10%) hired by civil works contractors.
- e. A hygiene and sanitation information, education and communication (IEC) program implemented under SSDP equitably targets women as well as men, and includes raising awareness in women about communicable and water borne diseases as well as HIV/Aids.

7-7. The PMUs and the SDOs will be responsible for implementing, updating and monitoring the GAP in coordination with existing LG agencies such as *Dinas Pemberdayaan Perempuan, Perlindungan Anak dan Pemberdayaan Masyarakat* responsible for overall gender mainstreaming. A national Gender and Social Development Specialist will support the central and local project management units (PMU) and Service Delivery Organizations (SDOs) to ensure that the GAP and social strategy agreed between the Government and Asian Development Bank are fully implemented.

4.5. Monitoring

7-8. Sex-disaggregated baseline data and monitoring indicators will be used in quarterly reports to provide GAP progress updates. Gender issues and impacts will be discussed in mid-term reviews and regular progress reports submitted to ADB.

4.6. GAP Budget

7-9. The GAP is integrated into the overall cost estimates and project implementation arrangements. The Government of Indonesia will provide sufficient resources to implement the GAP within the PMU and across all responsible agencies and sewerage development organizations as they are established. The budget for the GAP is integrated within the overall Project budget.

Gender Action Plan

Gender activities/actions	Performance indicators/targets	Responsible agency(ies)	Budget
Output 1: Domestic wastewater and sludge management capacity increased			
1. Poor and vulnerable households (including FHHs) connected to the centralized system under the project will receive subsidized monthly fees.	Tariff Regulation enacted before commencement of construction works.	Local Government (lead) CPMU TA consultant	LG budget Included in the attached TA
2. Poor and vulnerable households (including FHHs) will be prioritized in the program for replacement and construction of new standardized septic tanks.	Inventory of potential beneficiaries completed, implementation program prepared and implemented.	PIU (lead) SDO TA consultant Project Implementation Support Consultant	Overall project budget Included in the attached TA ADB
3. Orientation and guidance on gender issues will be provided to all sub-project contractors at commencement of work.	Guidelines prepared and distributed to contractors.	TA consultant Project Implementation Support Consultant	Included in the attached TA ADB
4. Gender equitable practices will be explicitly included in contracts and all phases of the investment program.	Concrete requirements formulated and included in contracts.	TA consultant Project Implementation Support Consultant	Included in the attached TA ADB
Output 2: Service delivery system in place			
1. PMUs/PIUs/SDOs will prioritize female staff with adequate qualification for key positions.	Female staff appointed in line with <i>Peraturan Kepala Badan Kepegawaian Negara Nomor 35 Tahun 2011</i> .	Local Government	n.a
2. To promote professional advancement of female staff, ensure at least 30% female participants in training on gender, community facilitation, utility management, technical and project/sector management- related skills.	Training modules prepared and training program implemented.	PMU (lead) TA consultant Project Implementation Support Consultant	Overall project budget Included in the attached TA ADB
3. The project monitoring system will integrate gender monitoring indicators.	PPMS prepared and implemented.	CPMU (lead) TA consultant	Overall project budget TA consultant
4. The project will collect sex disaggregated data, provide six monthly reports, and feed data into mid-term review and PCR.	Reports prepared in accordance with requirements.	PMU (lead) TA consultant Project Implementation Support Consultant	Overall project budget Included in the attached TA ADB

Gender activities/actions	Performance indicators/targets	Responsible agency(ies)	Budget
Output 3: Public awareness campaigns completed			
1. At least 30% of participants in public consultation and sewerage connection campaign activities are women and vulnerable groups such as FHHs, who will get full information about criteria for subsidized monthly tariffs.	Public information materials prepared and public consultations conducted.	PIU (lead) SDO TA consultant	LG budget Included in the attached TA
2. Public awareness campaigns aimed at creating an appreciation and understanding of the benefits of sewerage systems and the need to pay for adequate charges to cover O&M will ensure 30% women participation.	Campaigns conducted in line with the project's Communication Strategy and Participation Plan.	PIU (lead) SDO TA consultant	LG budget Included in the attached TA
3. At least 30% of all capacity building participants on hygiene and sanitation education and promotion are women.	Capacity building activities implemented in line with the project's Capacity Development Plan.	TA consultant	Included in the attached TA
4. Provide information on risks of HIV/AIDS code of conduct for workers to contractors.	Information bulletin on risks of HIV/AIDS relayed through appropriate media to civil works contractors by expert NGO as stipulated in bidding documents.	NGO	Overall project budget

Project management/institutional gender related activities/sanitation awareness
<ul style="list-style-type: none"> • CPMU to recruit national gender consultant to build capacity of PMU/PIU and key stakeholders in gender analysis and mainstreaming and gender requirements for the project, and to support GAP implementation, monitoring and reporting. • Women and community organizations are partners in IEC (to include school-based sanitation and hygiene promotion) and joint sanitation planning and delivery campaigns with 40% women participation. • 50%-50% male and female community facilitators for public awareness raising (gender sensitive/separate gender groups for training and complaints if necessary). • CSWG in each city comprising at least 30% women by 2020. • Collect and analyze data disaggregated by sex where relevant and integrate gender sensitive indicators (from DMF and GAP) in the PPMS. • Ensure regular monitoring and reporting (at least semi-annually to ADB) on the progress of GAP implementation.

Abbreviations

ADB: Asian Development Bank, **CPMU:** Central Project Management Unit, **PIU:** Project Implementation Unit, **PMU:** Project Management Unit, **SDO:** Service Delivery Organization, **TA:** Technical Assistance

APPENDIX 8:

ENVIRONMENTAL ASSESSMENT AND REVIEW FRAMEWORK (EARF)

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A8-1. Introduction

1.1. Background

8-1. This environmental assessment and review framework (EARF) was prepared by the Government of Indonesia (the Government), supported by the Asian Development Bank's (ADB) Project Preparation Technical Assistance (PPTA) ADB TRTA-9198 INO: Sewerage System Development Project for the Cities of Banda Aceh, Bekasi and Mataram TA Consultants (49154-001) completed in 2018. It was prepared to guide the environmental assessment process to screen subproject interventions, set up institutional arrangements in relation to environmental management and monitoring, and define environmental assessment requirements in accordance with the existing procedures to comply with the applicable laws and regulations of the Government and with ADB Safeguard Policy Statement (SPS 2009) for the Sewerage System Development Project for the Cities of Banda Aceh, Bekasi and Mataram (the Project).

8-2. The Project will support the Government and communities to better manage and the wastewater management are Bekasi, Mataram and Banda Aceh. The SSDP comprises three Outputs with this project being Output 1, focusing on wastewater (WW) strategy and technical design. The other two Outputs are focusing on the regulatory and institutional framework in the wastewater sector, communications and public outreach and due diligence work which will run in parallel. The overall Project falls into Category B for environment requiring IEEs of subprojects according to ADB's SPS 2009.

8-3. Of the Project components in Mataram, the WWTP including septage treatment facilities and pumping station locations require undertaking full Indonesian EIA assessment process (AMDAL). Also, the sewage pipeline network (49000 HH connections with 19.5 km main trunk system length) requires full Indonesian EIA (AMDAL). Similarly, the on-site sanitation service station (5m³ storage station for a population of 8000) requires full Indonesian EIA (AMDAL).

8-4. Of the Project components in Bekasi, the WWTP sites being less than 3 hectares including septage treatment facilities, pumping station locations and sewerage system for a population of 51,600 do not require full Indonesian EIA assessment process (AMDAL) but only UKL/UPL preparation to obtain an Environmental License. The on-site sanitation services require full Indonesian EIA (AMDAL) as the Project area coverage is over 3 hectares. However, given the WWTP site locations and main sewerage networks are all located in highly populated residential areas where potential impacts can affect a large population, it is recommended that all the components will be subjected to full Indonesian AMDAL process to allow for a more comprehensive assessment.

8-5. In Banda Aceh, the planned WWTP sites being over 3 hectares and associated sewerage systems require full Indonesian EIA assessment process (AMDAL). Similarly, the on-site sanitation services require full Indonesian EIA (AMDAL) as the Project area coverage is over 3 hectares.

8-6. Initial environment examinations (IEE) for each city have been prepared setting the main environmental management framework for the of the subprojects. Table 112 outlines the Environmental Safeguard Requirements for the Project according to ADB SPS 2009.

Table 112: Environmental Safeguard Requirements for the Project according to ADB SPS 2009

Safeguard Requirements	Trigger	Timing
1. Environmental Assessment and Review Framework (EARF) for entire Project	Project with potential environmental impacts	Before project approval
2. Environmental Impact Assessment/ Initial Environmental Examination	Category A/B subprojects	Before project approval

8-7. The subproject components in the cities are estimated to be Category B. However, two of the proposed WWTP sites in Bekasi (Permunas and Rusunawa), are proposed to be given further consideration in terms of additional site locations where the project would cause less impacts as these sites are in residential areas where the implementation causes impacts to livelihoods, involuntary resettlement and religious cultural values (Perumnas). If the planning proceeds, these two WWTP sites would need to be considered as Category A subprojects for which a full EIA would be required. In the Bekasi IEE, the Project plan including all components and sites is suggested to be subjected to full Indonesian EIA due to these two site location concerns.

8-8. If a category A subproject is proposed, the categorization of the entire Project will be changed into category A. The categorization and Rapid Environmental Assessment (REA) checklist of the first category A subproject will be submitted to ADB by the executing agency, upon which an internal process in ADB will start to review and consider approval the categorization of the entire project to category A. No further action will be taken by the executing agency until ADB has provided approval of the new categorization.

8-9. The Directorate for Human Settlements under the Ministry of Public Works and Housing is the designated Executing Agency (EA) for SSDP implementation, in charge of general project coordination, loan management, and reporting to the National Development Planning Agency (BAPPENAS), the Ministry of Finance and to the ADB.

8-10. The Directorate of Environmental Sanitation (PPLP) is the designated Implementing Agency (IA) in charge of the establishment and operation of the Center Project Management Unit (CPMU). The CPMU is operating on behalf of the IA and coordinates closely with the provincial SATKER (PIU).

8-11. The so-called SATKER STRATEGIS, operating under the IA, will be directly responsible, through its procurement unit POKJA and in collaboration with the Ministry's procurement unit (ULP), for the recruitment and management of all SSDP related consulting services, including the Capacity Development Consultant (CDC) and the Project Implementation Support Consultant (PISC). These consultant assignments will provide all relevant support for all the three candidate SSDP cities.

8-12. A SSDP specific Project Implementation Unit (PIU), "Provincial SATKER", will be appointed by the IA for supporting all SSDP loan related procurement and project management tasks. This SATKER will be responsible for the development of infrastructure for the WWTP and Sewer systems, managing the appointed contractors. The SATKER will also be supported by the PISC and CSC appointed by SATKER STRATEGIS.

8-13. The local governments of Mataram, Bekasi and Banda Aceh are responsible for land acquisition, the preparation of the environmental assessment, for the wastewater treatment

facility, community involvement, including the implementation of social marketing and behavior change communication campaigns.

1.2. Environmental Assessment and Review Framework Requirements

8-14. This EARF has been prepared based on the (i) review of the proposed Project plan components and interventions identified under this ADB TRTA-9198 INO; (ii) discussion with the executing agency, provincial and district/city government officials from respective planning, public works and environmental agencies, non-governmental organizations (NGOs) and community members; (iii) review of the relevant documents related to the Project; and (iv) experience of the consultants with similar activities and works.

8-15. The proposed Project components are expected to improve environmental, social and economic conditions in each of the target city. However, the structural components have also the potential to exert some negative impacts on the environment in all plan stages (preconstruction, construction and operational phases). This EARF is designed to ensure that environmental impacts are assessed at the appropriate time with positive impacts and results maximized and any potential adverse effects addressed with adequate management and monitoring.

8-16. Setting the framework ensures that the subprojects do not cause any adverse negative impacts but rather minimize and mitigate potential impacts and improve the environmental and social qualities of the Project plan area. Moreover, all Project components need to comply with the environmental requirements of the Government, relevant local government regulations and ADB's SPS 2009.

8-17. The purpose of the EARF is to guide the Project Implementation Units (PIU) set for each target city (Bekasi, Banda Aceh and Mataram) in identifying anticipated environmental impacts of the Project, developing and implementing mitigation measures for the impacts, and carrying out monitoring and other regular management interventions. This EARF outlines also environmental screening procedures, assessment methodologies, environmental management (mitigation, monitoring and documentation), climate change adaptation and reporting for the components of the Project; and specifies institutional structure and mechanism to carry out compliance with the environmental management plan.

A8-2. Assessment of Legal Framework and Institutional Capacity

2.1. Legal Framework

2.1.1. ADB Environmental Safeguard Policy

8-18. ADB policy requires consideration of environmental issues in all aspects of its operations as set by SPS 2009 defining that ADB requires environmental assessment of all project loans, program loans, sector loans, sector development program loans, loans involving financial intermediaries as well as private sector loans. The objective of the policy is to ensure the environmental soundness and sustainability of projects and to support the integration of environmental considerations into the project decision-making process.

8-19. The particular environmental assessments required for a given Project depend on the significance of environmental impacts that are related to the project type and location, the sensitivity, scale, nature and magnitude of its potential impacts, and the availability of cost-effective mitigation measures. Projects are screened for their impacts and assigned to one of the following four categories:

- (i) **Category A.** Projects could have significant adverse environmental impacts. A full-scale Environmental Impact Assessment (EIA) is required to address significant impacts.

- (ii) **Category B.** Projects could have some adverse environmental impacts, but of lesser degree or significance than those in category A. An Initial Environmental Examination (IEE) is required to determine whether significant environmental impacts warranting an EIA are likely. If an EIA is not needed, the IEE is regarded as the final environmental assessment report.
- (iii) **Category C.** Projects are unlikely to have adverse environmental impacts. Neither EIA nor IEE is required, although environmental implications are reviewed.
- (iv) **Category FI.** Projects involve a credit line through a financial intermediary or an equity investment in a financial intermediary. The financial intermediary must apply an environmental management system, unless all projects will result in insignificant impacts.

2.1.2. Indonesian AMDAL²³ Framework Procedures

8-20. According to the environment regulations of Indonesia, all projects must comply with the review and clearance procedures (Figure 7) specified under Indonesia's environmental framework system (AMDAL) and other related laws and regulations. The main AMDAL framework has been set by six laws:

- (i) Government Regulation No. 27/2012 on Environmental Permit;
- (ii) Decree of Minister of Environment No. 05/2012 on Screening Criteria (type/scale/magnitude of activities requiring AMDAL/EIA);
- (iii) Regulation of Minister of Environment, Republic of Indonesia No. 16/2012 on Guideline on Preparation of Environmental Document;
- (iv) Decree of Ministry of Environment No. 17/2012 on Community Participation and Information Disclosure in Environmental Impact Assessment;
- (v) Regulation of Minister of Public Works, Permen PU No. 10/PRT/M/2008 on the Environmental Management Measure (UKL) and Environmental Monitoring Measure (UPL) Criteria; and
- (vi) Regulation of Ministry of Environment (PermenLH) No. 07/2010 on Competence Certification of AMDAL Preparation and Training Requirements for AMDAL Preparation.

8-21. An essential aspect in the Indonesian environmental regulations (PermenLH No. 07/2010) is that an Environmental Impact Assessment (AMDAL) must be prepared by suitably trained and registered experts. Team Leader (1) and at least two (2) experts from the AMDAL team need to be certified by LSK (Institution for Competence Certification) of AMDAL as approved by the Minister of Environment. One of the LSK is LSK-INTAKINDO (Association of Indonesian Consultants). In addition to standard technical requirement of the experts (physical/chemical specialist, biologist, social economic and culture specialist, and public health specialist), the composition may require other specific experts.

²³ AMDAL refers to environmental impact assessment at whole, while ANDAL is part of the assessment where environmental impact analysis (ANDAL) is carried out for the significant issues. In addition to ANDAL report, the assessment will be supported with RKL/RPL (equivalent to EMP) for managing/mitigating the impacts and subsequently monitoring the effectiveness of the environmental impacts management/mitigation.

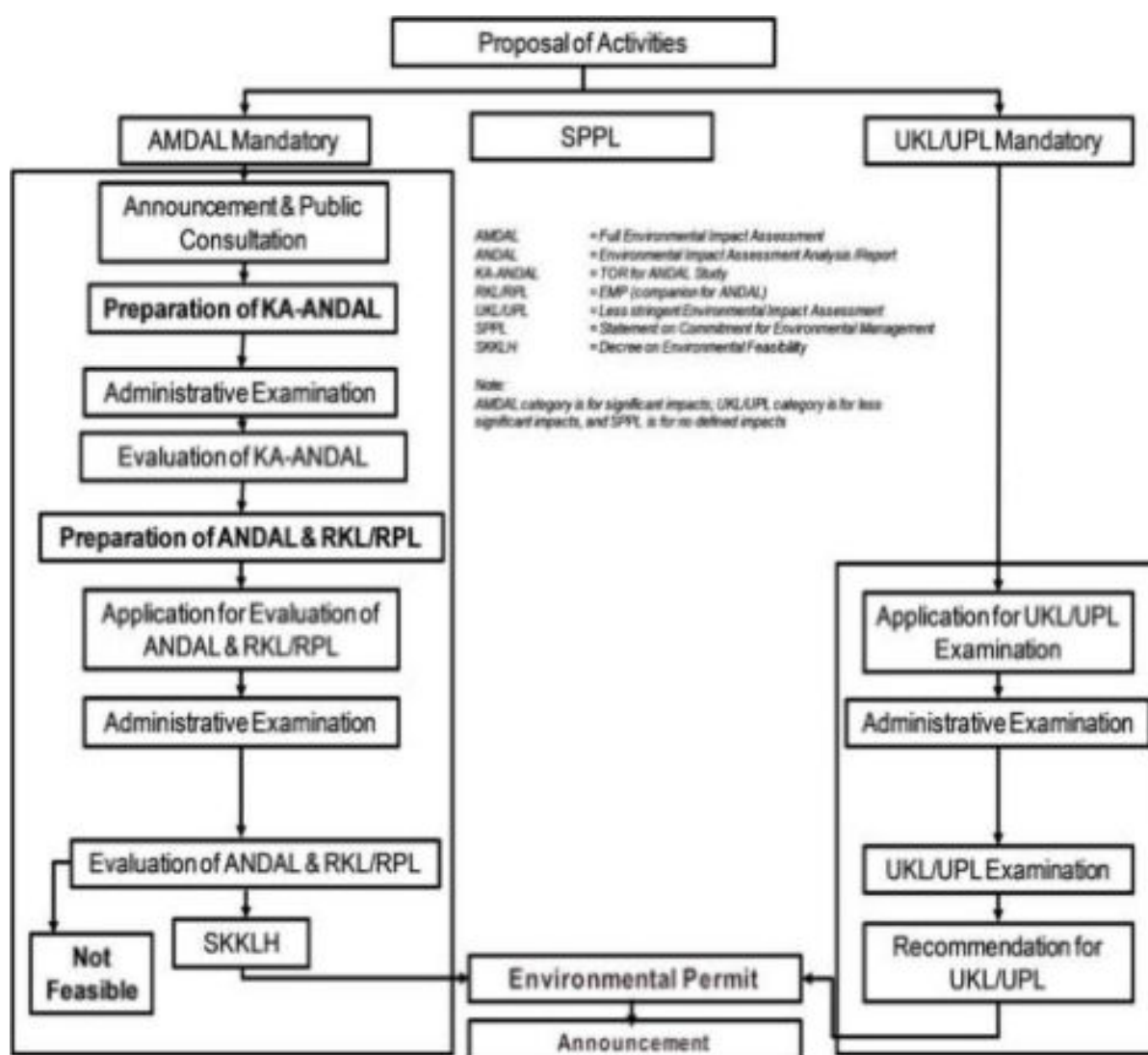


Figure 7: Indonesian AMDAL¹ flowchart for environmental clearance

8-22. There is no specific certification required for preparation of an Environmental Management Measure (UKL) and Environmental Monitoring Measure (UPL).

8-23. In addition to Indonesia national regulations, this EARF gives consideration to provincial and local regulations related to environmental management, spatial planning (RTRW regional spatial planning and zoning regulations), different protected areas, other relevant regulations and spatial screening tools noting that also customary laws are typically recognized where applicable.

8-24. The AMDAL system of Indonesia conforms with the ADB's environmental management guidelines. The generic relationship between the ADB environmental categorization and Indonesia AMDAL regulations/policies is presented in Table 113.

8-25. According to Indonesian regulations, all projects need to undergo environmental clearance before proceeding to implementation. In practice AMDAL study corresponds with an EIA, while Environmental Management Measure (UKL) and Environmental Monitoring Measure (UPL) correspond to with IEE.

8-26. The AMDAL and ADB's EIA are somewhat equivalent although the criteria used for categorization in the AMDAL and the ADB EIA are slightly different. The main difference is that Indonesian regulations provide quite rigid quantitative criteria while ADB is based mostly on

quantitative criteria (impact significance). As an example, the AMDAL procedure classifies projects based on specific magnitude (length, depth, width, size, or other physical dimensions) whereas ADB's SPS 2009 categorizes projects based on the significance of impacts.

8-27. In line with this EARF, the IEEs for each city have been prepared based on these factors including recognition of relevant regulations, assessments of spatial plans and further strengthened by application of screening and analysis tools such as AWARE for climate screening, InSAFE for spatial disaster risk assessment and IBAT for biodiversity assessments. As such, the checklists and analysis tools applied in the IEEs form the basic set of impact and risk assessments in the SSDP also for other possible subprojects.

8-28. The 11 principles of ADB SPS 2009 have been assessed more closely against Indonesian safeguards in 2015 in separate project (ADB TA-7566 REG Strengthening and Use of Country Safeguard Systems) whose results have been included in full into the IEEs as annexure. The main gaps noted in the comparison include for example public hearings and biodiversity assessments that were incorporated into the IEE designs so that the IEE assessments undertaken fill the identified gaps. Similarly, filling the gaps should guide all potential environmental assessments conducted in the SSDP Project.

Table 113: ADB and Indonesian Project Categorizations

ADB Project Categories	AMDAL Project Categories
Category A: Projects with potential for significant adverse environmental impacts, requiring an environmental impact assessment (EIA)	AMDAL: Projects that according to law requires an Environmental Impact Assessment (AMDAL)
Category B: Projects judged to have some adverse environmental impacts, but of lower degree and/or less significant than those for category A projects. Category B projects require an initial environmental examination (IEE)	UKL/UPL: Projects that according to law requires Environmental Management Measure (UKL) and Environmental Monitoring Measure (UPL). However, special discretion and judgment of environmental agencies at local and national level (based on particular consideration) may override the category, and UKL/UPL Category may be "upgraded" to AMDAL Category.
Category C: Projects unlikely to have adverse environmental impacts. No special requirement, but the environmental aspects are reviewed as well.	SPPL: Projects that do not require AMDAL or UKL-UPL are obliged to submit a 'statement of management and environmental monitoring ability' or SPPL.
Category FI. Projects involve a credit line through a financial intermediary or an equity investment in a financial intermediary. The financial intermediary must apply an environmental management system, unless all projects will result in insignificant impacts.	Not Applicable

8-29. Due to the different categorization criteria, subprojects classified as A and B according to ADB require AMDAL studies according to the Indonesian system. Concerning the subprojects in the three cities, the AMDAL reports will be accepted by ADB as the EIA (for category A subprojects) or IEE (for category B subprojects) provided they are reviewed by ADB and considered to be consistent with SPS 2009 requirements of EIA/IEE specified in this

EARF. In this respect, the two WWTP sites in Bekasi (Rusunawa and Perumnas) are recommended to be reviewed as EIAs if the planning proceeds in these sites.

2.2. International Conventions on Environment

8-30. In committing to managing global environmental issues, Indonesia has ratified several international conventions that include e.g.:

- (i) ASEAN Agreement on the Conservation of Nature and Natural Resources (1985) ensuring that conservation and management of natural resources are integrated in development planning at all stages and at all levels of respective national laws.
- (ii) Convention on Biological Diversity (1996) for parties to require the environmental assessment of their proposed projects that are likely to have significant adverse effects on biological diversity with a view of avoiding or minimizing such effects.
- (iii) United Nations Framework Convention on Climate Change (1995) and the subsequent protocols for parties to take precautionary measures to anticipate, prevent or minimize the causes of climate change and mitigate its adverse effects.
- (iv) Vienna Convention for the Protection of the Ozone Layer (1998) and subsequent protocol and amendments for parties to take appropriate measures to protect human health and the environment against adverse effects likely to arise from human activities that will/likely modify the ozone layer.

2.3. Institutional Capacity

8-31. Currently the Environmental Agencies and Public Works offices in each city have very limited capacities for ensuring conduct of the surveys and environmental monitoring set as part of the safeguard framework in the three IEEs. The environmental management staff includes typically 3-5 staff members issuing AMDALs and undertaking environmental monitoring. Of this staff, only 1 or none have been formally accredited (the one accredited staff member works in Bekasi).

8-32. The weak environmental management and planning capacities are indicated also by the lack of legally required environmental documentation such as environmental strategies for the cities (missing KLHS and missing details in the existing KLHS documents concerning for example legally protected species occurrences) as well as the amount and quality of environmental water monitoring data that is incomplete regarding monitored parameters with the existing results containing inaccuracies.

8-33. The capacity weaknesses include insufficient technical knowledge of the environmental assessment and review process of Indonesia, environmental monitoring as well as environmental management of projects that is limited to conducting environmental monitoring of different facilities. Most of the environmental data in all of the cities is found only in AMDALs delivered by consulting companies and universities research data.

8-34. Of the different target cities, the weakest environmental management capacities are in Mataram where the main source of environmental information is the local university research information and the limited amount of AMDALs found. Similarly, the KLHS and city spatial planning data concerning Green Open Areas exists, but these are not published or shared by the local Bappeda.

8-35. In Mataram, currently the mandate for waste water treatment has been assigned locally to the Environment Agency further complicating matters. The recommendation of this assignment is to assign the mandate under the Public Works and UPDT following the national sector mandates.

8-36. In general, the capacity weaknesses in environmental management have not been addressed for example by engaging external consultants. Instead, the weak capacities leave

gaps in carrying out the existing responsibilities that can be observed in the missing environmental management information and legally required documentation.

8-37. Similarly, the coordination and cooperation between agencies for example for the Project plan areas following the area delineations set in the city spatial plans is largely missing. This is indicated for example by the Project component site locations being partly in the Green Open Space areas and in areas assigned for cultural uses (temples, graveyards) in Mataram and Banda Aceh while the in Bekasi two of the planned WWTP sites are located in residential housing areas. In practice the city spatial plans are typically revised based on new projects that bring changes to the spatial plans why the updates of spatial plans according to the Project plans is not considered technically a significant issue but indicative of the interagency planning.

8-38. In the proposed SSDP Project plan, the weak environmental management capacities noted are addressed by i) capacity buildings on the set environmental safeguards and ii) recommending external consultants and service providers to carry out the required surveys and environmental monitoring set and costed in the Environmental Management Plans (EMPs).

8-39. The safeguard trainings are proposed for the PIU staff as well as other relevant agencies in the cities. The AMDALs including additional surveys and environmental monitoring are recommended to be carried out by external consultants and service providers such as accredited laboratories, consulting companies and individual consultants. The main responsibilities for the mitigation and compliance monitoring have been set in the EMPs for the subprojects in the three cities per component covering all project stages including preconstruction, construction and operation phases.

A8-3. Anticipated Environmental Impacts

3.11. Subprojects and Components to be financed under the Project

8-40. The overall Project falls into Category B for environment according to ADB's SPS 2009 and the IEEs have been carried out for the three cities defining some additional surveys as well as the EMP to mitigate and monitor any impacts.

8-41. Bekasi, Mataram and Banda Aceh project components need also AMDALs (based on Indonesia regulation) where the IEE and EMP requirements are to be incorporated. The additional surveys and AMDALs are to be carried out in the ESP when also more detailed engineering designs are made.

8-42. The only exception to the ADB category B are the two proposed WWTP sites in Bekasi (Perumnas and Rusunawa) for which alternative sites are recommended for further consideration. In case the Project implementation proceeds in these sites, they are recommended to undergo a full EIA carried out with the Indonesian AMDAL process set to meet EIA standards of ADB.

Together with the EARF, the IEEs form the environmental safeguard framework for the Project. Any remaining subprojects, additional or more detailed components are to be assessed separately with their actual categorization depending on the project specifications (scheme, engineering design, size or scale, location and technology).

3.12. Potential Environmental Impacts

8-43. The subprojects in planned in each city comprise of the design, construction and operation of WWTPs, pumping stations, excavating and laying sewer network and manholes with associated civil works for excavation, use of construction machinery and potable septake storage stations operated by 3-wheelers. In addition to the WWTPs and sewerage network construction, there is a need to use existing roads for construction, establish and manage worker camps as well as modify/enforce some planning sites and components vulnerable to

floods and erosion. For all these components, potential impacts, risks and their estimated significance have been identified and assigned mitigation measures in the IEEs and their EMPs.

8-44. The main environmental impacts and risks associated with the Project include some concerns of planning such as constructing in sites that contain potentially contaminated soils, unknown impacts to ecology (due to missing information and surveys) and site vulnerabilities to floods, earthquakes, tsunamis, waves, sealevel rise, storms and erosion. However, most impacts are related to the construction and operational phase of the Project components ie. WWTPs, pumping stations, sewerage network and onsite sanitation services. The magnitude of the potential impacts is related to the particular planning site, component and risk factors including climate change and disasters. The main impacts and risks of the Project include roughly the following:

- (i) Possibly existing soil contamination in some Project plan sites (Mataram, Bekasi)
- (ii) Potential (unknown) impacts on terrestrial and aquatic ecology (all cities)
- (iii) Vulnerability to earthquakes (all cities)
- (iv) Vulnerability to riverine and rain induced floods (all cities)
- (v) Vulnerability to tsunamis (all cities but Bekasi only unprecedented events)
- (vi) Conformity with city spatial planning (all cities)
- (vii) Loss of housing, livelihoods and impacts on religious cultural sites (Bekasi WWTP sites Perumnas, Rusunawa)
- (viii) Disturbance (noise, traffic, access, dust, air quality)
- (ix) Sealevel rise, waves and seawater intrusion (Mataram, Banda Aceh)
- (x) Water quality in rivers and sea due to effluent (all cities)
- (xi) Concerns of odor from WWTP (all cities)
- (xii) Disturbance by construction traffic (all cities)
- (xiii) Waste management planning for septic tank replacement (all cities)
- (xiv) Operational frequency for emptying potable septage storage tanks (all cities)
- (xv) Negative impacts of culturally significant sites such as mosques, graveyards and potentially unknown sites (all cities)
- (xvi) Construction machinery use causes vibrations that damage housing (all cities)
- (xvii) Occupational health and safety including safe use of chlorine (all cities)
- (xviii) Hiring local labor (all cities)

8-45. Project impacts related to social, economic and cultural values including resettlement and gender aspects have been assessed and addressed separately in the Project report (SAR) which will be integrated into the relevant social safeguard documents.

A8-4. Assessment of Subprojects and Components

4.1. Environmental Criteria for Subproject Selection

8-46. In each city, the currently planned Project components were assessed by applying Rapid Environmental Assessment (REA) long screening checklist based on which the main impacts, mitigation measures and monitoring were defined in the respective EMPs. In case the Project plan is amended by additional sites, subprojects or components, the same process and the following criteria are recommended.

8-47. The main criteria to be applied in selection of subprojects under the Project:

8-48. (i) The subprojects are selected from the list of projects prioritized by the Government

8-49. (ii) Subprojects involve only activities enhancing water and sanitation services complying with all Governmental regulations.

8-50. (iii) The subprojects are not types of projects listed in ADB SPS's Appendix 3 (ADB Prohibited Investment Activities List) that do not qualify for ADB's financing.

8-51. (iv) The subprojects meet the environmental requirements of the Project and will be assigned EMPs. The subprojects are subjected to environmental assessments according to ADB SPS requirements. The projects that may have considerable adverse impacts to the environment, or are located in environmentally sensitive areas, are subjected to full EIAs.

8-52. Any subproject not meeting the four general criteria listed above will not be selected for financing under the Project. Rapid Environmental Assessment (REA) Checklists are used to identify impacts, assess their likely significance and define how negative impacts are mitigated. The checklists comprise a series of questions on the location and potential impacts of a subproject with impacts identified and assessed in each question. The REA checklist template is provided in Annex 1. If the impacts are significant or some aspects are unknown, further studies may be recommended as part of the EMP.

4.2. Procedures for Environmental Assessment and Review

8-53. The environmental assessment of subprojects must fulfill requirements of ADB described in ADB SPS 2009 as well as the Indonesian governmental regulations. At an early stage of subproject preparation potential direct, indirect and possible cumulative impacts as well as risks factors are identified and their significance determined. Subprojects will be screened to determine whether they are classified as Category A, B, C or FI.

8-54. Depending on the significance of project impacts and risks, the assessment may comprise a full-scale EIA for category A projects, or an IEE or equivalent process for category B projects. Categories C and FI require environmental due diligence which can be provided by summary reports to be developed for the Project separately as needed.

8-55. The EARF serves as a general document for environmental assessment and review of the subprojects while more detailed environmental assessment and reviews are derived from the EARF. For SSDP implementation, more detailed safeguards have been defined in the IEEs for Banda Aceh, Mataram and Bekasi. In case there will be additional subprojects or components, separate EIAs, IEEs or due diligence as well as corresponding Indonesian studies following the AMDAL need to be carried out.

4.2.1. Screening and Classification

8-56. The Project with the three main subprojects (i.e. Bekasi, Mataram and Banda Aceh subprojects comprised of WWTPs, sewerage networks and onsite sanitation services) is intended to improve waste water and sewerage management in the three cities. The types of activities to be included in the subprojects cover structural interventions for constructing the infrastructure and non-structural interventions such as information campaigns. Given the requirement to comply with both ADB and Indonesian regulations, the environmental assessments apply an approach combining the two requirements as elaborated in the following.

4.2.2. ADB Screening

8-57. Rapid Environmental Assessment (REA) Checklists are used to identify impacts, assess their likely significance and examine how negative impacts may be mitigated. The checklists comprise a series of questions regarding the location and potential impacts of a project (see Annex 1). Impacts are identified and assessed in the responses to each question.

8-58. The categorization is based on the most environmental sensitive component, which implies that if any component of a subproject has potential of significant adverse environmental impacts, then the subproject is to be classified as Category A regardless of potential impacts of other aspects of the project. In general a subproject will be classified as Category A if the subproject or component:

- (i) Has a significant level of environmental impacts requiring complex mitigation measures to be prepared through an in-depth assessment of the impacts and detailed study for preparing mitigation measures.
- (ii) Will generate impact on an ecologically sensitive area, particularly if the project is located in buffer or core zone of any designated specially protected areas, or area of international significance (such as Ramsar site) or cultural heritage and archaeological sites.

8-59. Other subprojects that do not fall into the above category are typically classified as Category B, C or FI depending upon the type and scale of impacts. It is expected that future sub-projects would mostly be Category B although a category A subproject might be possible, in which case categorization of the overall Project will be changed to category A.

8-60. The screening can further address the environmental sensitivity of an area, where a subproject is to be sited. Factors that affect the sensitivity evaluation include quality of ecosystem; importance and rarity; ability of the ecosystem to accommodate change; significance of the change in local and regional context, and maturity of the ecosystem.

4.2.3. AMDAL Screening

8-61. According to the Government Regulation a mandatory AMDAL is required for any business and/or activity of which boundary overlaps with a protected area and/or potential impacts of the business and/or activity are predicted to affect nearby protected areas. Indonesia AMDAL screening criteria for selected relevant sectors is presented in Appendix 2. Furthermore, the new Government Regulation PP No. 27/2012 (Article 4) mentions that location of an activity should comply with spatial plan. In case of non-compliance, the AMDAL application will be refused.

8-62. Annex III of the Decree of the Minister of Environment No. 05/2012 on Type of Business and/or Activities Requiring Environmental Impact Assessment, identifies twenty classes of protected areas (by different regulations under Ministry of Forestry, Ministry of Public Works etc.):

- 1) Protected forest area
- 2) Peat area
- 3) Watershed (catchment) area.
- 4) Coast demarcation (corridor)
- 5) River demarcation (corridor)
- 6) Area around lake or reservoir;
- 7) Flora sanctuary and marine sanctuary
- 8) Natural reserve and marine reserve
- 9) Mangrove forested coastal areas
- 10) National park and national marine park
- 11) Forest park
- 12) Natural tourism park and marine tourism park
- 13) Cultural and knowledge heritage area
- 14) Natural geological reserve
- 15) Groundwater recharge area
- 16) Spring demarcation
- 17) Genetic protection areas
- 18) Important area for animal species (fauna refuge)
- 19) Coral reefs
- 20) Corridor area for protected vegetation or marine species

8-63. For these 20 area classes, Decree of Minister of Environment No. 05/2012 stipulates that land uses that are not in line with the purpose of the protection should be avoided. These areas are normally identified in spatial planning documents.

8-64. These criteria correspond with further work of ADB concerning environmental safeguards included in Environmental Safeguards – Good Practices Working Source Book (2012 Draft) that prevents locating projects on critical habitats. According to the draft sourcebook, critical habitats are defined as an area having high biodiversity values and may include sites that are legally protected or officially proposed for protection such as areas that meet International Union for Conservation of Nature (IUCN) classification criteria, Ramsar List of Wetlands of International Importance, and United Nations Educational, Scientific, and Cultural Organization (UNESCO) world natural heritage sites. Although this source book has not been formally adopted, the IUCN species lists and biodiversity areas are recommended to be included in the assessments as was done in the IEEs by IBAT and applying local research and other reported results.

4.3. Preparation of Environmental Assessments

8-65. IEEs following the EARF for Banda Aceh, Mataram and Bekasi subprojects have already been prepared and submitted to ADB as part of this assignment. However, the AMDALs needed by Indonesian regulations have not been prepared for these three subprojects which needs to be carried out in the ESP phase and approved in accordance to the Government requirements.

8-66. To avoid duplication for the future subprojects that are to be identified, the full AMDAL are recommended to be prepared and finalized in close consultation with and oversight of ADB. In addition, it is recommended that ADB's comments are included in the AMDAL preparation and execution to ensure that the AMDALs meet SPS 2009 requirements. An English version of government approved AMDALs are to be submitted to ADB and accepted as the updating IEE/EIA in the ESP stage. The operational steps for ensuring environmental safeguard implementation needs to be included also in the relevant standard operation procedures (SOP) and the EMPs resulting from the AMDALs.

8-67. For AMDAL and/or UKL/UPL studies to be accepted by ADB as an EIA (for a category A subproject) or IEE (for a category B subproject), they need to be prepared in accordance with the requirements of ADB's SPS 2009. The assessment will be undertaken as part of the ESP phase when the AMDAL team and other consultants need to work closely with the technical engineering planning and design team to ensure environmental considerations are integrated into the Project designs.

8-68. IEE studies deal with the same issues than EIA, but have technically narrower scope and issues may be covered in less detail. An IEE examines the project's potential impacts and recommends measures needed to prevent, minimize, mitigate or compensate for adverse impacts and improve environmental performance. Given mitigation measures are relatively straightforward, the IEE may not require comprehensive analysis of project alternatives nor a very detailed Environmental Management Plan (EMP) as is the case with EIAs. Generally IEEs involve also lesser extent of public consultations although stakeholders are consulted at least once during the preparation of IEE. In SSDP, the three AMDALs and identified additional studies are recommended to be undertaken in the ESP stage.

8-69. For an AMDAL to be accepted as an EIA, it will examine the project's potential negative and positive environmental impacts, compares them with those of feasible alternatives (including the zero alternative without the Project implementation), and recommends measures needed to prevent, minimize, mitigate and compensate for adverse impacts and improve environmental performance. The EIA is a more comprehensive and detailed study than an IEE. Due to mitigation being generally more complex, an EIA always includes an Environmental

Management Plan (EMP) setting out in more detail how each mitigation measure will be undertaken and monitored. An EIA also requires a greater degree of consultations as stakeholders are involved at an early stage in deciding the scope of the EIA study, as well as determining its outcome and the nature of the mitigation at draft final report stage.

8-70. The preparation of the AMDAL documents identifies and considers all potential impacts and risks of the Project on physical, biological, socioeconomic aspects (occupational health and safety, community health and safety, vulnerable groups, gender issues and impacts on livelihoods) and cultural resources in an integrated manner. Impacts and risks are analyzed in the context of the subproject area of influence comprised of:

- (i) primary project site(s) with main facilities and components;
- (ii) associated facilities that not funded as part of the project;
- (iii) potentially affected areas, communities and people by cumulative impacts
- (iv) areas and communities potentially affected by impacts from unplanned but predictable developments caused by the project.

8-71. Environmental impacts and risks will also be analyzed for all relevant stages of the project cycle including pre-construction, construction and operation and maintenance phase activities. In the three subprojects, potential transboundary effects into other state areas such as air pollution is not relevant. However, the currently proposed WWTP systems have global impacts through GHG emissions (climate change) for which system improvements have been suggested in the IEEs.

8-72. Impacts on endangered species and habitats have also been considered in the undertaken IEEs where most of the planning areas do not have sufficient information requiring further studies.

8-73. Similarly as part of the IEEs conducted, the assessments screen and analyse whether particular individuals and groups may be differentially or disproportionately affected by the potential adverse impacts because of their disadvantaged or vulnerable status in particular the poor, women and children, and indigenous peoples (if any). This was noted to be likely for example in Bekasi Perumnas WWTP site screening.

4.4. Preparation and Endorsement of Environmental Management Plans

8-74. The project proponent is responsible in preparing and implementing Environmental Management Plans (EMPs) for each of the subprojects. Currently EMPs have been prepared in all of the IEEs but these need to be further enforced and endorsed by including the EMPs prepared into the Indonesian environmental project clearance as part of the AMDAL process by including the EMPs and their requirements into the three AMDALs.

8-75. EMP addresses the potential impacts and risks identified in the environmental assessment. The EMP includes the proposed mitigation measures, environmental monitoring and reporting requirements, emergency response procedures, related institutional or organizational arrangements, capacity development and training plans, implementation schedule, cost estimates and suggested performance indicators.

8-76. Additional studies identified in the existing EMPs, as well as any proposed additional subprojects, components or plan changes, are to be prepared by PIUs and the ESP Contractor. This is recommended to be further enhanced by the assistance of independent consultants (for the recommended studies) and environmental safeguard specialists assigned into PIUs according to ADB SPS 2009 and GOI regulations.

8-77. Each EMP includes proposed mitigation measures, environmental monitoring and reporting requirements, assigned institutional or organizational responsibilities, implementation schedules, cost estimates and monitoring means. The relevant Project implementation staff receive also capacity development and trainings on the safeguards that have been included in the separate capacity building plan developed reported separately elsewhere.

8-78. In cases where impacts are likely to remain significant after mitigation, EMP needs to include appropriate compensatory measures to ensure that the Project does not cause significant damages or degradation. The EMP defines also the expected outcomes as measurable events to the extent possible and will include monitoring indicators that can be checked over assigned monitoring periods. The EMP needs to be also responsive to possible changes in project design such as a major changes in project locations, technology, unforeseen events and as guided by monitoring results. The EMP needs to incorporate pollution prevention and control measures consistent with international good practice, provision of safe and healthy working environment and preventative measures and plans to address risks to and potential impacts on the safety of affected communities and public.

8-79. Considering the importance of the construction phase with respect to potential environmental impacts, more focus is being given to the EMP for the subproject plans, designs, inclusion of main mitigation measures into bidding and contract documents as well as construction. The main concerns related to operation and maintenance have also been included in the EMPs.

8-80. For any subprojects or component with potentially significant adverse impacts that are diverse, irreversible, or unprecedented (category A), there needs to be further examination of alternatives to the site locations, design, technology and components to avoid and in cases where avoidance is not possible, minimize adverse impacts and risks. As this is the case in the two WWTP sites proposed in Bekasi (Rusunawa, Perumnas), these sites have been suggested to be either subjected to further reconsideration or then a comprehensive AMDAL to be designed and implemented as an EIA meeting ADB requirements.

8-81. The rationale for selecting a particular subproject location, design, technology, and components needs to be properly documented including cost-benefit analysis and taking environmental costs and benefits of the various alternatives into account. The zero alternative needs to be also considered. The subprojects or components in Mataram and Banda Aceh and Bekasi WWTP site in Rawapasung with their associated sewerage systems and the onsite sanitation services do not have potential to cause significant adverse impacts that are diverse, irreversible or unprecedented as the identified impacts can be all mitigated with the dedicated EMPs. Two WWTP sites in Bekasi are suggested to be reconsidered or then subjected to a full EIA as above. For any additional subprojects or components, the potential impacts need to be assessed with separate EMPs developed.

8-82. During project implementation, the PIUs, ESP Contractor, relevant mandated authorities and/or independent service providers (such as certified laboratories) monitor the execution of the assigned EMPs as well as the mitigation of any unexpected adverse environmental impacts. If there are any significant changes in the Project scope, the PIUs need to ensure that an environmental assessment is initiated and undertaken by the Project proponent.

8-83. PIUs and the contractors of each stage are tasked to prepare and submit semi-annual monitoring reports on the EMP implementation and results, compliance with loan covenants, applicable national environmental legislation, the overall performance of PIUs environmental management and any required improvements. Finally PIUs ensure that the EMP is included in tender and contracting documents for the projects under SSDP.

8-84. In cases where unanticipated environmental impacts emerge during project implementation, the PIUs and contractors are tasked to update environmental assessment documents, EMPs and/or prepare and undertake new environmental assessment for the potential impacts, evaluate the alternatives, and outline mitigation measures and resources into an updated or new EMP to address the impacts.

A8-5. Consultation, Information Disclosure and Grievance Redress Mechanism

5.1. Consultation and Disclosure Mechanism

8-85. The ADB SPS 2009 requires that Projects carry out meaningful public consultations on an ongoing basis and that additional consultations may be held as necessary. The Government's Decree on AMDAL requires public consultation during the early stages of AMDAL preparation which is the minimum legal requirement where both Category A and B subproject investments, the PIUs and Contractors consult people and groups that are potentially affected by the development. These participations are typically carried out as Focus Group Discussions (FGDs) where also other relevant stakeholders such as local non-governmental organizations, private companies and even service providers attend to.

8-86. Regarding Indonesian AMDAL implementation, in ADB Category B projects a minimum of one consultation is usually conducted where the aim is to inform the stakeholders about the project, its potential impacts and likely mitigation. For Category A subprojects there is at least another consultation at the beginning of the AMDAL study that involves stakeholders in determining the scope of the AMDAL and allows to raise any issues of particular local concerns. In all cases, additional consultations are also held with particular groups or individuals or with all stakeholder representatives as deemed necessary.

8-87. As part of the IEE undertaking, the first stakeholder consultations were already carried out in Bekasi, Mataram and Banda Aceh through Focus Group Discussions (FGDs) in July and beginning of August 2018 concerning the three subprojects. The event participants included in total over 140 representatives of the main governmental agencies, affected people and NGOs.

8-88. In the events held, the Consultant raised some of the main potential impacts identified based on the assessments conducted as well as collected, recorded and addressed the concerns and issues raised by the attending stakeholders and informed the participants of the planned Grievance Redress Mechanism (GRM, see chapter Grievance Redress Mechanism below). In addition to the IEE consultations held, regular stakeholder consultations have been included and costed into the EMP throughout planning and construction phases.

8-89. To facilitate and ensure the engagement of stakeholders, the PIUs and the main governmental agencies (Public Works and Environment Agency) are required to maintain good and timely communication and collaboration between the Project implementation Consultant and the districts including assigning open communication channels for the public to contact the authorities on matters concerning the progress of the Projects components, adverse impacts, mitigation, environmental monitoring and grievances. It is suggested that the PIU and Bekasi district department of Public Works will assign one main focal point to receive and manage complaints including a contact phone number, email and paper complaint filing sheets to ensure open communication possibilities.

8-90. For this, formal consultation and participation schedule is recommended to be adopted for the Project implementation and carried out via consultation events with the main events during pre-construction, construction and operation specified below. For the events, notices are to be published in the local newspapers in Bahasa and English one month before the events.

8-91. Lastly, an electronic complaint submission channel available via webpages is encouraged for which existing systems such as the land licensing system should be considered. However, given the relatively weak internet reach and likelihood of excluding some affected people if only web based complaints are applied, consultation events and paper submission of complaints are preferred channels for feedback.

8-92. Main participation events and information disclosure channels suggested include:

1) Before Construction

- PIU, City Public Works and Project Consultants undertake an information and awareness raising campaign to inform stakeholders and affected people on the Project (all components and their site locations) covering the construction of different components, expected impacts, and compliance with national and ADB safeguards, grievance redress mechanism, contact details of the PIU and relevant focal point(s).
- Information dissemination via project leaflets/brochures and publishing participation event calls in local newspapers, office billboards and the in central sites in the plan area including planned schedules, main contact details and contracting stages.
- At minimum one large public hearing event (townhall hearing) with feedback and 3 smaller local meetings in Project plan sites including interviews arranged in each city.

2) During Construction

- In case any significant changes appear in the Project plan concerning the overall design, any components, site-locations etc., the PIU, Bekasi Public Works and Consultants shall arrange at least one large public hearing event within 2 months of the noted change needs followed by smaller events in the relevant sites subjected to changes.
- The events shall present the changes regarding different components, their expected impacts, compliance with national and ADB safeguards, grievance redress mechanism, contact details of the PIU and relevant focal point(s)
- Periodic interviews are carried out to monitor environmental concerns of communities concerning the Project construction and impacts by the Consultant or Independent service provider assigned for monitoring
- Publishing and presenting main Project implementation proceedings of the components every 6 months in one main hearing event arranged by PIU/Bekasi Public Works and Consultants allowing questions and raising concerns in Bekasi. The event is to be notified 2-4 weeks in advance with an advertisement in local news paper in Bahasa and English

3) During Operation

- Periodic interviews in and near main operating sites in case of complaints raised
- Regular environmental monitoring by Bekasi Environmental Agency/ Independent Monitoring Service Provider (eg. hired certified laboratory) and the Public Works unit operating the WWTP with results published in billboards of the Environmental Agency, Public Works and web pages
- In case of noted non-compliance, accidents etc., informing the public in the affected sites as soon as noticed
- In case of significant complaints received from the public, site inspections and sampling by Environmental Agency followed by consultations on the results

8-93. The consultation process and its results are documented and reflected in environmental assessment reports and the EMP monitoring. The Project is also required to establish a mechanism for receiving and managing concerns, complaints and grievances of affected people about the impacts as outlined in the Grievance Redress Mechanism.

8-94. For AMDALs, additional subprojects or components, the PIUs submit all environmental safeguard documents in English and Bahasa Indonesia to CPMU and ADB for disclosure on ADB's website pursuant to the ADB SPS 2009. All the following reports will be disclosed within 14 days of receipt from the executing agency:

- i) TOR for ANDAL ("KA ANDAL") as accepted as an EIA by ADB for A category subprojects
- ii) final AMDAL (as accepted as EIA or IEE by ADB);
- iii) final UKL/UPL (as accepted as IEE by ADB);
- iv) new or updated AMDAL/UKL/UPL (as required for EIA/IEE by ADB) with a corrective action plan prepared during Project implementation, if any;
- v) environmental monitoring reports.

8-95. The PIUs and CPMU as relevant provide environmental information, including information from these documents in a timely manner, in an accessible place and in a form and language(s) understandable to affected people and other stakeholders.

5.2. Grievance Redress Mechanism

8-96. Grievance redress mechanism (GRM) is important for the planning and implementation of the Project consisting of WWTP, sewerage networks and on-site sanitation site. In executing the GRM, all complaints and concerns raised by the concerned and affected people need to be recorded, assessed and addressed without any costs occurring to the complainants.

8-97. The Project implementation is considered to require two GRMs: One to cover grievances raised during planning and construction and another for grievances concerning land acquisition, land compensations and resettlement. The latter GRM mechanism has been prepared separately in the Land Acquisition and Resettlement Plan (LARP).

8-98. The suggested planning and construction stage redress mechanism will be composed of three tiers of which the first level is meant to screen and assess valid and invalid compensation claims, second tier is for more complex cases that require broader assessments and possible complainants not satisfied with the first tier outcome having further technical arguments while the third tier is the court.

8-99. Being able to provide quick resolutions for complaints during construction is important given the construction activities are often continuous and have tight schedules that changes can affect significantly. To facilitate filing of complaints, the PIU and KCC shall prepare forms to be used that allow filing of complaints also by persons who cannot write by the assistance of another person.

8-100. **First tier:** Complaints that can be addressed by the local PIU and representatives of the Consultant in charge of the Project including possible site visits in the plan and construction sites of concern. All complaints that the PIU/Contractor validate to require addressing the expressed grievances through design and/or technical solutions or compensations (due to eg. damages to property or livelihoods) are to be filed, recorded with photographs and addressed either technically and/or costed for compensations as needed.

8-101. Any complaints not resulting into addressing the raised grievances including possible compensations are exempted for which technical explanations for non-compensations need to be provided for. In this tier, handling the complaint assessments should be conducted within 3-5 working days including possible site visit as needed.

8-102. For raising complaints, the PIU will develop an easy complaint filing form and provide contacts of the focal points assigned for receiving the complaints. If needed, the focal points are to assist complainants filling the forms. In addition to the paper format, web based complaint filing should be encouraged to be developed as suited.

8-103. **Second tier:** In each Kelurahan (village or municipality sub-district) where construction is implemented, a Kelurahan Complaints Committee (KCC) is established to be chaired by the PIU and responsible units in the Department of Public Works (such as Perlaksan Teknis Daerah UPTD) and have other relevant district agencies involved (eg. Environment

Agency, Department of Spatial Planning for defining delineations and compensations) represented. In addition to these agencies, the KCC is to include i) Kelurahan chief or his representative; ii) Contractor's highest official (such as Construction Manager); iii) women organization representative to ensure enhanced inclusion. District Governor Office, representative from PIU, Contractor and City Environment Agency are recommended to undertake an initial review of the complaints to consider whether they can be resolved without KCC meeting and submit their technical reasons for such decision together with the complaint to KCC after 2 working days.

8-104. The review outcomes including view whether the complaint can be solved without KCC meeting provided with technical reasons together with the actual complaint, are received by KCC that shall consider both initial outcome and the complaint. In case the KCC will proceed assessing the complaint, they will conclude their assessments within 8 working days including possible site visit(s) as needed. The Kelurahan Complaints Committee's operations will be explained in public hearings, the KCC needs to be included into the implementation plan and feature also in all relevant civil works contracts.

8-105. This second tier GRM complaint filing and handling process steps include: i) Complainant files the complaint together with background information in writing to the KCC assisted by KCC secretary as needed in filling the form; ii) Within 2 working days, the District Governor Office, Kelurahan chief or his representative, PIU, Contractor representative, Environmental Agency, Department of Spatial Planning (for delineations and compensation) review the complaint and discuss if the complaint can be resolved without calling for KCC meeting. The agencies should include the complainant in the discussions to seek resolution. The review outcomes are to be recorded together with the complaint, including technical reasons whether KCC meeting is seen necessary; iii) Submitting the outcomes of the review together with the actual complaint to KCC who then decide if the complaint is to be assessed.

8-106. The KCC complaint assessment is to be conducted in 8 working days including site visit(s) as needed. The Committee decision should include a formal response to the complaint with suggested construction changes and/or estimated costing for compensations as deemed necessary including technical reasons, field visit reports and photos.

8-107. **Third tier:** If the complaint cannot be resolved at the KCC, the complainant shall go to the courts and file necessary charges.

GRM	Handling Time	Authority
Tier 1	3-5 days	PIU and Contractor
Tier 2	2 days	District Governor Office, Kelurahan chief or his representative, PIU representative, Contractor, City Environment Agency and other relevant agencies as relevant (eg. Department of Spatial Planning) and complainant
	8 days	Kelurahan Complaints Committee including i) Kelurahan chief or his representative; ii) Contractor's highest official; iii) women organization
Tier 3	Unknown	Courts

8-108. **Land acquisition, compensation and resettlement GRM** has been developed in separately conducted assessment and reported in the Land Acquisition and Resettlement Plan (LARP) for all the cities. The LARP reports account for the GRM concerning land acquisition, compensations and resettlement.

A8-6. Institutional Arrangements and Responsibilities

6.1. Institutional Arrangements and Responsibilities

8-109. The Directorate for Human Settlements under the Ministry of Public Works and Housing is the designated Executing Agency (EA) for SSDP implementation, in charge of general project coordination, loan management, and reporting to the National Development Planning Agency (BAPPENAS), the Ministry of Finance and to the ADB.

8-110. The Directorate of Environmental Sanitation (PPLP) is the designated Implementing Agency (IA) in charge of the establishment and operation of the Center Project Management Unit (CPMU). The CPMU is operating on behalf of the IA and coordinates closely with the provincial SATKER (PIU).

8-111. The so-called SATKER STRATEGIS, operating under the IA, will be directly responsible, through its procurement unit POKJA and in collaboration with the Ministry's procurement unit (ULP), for the recruitment and management of all SSDP related consulting services, including the Capacity Development Consultant (CDC) and the Project Implementation Support Consultant (PISC). These consultant assignments will provide all relevant support for all the three candidate SSDP cities.

8-112. A SSDP specific Project Implementation Unit (PIU), "Provincial SATKER", will be appointed by the IA for supporting all SSDP loan related procurement and project management tasks. This SATKER will be responsible for the development of infrastructure for the WWTP and Sewer systems, managing the appointed contractors. The SATKER will also be supported by the PISC and CSC appointed by SATKER STRATEGIS.

8-113. The local governments of the cities are responsible for land acquisition, the preparation of the environmental assessment, for the wastewater treatment facility, community involvement, including the implementation of social marketing and behavior change communication campaigns.

8-114. The SSDP Implementation Structure is presented in the following matrix and chart

Institution	Responsible Unit
1. Executing Agency (EA)	Directorate General of Human Settlements (DGHS)
2. Implementing Agency (IA)	Directorate of Environmental Sanitation (PPLP)
3. SATKER Strategis (nat. level)	Project Implementation Unit (PIU) in charge of procurement and management of Consultants (CDC & PSIC)

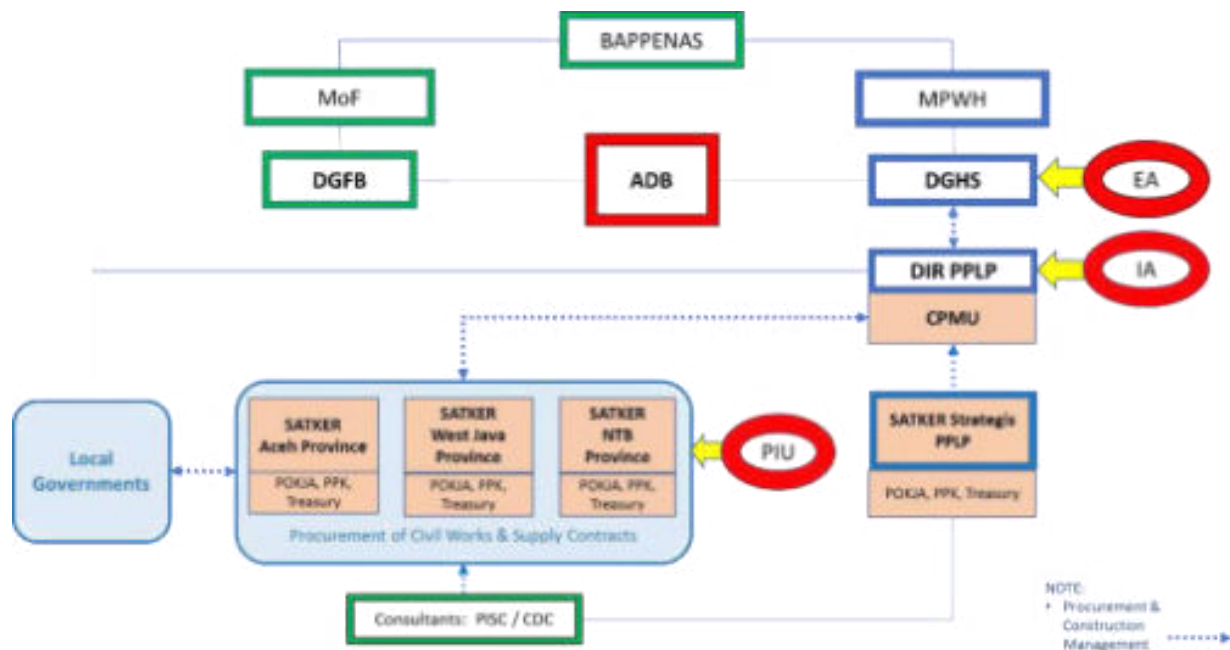


Figure 8: SSDP implementation set-up

8-115. The PIUs, with assistance from the environmental officers (i) confirm that the EMPs are included in the AMDAL studies as well as bidding documents and civil works contracts; (ii) ensure Contractor's EMPs are prepared by contractors prior to actual construction; (iii) supervise the implementation of environmental mitigation measures required for the construction activities further supported by local Environmental Agencies and Public Works Offices and hired service providers (consultants, certified laboratories) as per the EMPs; (iv) review, monitor and evaluate the effectiveness of the implemented Contractor's EMPs and recommend necessary corrective actions; (v) prepare monthly and quarterly environmental monitoring reports and submit quarterly environmental monitoring report to CPMU and ADB during the construction phase; (vi) prepare and submit semi-annual environmental monitoring report to the CPMU and ADB during the operational phase; (vii) contract independent safeguard monitoring entity to conduct water quality monitoring as specified in the IEEs and AMDAL environmental monitoring plans; and (viii) address, record, and report on any grievances raised through the Grievance Redress Mechanism in a timely manner.

8-116. **Screening and project categorization:** The PIUs and CPMU with assistance from environmental safeguard specialists, will screen every additional subproject for categorization using the relevant REA checklists (Annex 1) according to ADB, and the AMDAL IEE contents (Annex 2) according to the Government regulations. The categorization forms and REA checklists will be submitted to CPMU for assessment and endorsement and then to ADB for further review and approval.

8-117. In case category A subprojects or components are proposed, the categorization of the entire Project will be changed to category A as well. The categorization and REA checklist of the first category A subproject will be submitted to ADB by the executing agency upon which an internal process in ADB reviews and considers approval the recategorization of the entire project to category A. No further action will be taken by the executing agency until ADB has provided approval of the new categorization.

8-118. **Environmental impact assessments of additional subprojects or components:** Upon ADB's approval of subproject categorizations provided in this EARF including the IEEs undertaken noting the concerns raised regarding the Rusunawa and Perumnas WWTP sites in

Bekasi and additional study needs, PIUs contract accredited service providers to undertake the AMDAL or UKL/UPL following the AMDAL process (Figure 7). The national environmental safeguard assessments ensure that the AMDAL or UKL/UPL meets requirements of either an ADB EIA or IEE and includes a sufficiently comprehensive EMP in order to be accepted by ADB. The PIUs, ESP Contractors and independent consultants (i) ensure approval of the AMDAL and UKL/UPL by the relevant environment authority at the provincial or district level; and (ii) issuance of environmental clearance/permit as part of the AMDAL process.

8-119. The PIU staffing is intended to include Project Manager, Procurement Officer, Accountant, Technical Officer, Administrative Officer, Social and Environmental Safeguards and Gender Officer who will manage the Project implementation in each city. One of the PIU staff will be appointed to handle the GRM.

8-120. To avoid duplication, the PIUs are tasked to prepare and finalize the full AMDAL and UKL/UPL reports as guided by the IEEs and their EMPs in consultation with ADB. Upon incorporation of ADB's comments to ensure that the AMDAL and/or UKL/UPL meet SPS 2009 requirements, the English version of government approved AMDAL will be submitted to ADB and accepted as the IEE/EIA. Disbursements for the subproject investment can only proceed upon ADB and government approval of the relevant AMDAL studies or UKL/UPL.

8-121. Implementation of mitigation measures, as described in the AMDAL and UKL/UPL, including the EMP in IEEs to be incorporated into the EMPs produced via AMDALs, will be PIUs responsibility undertaken by contracts with the Project contractors, consultants and with assistance from the environmental officers of ADB and environmental safeguard specialists of the SSDP.

8-122. Given the weak capacities for environmental monitoring in all three cities, independent safeguard monitoring service providers such as certified laboratory and consultants are contracted by each PIU to conduct environmental monitoring (either partly or fully), and the required studies for the subprojects as specified in the environmental monitoring plan under the IEEs to be incorporated into the EMP produced by the AMDAL process. The service providers submit regular reports of the studies and monitoring undertaken to the PIU that submits these to the CPMU and ADB. A thematic outline for drafting the TOR of the safeguard monitoring entity and consulting services is provided in Annex 3. The more detailed TORs are to be developed based on discussions with ADB.

8-123. Capacity development for environmental safeguards is provided as part of the Project implementation to the PIUs and other relevant staff the districts and in CPMU. The trainings will be provided in courses and the safeguard implementation is overseen and managed by the Social and Environmental Safeguards and Gender Officer assigned in each PIU.

6.2. Staffing Requirements and Budget

8-124. PIUs are proposed to be staffed by Project Manager, Procurement Officer, Accountant, Technical Officer, Administrative Officer, Social and Environmental Safeguards and Gender Officer who will manage the Project implementation in each city.

8-125. In practice, additional inputs to the required surveys defined in EMPs are required from independent consultants and service providers. It is also recommendable to consider appointing a dedicated environmental officer into each PIU to lead implementation, monitoring and compliance with the EARF provisions of the Project, the IEEs and their EMPs, and the AMDAL/UKL/UPL studies.

8-126. In case of assigning a dedicated environment officer into PIU, the appointed staff is expected to have day-to-day responsibilities in ensuring that environmental management system with mitigating measures, environmental monitoring, acquisition of governmental permits and clearances, is effectively implemented. The environment officer is suggested to be assisted by environmental safeguard specialists from ADB and by hiring national expert(s)

having extensive experience in waste water and sewerage management. The environmental safeguard specialists are recommended to be engaged independently by ADB to work in PIUs and CPMU, assist in capability buildings, periodical audits of the mitigation measures and monitoring plan, and advise the project on issues related to environmental management for CPMU and all the PIUs.

8-127. A certified service provider is to be contracted for carrying out the AMDALs as well as environmental monitoring (partly or fully) to meet the environmental safeguard requirements of both ADB and the GOI throughout the Project implementation.

8-128. **Budget Estimates for Environmental Management:** The cost of staffing in the PIUs is included in the budgets of the executing agency and implementing agencies under the Loan. For implementing the environmental management plans and monitoring as defined by the IEEs, a total allocation US\$1,578,000 (Mataram US\$732,000; Banda Aceh US\$560,000 and Bekasi US\$286,000) is proposed for pre-construction and construction phase monitoring. In each city, the operational phase monitoring is estimated at US\$26,000 per annum totalling to US\$78,000 per annum.

8-129. The construction period costs have been estimated to account for the whole construction period that is 7 years in Banda Aceh, 9 years in Mataram and 4 years in Bekasi. The pre-construction and construction period monitoring are used also for setting the baseline status given the lack and poor quality of data concerning water and other environmental quality.

8-130. These sums do not cover potential costs originating from the potential soil and groundwater remediation and management in Mataram (seashore WWTP site) or possible soil remediation in Bekasi that result from earlier uses of the plan sites. Such costs need to be established separately based on the soil and groundwater studies recommended as such costs depend on the extent and possible contaminants in the soils and groundwaters that define the needed remediation and management methods if any.

8-131. The budgeted monitoring sums can be broken down by city as follows

Banda Aceh

Pre-construction: US\$98,000

Construction (7 years): US\$462,000

Operation phase: US\$26,000 (per annum)

Mataram

Pre-construction: US\$138,500

Construction (9 years): US\$ 594,000

Note: Excludes costs of possible soil and groundwater management/remediation determined with additional studies

Operation phase: US\$26,000 (per annum)

Bekasi

Pre-construction: US\$78,000

Construction (4 years): US\$208,000

Note: Excludes costs of possible soil management/remediation determined with additional studies

Operation phase: US\$26,000 (per annum)

Annex 1: Rapid Environmental Assessment (REA) Screening Checklist for SSDP

Instructions:

- (i) The project team applies this screening checklist to assess the environmental classification of subprojects. The REA screening is to be attached into the environmental categorization form and submitted to the safeguards staff in PIU who assess the screening and passes it into CPMU.
- (ii) Answer the questions assuming the without mitigation case as the purpose is to identify potential impacts. Use the remarks section to define components and mitigation measures.
- (iii) This checklist focuses on environmental issues and concerns. To ensure that social dimensions are adequately considered, separate assessments applying ADB's (a) checklists on involuntary resettlement and Indigenous Peoples; (b) Staff guide to consultation and participation and (c) gender checklists are devised for social safeguards.

Country/Project Title: SSDP for Bekasi Banda Aceh and Mataram

Sector Division:

Name Of Person:

Project Site Name:

Location:

A. PROJECT SITE	Yes	No	REMARKS
IS THE PROJECT AREA DENSELY POPULATED?			
HEAVY WITH DEVELOPMENT?			
NEAR HOUSING?			
Distances to housing:			
ADJACENT TO OR WITHIN ANY ENVIRONMENTALLY SENSITIVE AREAS?	Yes	No	REMARKS
CULTURAL HERITAGE SITE			
PROTECTED AREA			
WETLAND			
MANGROVES			
ESTUARINE			
BUFFER ZONE OF PROTECTED AREA			
ADJACENT TO OR WITHIN ANY ENVIRONMENTALLY SENSITIVE AREAS?	Yes	No	REMARKS
SPECIAL AREA FOR PROTECTING BIODIVERSITY			

BAY

Other notes of site (characteristics, traits, special considerations):**B. General****POTENTIAL ENVIRONMENTAL IMPACTS****Yes No REMARKS**

Will the Project cause:

Increased soil erosion / siltation?

Impairment of surface water / seawater quality?

Impacts on ground water?

Worsening air quality, noise or other nuisance (odors)?

Impacts on land uses and/or loss of land
or natural resources?Impacts on protected species, key habitats or
other important ecological values?

Negative impacts on cultural / heritage sites?

Impacts on landscape, habitat fragmentation or recreation?

Conflicts with traditional / local community resource

Dislocation or involuntary resettlement?

Loss of ecological or economical functions/areas due to
construction or other Project development requirements?Disproportionate impacts on the poor, women,
indigenous people or vulnerable groups?Increased migration and potential for social conflicts
/ disruption due to Project development plans and workers?Changes in present social and economic activities
due to land use changes or technologies applied?Ecological or health risks due to Project development
(from clearance to construction) or technologies required
for groundwater, hydrology, soil erosion, loss of soil
fertility, pollution of waterbodies etc.?Inadequate protection of intake works or wells, leading
to pollution of water supply?Over pumping of ground water, leading to salinization
and ground subsidence?

Increase in production of sewage beyond capabilities of community facilities?

Inadequate disposal of sludge from water treatment plants?

Inadequate buffer zone around pumping and treatment plants to alleviate noise and other possible nuisances and protect facilities?

Impairments associated with transmission lines and access roads?

POTENTIAL ENVIRONMENTAL IMPACTS	Yes	No	REMARKS
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Health hazards arising from inadequate design of facilities for receiving, storing, and handling of chlorine and other hazardous chemicals.

Health and safety hazards to workers from handling and management of chlorine used for disinfection, other contaminants, and biological and physical hazards during project construction and operation?

Continuing soil erosion/silt runoff from construction operations?

Delivery of unsafe water due to poor O&M treatment processes (especially mud accumulations and siltation in filters) and inadequate chlorination due to lack of adequate monitoring of chlorine residuals in distribution systems?

Competing uses of water?

Impact on drainage or increased sewage flows due to changes in sewage water volumes

Increased volumes of sullage (wastewater from cooking and washing) and sludge from the wastewater treatment plant

Large influx of workers during project construction and operation causes increased burden on social infrastructure and services (such as water supply and sanitation systems)?

Social conflicts if workers from other regions or countries are hired?

Risks to community health and safety due to the transport, storage, and use and/or disposal of materials such as explosives, fuel and other chemicals during operation and construction?

Community safety risks due to both accidental and natural hazards, especially where the structural elements or components of the project are accessible to members of the affected community or where their failure could result in injury to the community throughout project construction, operation and decommissioning?

POTENTIAL ENVIRONMENTAL IMPACTS	Yes	No	REMARKS
Interference with other utilities and blocking of access to buildings; nuisance to neighboring areas due to noise, smell, and influx of insects, rodents, etc.?			
Dislocation or involuntary resettlement of people impairment of downstream water quality due to inadequate sewage treatment or release of untreated sewage?			
Overflows and flooding of neighboring properties with raw sewage?			
Environmental pollution due to inadequate sludge disposal or industrial waste discharges illegally disposed in sewers?			
Noise and vibration due to blasting and other civil works?			
Discharge of hazardous materials into sewers, resulting in damage to sewer system and danger to workers?			
Road blocking and temporary flooding due to land excavation during the rainy season?			
Temporary silt runoff due to construction			
Hazards to public health due to overflow flooding and groundwater pollution due to failure of sewerage system?			
Deterioration of water quality due to inadequate sludge disposal or direct discharge of untreated sewage water?			
Contamination of surface and ground waters due to sludge disposal on land?			
Health and safety hazards to workers from toxic gases and hazardous materials which maybe contained in sewage flow and exposure to pathogens in sewage and sludge?			

Climate and Other Risks

	Yes	No	REMARKS
<u>1. Is the Project site currently and in the future subjected to the following factors of climate / weather risks:</u>			

Riverine flooding?

Rain induced flashfloods / landslides / erosion?

Sea level rise?

Does the Project cause increased greenhouse gas emissions?

Tropical storms and high wind velocities?

Effects of heatwaves, droughts, wild fire hazards?

Risks of increased waterbourne diseases?

Earthquake risk?

Tsunami risk?

Volcano eruptions?

	Yes	No	REMARKS
<u>2. Project Design & Build solutions and maintenance</u>			

Do climate or other risk factors influence the Project construction, design and site planning?

Do climate or other risk factors influence the technological solutions of the Project?

Do climate or other risk factors influence Project construction material selection?

Do climate or other risk factors influence Project Operation and Maintenance requirements?

Are climate or other risk factors likely to influence the operational performance of the Project?

Other Considerations:

Are there other Projects near the site that can cause cumulative impacts?

Is there a need to consider Strategic Environmental Assessment?

Climate Screening		Score	Remarks ²⁴
Location and Design of project	Is siting and/or routing of the project (or its components) likely to be affected by climate conditions including extreme weather related events such as floods, droughts, storms, landslides?		
	Would the project design (e.g. the clearance for bridges) need to consider any hydro-meteorological parameters (e.g., sea-level, peak river flow, reliable water level, peak wind speed etc)?		
Materials and Maintenance	Would weather, current and likely future climate conditions (e.g. prevailing humidity level, temperature contrast between hot summer days and cold winter days, exposure to wind and humidity hydro-meteorological parameters likely affect the selection of project inputs over the life of project outputs (e.g. construction material)?		
	Would weather, current and likely future climate conditions, and related extreme events likely affect the maintenance (scheduling and cost) of project output(s) ?		
Performance of project outputs	Would weather/climate conditions, and related extreme events likely affect the performance (e.g. annual power production) of project output(s) (e.g. hydro-power generation facilities) throughout their design life time?		

Options for answers and corresponding score are provided below:

Response	Score
Not Likely	0
Likely	1
Very Likely	2

Responses when added that provide a score of 0 will be considered low risk project. If adding all responses will result to a score of 1-4 and that no score of 2 was given to any single response, the project will be assigned a medium risk category. A total score of 5 or more (which include providing a score of 1 in all responses) or a 2 in any single response, will be categorized as high risk project.

Result of Initial Screening (Low, Medium, High):

Other Comments:

Prepared by:

²⁴ If possible, provide details on the sensitivity of project components to climate conditions, such as how climate parameters are considered in design standards for infrastructure components, how changes in key climate parameters and sea level might affect the siting/routing of project, the selection of construction material and/or scheduling, performances and/or the maintenance cost/scheduling of project outputs.

Annex 2: Outline of AMDAL Initial Environmental Examination (IEE)

I. SIEE (Summary of IEE)

A. Introduction (1/2 page)

This section will include the purpose of the report, extent of the IEE study and brief description of any special techniques or methods used.

B. Description of the Project (1/2 page)

This section will include the type of and need for the project; and project location, size or magnitude, operation, and proposed schedule for implementation.

C. Description of the Environment (2 pages)

This section will include the physical and ecological resources, human and economic development, and quality of life values.

D. Forecasting Environmental Impacts and Mitigation Measures (2-4 pages)

This section will identify "no significant impacts" from those with significant adverse impacts and will discuss the appropriate mitigation measures, where necessary.

E. Institutional Requirements and Environmental Monitoring Plan (1 page)

This section will describe the impacts to be mitigated, and activities to implement the mitigation measures, including how, when, and where they will be implemented. The environmental monitoring plan will describe the impacts to be monitored, and when and where monitoring activities will be carried out, and who will carry them out.

F. Public Consultation and Disclosure

This section will describe the process undertaken to involve the public in project design and recommended measures for continuing public participation; summarize major comments received from beneficiaries, local officials, community leaders, NGOs, and others, and describe how these comments were addressed; list milestones in public involvement such as dates, attendance, and topics of public meetings; list recipients of this document and other project related documents; describe compliance with relevant regulatory requirements for public participation; and summarize other related materials or activities, such as press releases and notifications. This section will provide of summary of information disclosed to date and procedures for future disclosure.

G. Findings and Recommendations (1-2 pages)

This section will include an evaluation of the screening process, and recommendation will be provided whether significant environmental impacts exist needing further detailed studies or EIA. If there is no need for further study, the IEE itself, which at times may need to be supplemented by a special study in view of some small significant impacts, becomes the completed EIA for the project and no follow-up EIA will be needed.

If further additional study is needed, then this section will include a brief terms of reference (TOR) for the needed follow-up EIA, including approximate descriptions of work tasks, professional skills required, time required, and estimated costs. The Bank's Environment Guidelines provides a guide for preparing the TOR for different projects.

H. Conclusions (1/2 page)

This section will discuss the result of the IEE and justification if any of the need for additional study or EIA. If an IEE or an IEE supplemented by a special study is sufficient

for the project, then the IEE with the recommended institutional requirements and monitoring program become the completed EIA.

II. IEE Report (AMDAL)

- A. Introduction
- B. Description of the Project
- C. Description of the Environment
- D. Screening of Potential Environmental Impacts and Mitigation Measures
- E. Institutional Requirements and Environmental Monitoring Plan
- F. Public Consultation and Information Disclosure
- G. Findings and Recommendation
- H. Conclusions

Annex 3: Outline of Terms of Reference

- 1. ENVIRONMENTAL SAFEGUARDS MONITORING (ALL CITIES)**
- 2. CONSULTING ENTITIES PROVIDING SERVICES FOR**
 - a. CONDUCTING ECOLOGICAL SURVEYS (ALL CITIES)**
 - b. SOIL / GROUNDWATER CONTAMINATION AND GEOLOGICAL SURVEYS**
 - c. SEPTIC TANK WASTE MANAGEMENT (ALL CITIES)**

Background

SSDP implementation requires services provided by certified entities for environmental monitoring, consultants/consulting entities for ecological surveys, consultants/consulting entities carrying out soil contamination, geological surveys and waste management for implementing septic tank replacement as well as other waste management services as needed.

1. Safeguards Monitoring Entities

In addition to internal monitoring, the Project requires independent monitoring of the set safeguards to ensure all recommendations and mitigation measures under the IEEs and the AMDALs of the three cities subprojects as well as any AMDALs concerning additional subprojects or components are implemented.

One SME will be required in each of the three Project cities ie. Banda Aceh, Bekasi and Mataram. The monitoring entity is to monitor environment (water quality, air quality, wind directions and noise levels) on regular basis from pre-construction to construction and operation phases. More detailed TORs are to be developed for these surveys based further discussions with ADB.

Interested entities such as local NGOs, or domestic universities and institutions must provide amplified Expressions of Interest (EOI) which includes the information showing that they are qualified to perform the services, giving the entity general experience for similar assignments and CVs of Key personnel with academic background, experience in similar assignments, knowledge of local conditions, etc. The completed EOI form will be developed and published in CMS of ABD.

2. Consulting Entities for

a. Ecological Surveys (All cities)

Consultants or consulting entities will be called to undertake baseline assessment of terrestrial ecology in all of the plan areas. In addition, in Mataram the consultant is to assess marine ecology and in Banda Aceh aquatic ecology. The scope of work is to undertake a survey covering the plan area with record to vegetation, animal species and other taxa, identification of any protected species and their habitats in the plan areas as they may occur taking notice of migratory species and species that use the sites possibly for nesting. More detailed TORs are to be developed for these surveys based further discussions with ADB.

b. Soil Contamination and Geological Site Surveys (Mataram, Bekasi)

Some of the plan site locations in Mataram and Bekasi may contain contaminated soils requiring soil surveys and addressing potential contamination through suited management and

remediation measures. In Mataram the geology and shallow groundwater table depths may cause additional issues for the site preparations that need to be assessed and managed with suited solutions. More detailed TORs are to be developed for these surveys based further discussions with ADB.

c. Septic Tank Replacement Waste Management (All cities)

The planned replacement of large numbers of non-standard septic tanks in all of the three cities as part of the onsite service improvement may require additional assistance due to existing waste management capacities requiring waste management planning and possibly specific waste management in suited facilities if the septic tanks are considered causing health risks. More detailed TORs are to be developed for these surveys based further discussions with ADB.

APPENDIX 9:

LAND ACQUISITION AND RESETTLEMENT FRAMEWORK

CONTENTS

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9-1. The team prepared Land Acquisition and Resettlement Plans (LARP) for each city in line with ADB's Safeguard Policy Statement of 2009. The LARP for each city referred to the Land Acquisition and Resettlement Framework, as follows:

A9-1. Project Description

9-2. Land is a key element in infrastructure development, including sanitation projects. The sanitation projects supported by ADB in the land acquisition process must comply with ADB safeguards. To ensure that land acquisition for wastewater development program is in line with ADB safeguards, a LARP should be prepared at this feasibility study stage.

9-3. SSDP Banda Aceh will develop two WWTPs. WWTP Zone-1 which will be located in Blang Oi Gampong with potential land area of 6 ha. About 2 ha of land is owned by the Banda Aceh City Government and some of the remaining land must be acquired from the communities. WWTP Zone-3 is located in Tibang Gampong (Village) with a total area of 3 ha that is owned by Banda Aceh City Government.

9-4. WWTP Mataram City will be located in Tanjung Karang Permai Village, Sekarbela, with total are of ± 7 ha. This land belongs to private companies that must be acquired, and relocate 10 illegal fishing settlements.

9-5. Meanwhile Bekasi City will developed WWTP in Perumnas 1 with an area of ± 0.3 ha located in Kranji Village, West Bekasi District, and the second WWTP will be developed in Rawa Pasung, Medan Satria, and Kali New with an area of ± 0.8 ha, this land is owned by the City Government of Bekasi City.

A9-2. Scope of Land Acquisition and Resettlement

9-6. The scope of land acquisition in this project includes land acquisition for WWTPs, pump stations and pipeline installation. WWTP requires adequate land area (± 5 ha), while for the pump station only requires about 2x3 meters for each pump. The installation of pipelines will attempt to use government land along the shoulder of the road, which should only cause temporary impact to the surrounding communities.

9-7. The initial findings of the land acquisition impact for each city are shown in the following table:

Table 114: Initial findings of land acquisition required for SSDP Banda Aceh City

No.	Location of Assets Impacted	Unit	Remark
1. WWTP Candidate of Banda Aceh City			
a.	Blang Oi Village (±6 ha, consist of 2 Ha RTH (open space for green area) and 4 Ha to be acquired)	108 person	WWTP Development in Zone -1 (Blang Oi) has 108 owners. The land does not contain any structures and is not in productive use.
b.	Tibang Village	3 ha, 1 Person	Land owned by the City Government (Tibang) shrubs
2. Pump Station Location (PS)			
a.	Bandar Baru village, Kuta Alam sub-district (PS 1)	1	Green open space
b.	Jl. Tengku Chik Ditiro – Peuniti village (Krueng Daroi Bridge) (PS 2)	1	Owned by Department of Public Works and irrigation.
c.	Jl. Sultan Iskandar Muda, Kampung Baru Village, Baiturrahman Subdistrict (PS 3)	1	Owned by Kodam Iskandar Muda.
d.	Jl. Seulawah, Setui Village, Baiturrahman sub-district (PS 4)	1	Green open space
e.	Jl. University of Iskandar Muda (Unida) campus, Bitai Village, Jaya Baru sub-district (PS 5)	1	Green open space
2. Pipeline Installation			
a.	Intervention because of sewer installations in public space of Banda Aceh City	51 temporary impacts	Community assets along the pipeline are disturbed by construction activities as roads are narrow.
Total Impacted Assets of Banda Aceh City		165 unit	Affected Households, with 51 AHs temporary impact/disturbed during construction.

Table 115: Initial findings of land acquisition required for SSDP Mataram City

No.	Location of Assets	Unit	Remark
1. WWTP			
a.	Land at Tanjung Karang Village, Sekarbela Sub District, Mataram	7 ha	Owned by Local Company (PT Varindo Lombok Inti)
b.	Semipermanent structures of fishermen settlements	11 structures	11 AHs living on coastal area.
2. Pump Stations (PS)			
a.	The banks of the Jangkuk River, Ampenan Tengah Village – Sukaraja, Ampenan sub-district (PS 1)	100 m2	Land owned by 4 people of which one refuses to sell the land.
b.	Bagik Kembar area of Tanjung Karang Permai village of Sekarbela sub-district (PS 2)	100 m2	Food crop land.
3. Pipeline Installation			
	Temporarily impact during construction excavations: fences, walls along the pipeline installation Mataram City	78 Aps	Community assets along the pipeline will be disturbed by construction activities as the road sections are narrow.

Table 116: Initial findings of land acquisition required for SSDP Bekasi City

No.	Location of Assets Impacted	Unit	Remark
1. WWTP Candidate of Bekasi City			
a.	Perumnas 1 area with area of ± 3.000 m ² Kranji Subdistrict, West Bekasi Subdistrict.	103 ha	70 permanent and semi-permanent structures and 33 empty structures (Perumnas I).
b.	Rawa Pasung	0.8 ha	Land owned by the City Government (Rawa Pasung).
2. Along pipeline installation			
	Temporarily impacted during construction excavations: Fences, wall etc along along pipeline installation of Bekasi City.	119 temporary structures	Community assets along the pipeline will be disturbed by construction activities as the road sections are narrow.
Total Impacted Assets of Bekasi City		223 unit	Affected Households, with 119 AHs temporary impact/disturbed during construction.

A9-3. Socio-economic Information

9-1. The socioeconomic conditions of the affected households can be summarized as follows.

9-2. In Banda Aceh, the WWTP Zone-1 is located in Gampong Blang Oi with area of ± 6 ha, 2 ha of land belonging to the Banda Aceh City government and 4 ha belonging to the community to be acquired, of which the location is comprised of unproductive ponds and no structures, while there are 3 ha of land already owned by the City Government of Banda Aceh in the location in

Gampong Tibang. While the land owners are known by name, it has not been possible to contact them and thus there is no information about their socio-economic situation.

9-3. The candidate of WWTP Bekasi City, which is located in Perumnas 1 area of ± 0.3 ha is owned by Bekasi City Government, which is comprised of 49 permanent buildings, 10 semi-permanent buildings and 30 temporary structures. The land in the second location of WWTP in Rawa Pasung is also owned by Bekasi City Government, in which there is no structures or crops.

9-4. The land of the WWTP location in Mataram City belongs to private companies which require land acquisition in advance. On the land there are semi-permanent fisherman settlements and around 11 families that must be resettled.

A9-4. Information Disclosure, Consultation and Participation

9-5. There are two general types of stakeholders: Community-based households and institutions.

Community-based Stakeholders

- a. Affected Persons (APs): The key stakeholders comprise of persons directly affected by land acquisition activities that result in loss of land and non – land assets, including crops, house structures and assets, and businesses.
- b. Religious/Social Groups: Prominent local figures, whether they represent social, religious, cultural and even political interests, also comprise important local stakeholders near land acquisition corridors because of the influence they wield in molding perceptions and opinions of the local societies at large and the affected persons.

Institutional Stakeholders

9-6. **National Government Agencies.** The three major implementing agencies for the Project also represents major stakeholders. These agencies comprise of the Directorate General of Housing and Settlement (DGHS) of the Ministry of Public Works and Housing (MPWH).

9-7. **Local Institutions.** There abound several key regional stakeholder institutions:

- i. **Local Governments.** Local governments with direct interest and responsibility for assisting in preparation and implementation of land acquisition and resettlement arrangements likewise represent strategic regional entities and institutions with direct influence and involvement in multiple components of the Project related interventions. These include city government, in addition to lower level sub-district (kecamatan) and village (desa) governments. The National Land Agency, or BPN (Badan Pertahanan Nasional), play strategic roles in implementing land acquisition activities for the development of public interest including land measuring, negotiation of compensation form, compensation payment, and transfer of acquired land to agency needing the land/project proponent.
- ii. **Line Agencies.** The Bappeda planning agencies, housing and settlement agency.
- iii. **Civil Society.** Additional civil society groups such as environmentally oriented NGOs may have roles to play as a complement to the local civil society groups.
- iv. **Media.** Local media (newspapers, magazines, television and radio), as well as official local government information and media units, through their roles to disburse information and influence and mold public opinion.

A9-5. Consultation and Participation

9-8. Meaningful consultations have been carried out with the entitled parties/APs, groups, host communities and concerned groups where any relocation, land or other assets acquisition is required. Meaningful consultation is a process that (i) begins early in the project preparation stage and is carried out on an ongoing basis throughout the project cycle; (ii) provides timely

disclosure of relevant and adequate information that is understandable and readily accessible to affected people; (iii) is undertaken in an atmosphere free of intimidation or coercion; (iv) is gender inclusive and responsive, and tailored to the needs of disadvantaged and vulnerable groups; and (v) enables the incorporation of all relevant views of affected people and other stakeholders into decision making, such as project design, mitigation measures, the sharing of development benefits and opportunities, and implementation issues. Particular attention is provided to the needs of vulnerable group and ensure their participation.

9-9. A variety of mechanisms are applied to consult with entitled parties and communities during preparation and implementation of resettlement plan: (i) community consultations and dissemination of information about the Project and its subproject components; (ii) meetings with landowners and entitled parties; (iii) separate meetings with female entitled parties; (iv) a socioeconomic survey of male and female entitled parties to produce a village profile; and (v) awareness improvement training about possible risks associated with the project.

9-10. Topics discussed in the public consultation meetings include:

- (i) An orientation on the project: project designs, schedules of implementation, and Identification / introduction project focal point / contact persons;
- (ii) Project benefits, potential adverse impacts, and mitigating measures to be taken;
- (iii) Valuation methods and entitlements/compensation packages;
- (iv) Grievance process and monitoring; and
- (v) Subsequent schedule of meetings.

9-11. Local government ensure that women and other vulnerable shall attend the consultation meetings. Consultations are conducted at venues and times that are suitable for women and will not disadvantage them.

A9-6. Grievance Redress Mechanisms

9-12. The project will ensure a culturally and gender sensitive grievance redress mechanism to receive and address, in coordination with city authorities, project related concerns and to resolve AP related disputes that may arise during project implementation. It is anticipated that all grievances related to benefits and other assistance will be resolved at the subproject level.

6.1. General Flow of Grievance Redress

9-13. Generally, at the village level APs through their facilitator or representative may bring the complaints to the village leaders and customary leaders, then they may bring it to the project officers at the field office or project site office. Specifically, (i) the AP narrates discontent to the community leader, (ii) the leader prepares an official report for documentation purposes and attempts to address and resolve the grievance at the community level; and (iii) if the AP is satisfied, there is no need to elevate the issue. If the grievance cannot be addressed at the village level, village leader submits the complaint to project management on-site.

9-14. Project staff from the safeguards units will assist APs in registering their complaints with subproject management, and preparing their specific grievances. The Project Manager will consider the complaint and within 15 working days convey a decision to the APs. These staff, along with local government district officials, will assist management in reviewing and addressing the complaint. The Project district officers will record/keep a file of the complaint. The safeguards staff will facilitate communication between the affected APs and the project management.

6.2. Specific Grievances

9-15. There are specific mechanisms for different grievances as upheld by Law 2/2012: (i) grievance on project location confirmation and results of inventory of assets, and (ii) grievance on compensation rate.

1. Grievance on project location determination and results of inventory/IOL

The announcement of the results of the inventory and identification shall include the subjects of title, size, location, and map/s of the project area. Grounds for grievance are; (i) should the AP not receive the results of the inventory, and (ii) should the AP object to the results of the inventory.

2. Grievance on Compensation rate

Based on the 2012 Law, an aggrieved AP may bring the grievance/complaint as regards identification of land acquisition objects and compensation rates directly to the Land Acquisition Implementation Team (LAIT) or land agency through the informal leader who will submit it to the LAIT either in writing or relay it verbally. The LAIT together with the land agency and the informal leader will attempt to seek consensus to achieve an acceptable settlement with the aggrieved AP.

3. Other Disputes

In case of complaints related to project construction and other resettlement matters like restriction to access, the aggrieved party may bring the complaint through the informal leader, either to the contractor or to the LAIT.

If the aggrieved AP is not satisfied with the decision or handling of the complaint, he/she may bring the grievance, either in writing or verbally to the regent of the district accompanied by an explanation on the causes and reasons for the objection within a period of 14 days from the issuance of the decision of the LAIT or contractor/concerned entity.

The Mayor will decide on the complaint within a period of 30 days by requesting for opinions/wishes from (i) the aggrieved AP; (ii) LAIT; and (iii) other concerned entities (i.e., contractor, Land Agency). The Mayor's decision will be delivered to the aggrieved AP, the LAIT, and other entity.

If after 30 days, no decision to the complaint is made or if the aggrieved AH is not satisfied with the decision taken by the Mayor, the AH may bring the complaint/case to the governor. The governor will decide on the complaint within a period of 30 days. The opinions/wishes of (i) the aggrieved AP; (ii) the LAIT; and (iii) other concerned entity may be required for the decision. The Mayor's decision on the complaint will be delivered to the aggrieved AP, the LAIT, and other concerned entity.

If after another 30 days, no decision to the complaint is made or if the aggrieved AP is not satisfied with the decision taken by Mayor, it may bring the complaint/case to the court for adjudication.

A9-7. Legal Framework

7.1. National and Local Policy Framework

9-16. Indonesia enacted a new land acquisition law for development in the public interest,²⁵ Law No. 2/2012 and its implementing regulations i.e. (i) President of the Republic of Indonesia Regulation No. 71/2012 and President of the Republic of Indonesia Regulation No. 40/2014²⁶ on the Amendment to the President of the Republic of Indonesia Regulation No. 71 of 2012;²⁷

²⁵ Public Interest means the interest of the people, state, and society that must be realized by the government for best prosperity of the people. Please see Law No. 2/2012, General Elucidation.

²⁶ President of the Republic of Indonesia Regulation No. 40/2014, changes the content of Article 121 of President of the Republic of Indonesia Regulation No. 71/2012, stipulates that, in the context of efficiency and effectiveness, land acquisition for public purposes of no more than 5 hectares can be implemented directly by the agency requiring land with the land rights holders, by way of sale or exchange or other means agreed upon by both parties.

²⁷ It further regulates provisions under the land acquisition law that include i) land acquisition planning that include required information to be included in the land acquisition document; ii) land acquisition preparation that covers preparatory team and its tasks, stages and detailed activities for the project location determination; iii) land acquisition implementation by National Land Agency that include detailed

Number 148 of 2015 Concerning The Fourth Amendment To Presidential Regulation Number 71 Of 2012 Concerning The Provision Of Land Procurement For Development For Public Interest; (ii) Head of National Land Agency No. 5/2012;²⁸ (iii) Ministry of Finance Regulation No. 13/PKM.02/2013;²⁹ and (iv) Ministry of Home Affairs Regulation No. 72/2012). The law and regulations were issued to ensure land acquisition for the implementation of development for the public interest, emphasizing on the principles of humanity, democratic, and equitable. These legal provisions replaced previous land acquisition laws and its implementation regulations (President of the Republic of Indonesia Regulation No. 65 of 2006; President of the Republic of Indonesia Regulation No. 36/ 2005; BPN Head Regulation No. 3/2007); Perma No. 2 and 3, Year 2016 on "Procedures for Procedures in the Court".

9-17. Law No. 2/2012 provides a clear procedure and time frame for land acquisition involving all stakeholders with clear procedures and time frame. The implementation of land acquisition considers balance between development interest and the interests of the community and by way of giving appropriate and equitable compensation. The objective of land acquisition is to make land available to improve the welfare and the prosperity of the people, state, and society by ensuring the legal interest of the entitled parties. The provision of the transitional law stipulates that land acquisition started before the enactment of the new law will be completed in accordance with the rules or regulations applicable previously, while land acquisition implemented after the enactment of the new law will be conducted under the provisions of the law No 2/2012.

9-18. The President of the Republic of Indonesia Regulation No. 71 of/2012 stipulates that the previous regulations will still apply if (i) the planning document on land acquisition has been prepared prior to the law promulgation; or (ii) land acquisition will be completed prior to 31 December 2014.³⁰ The Project is considered as a development for public interest, the land acquisition for the project is undertaken after the promulgation of the land acquisition law. Thus the land acquisition is implemented in reference to the Law No. 2/2012 and its implementing regulations. The Land Acquisition Law stipulates that government should undertake development for the public interest and the land belongs to the government or regional government or State Owned Enterprises while the development in the public interest is the responsibility of the government, it can cooperate with State-Owned Enterprises, Regional-Owned Enterprises, and Private – Owned Enterprises.

9-19. Based on Law No. 2/2012, the government should undertake land acquisition by involving all entitled holders (*pihak yang berhak*) and stakeholders. The entitled parties shall be those who control or own the object of the land acquisition, inter alia: a. the holders of land rights; b. the holders of land rights to manage; c. *nadzir* for the *waqaf* land;³¹ d. *the owners of former customary rights secured land*; e. *indigenous people/customary communities*; f. the parties occupying the state land in good faith; g. land tenure holders; and/or h. the owners of buildings, plants or other objects related to the land. The object of land acquisition includes; (i) land; (ii) over ground and underground space; (iii) plants; (iii) buildings; (iv) objects related to land; and (v) other appraisable loss that include non-physical loss such as loss of business, loss of job, cost of change of location, cost of change of profession, and loss of the remaining property (residual

provisions on land acquisition implementation team, preparation of land acquisition implementation, inventory of identification of losses, determination of independent appraiser, deliberations on the forms of compensation, delivery of compensation payment, delivery of compensation in the special circumstances, deposit compensation payment, release of the land acquisition objects, termination of rights between the entitled parties and land acquisition objects, recording and administrative data; iv) transfer of acquired land; v) other provisions that include monitoring and evaluation, source of fund for land acquisition, negotiated land acquisition for small plot of land (less than 5 hectare; vii), tax incentive for entitled parties except those who make claims on the decision of the location determination and decision on the amount of compensation.

²⁸ It provides technical guidelines on land acquisition implementation by Land National Agency.

²⁹ It stipulates operational and support costs for land acquisition implementation (planning, preparation, implementation, and land transfer phases) that come from the government budget. The regulation provides a detailed guidance on maximum cost for land acquisition preparation and implementation.

³⁰ For the land acquisition being done and there is remaining land that will not be able to be completed by 31 December 2013, hence the remaining land should be acquired using provisions under the new land acquisition law and its implementation regulations. Please see Presidential Decree No. 71/2012 article 123.

³¹ Waqf - an inalienable religious endowment in Islamic law, typically donating a building or plot of land or even cash for Muslim religious or charitable purposes. The donated assets are held by a charitable trust or waqf organizer.

property that is no longer viable).³² Land acquisition is implemented by the National Land Agency, conducted by providing fair and adequate compensation. The Law 2012 requires that a location determination must be done prior to land acquisition.³³ Acquisition of land for public interest less than 1 hectare can be conducted by the institution needing the land through sale transaction, exchange, or other means acceptable to both parties.³⁴

9-20. Compensation for losses in terms of land acquisition and resettlement activities as stipulated in the provisions of Law Number. 2/2012 now covers “Other appraisable loss”³⁵. Losses in terms of restriction/limitation or restriction to access to natural resources such as marine-fishery resources that can impact on the economic activities of people are now categorized as losses by the new Law and may be evaluated for compensation purposes and may be in any of the following forms (Article 36): (i) money; (ii) substitute land; (iii) resettlements; (iv) shareholding; or (v) other forms as agreed upon by both parties.

9-21. Law No. 2/2012 and its implementation regulations are applicable to the activities of land acquisition for development for the public interest³⁶ carried out by the government by way of giving fair and adequate compensation. Various discussions with institutions that have the authority to provide an explanation on provisions of the law, such as the AGO and Land Agency (BPN) asserted that Law No. 2 /2012 is only applicable to land acquisition, where the object to be acquired are the property of other party and not owned by the institutions requiring land. Acquisition of land belonging to the institution requiring land is regarded as a land clearing. In this context, the Government Regulation Number. 51 of 1960 regarding the prohibition of land use without the consent of the entitled party or his proxy is still applicable. Nevertheless, the Government Regulation in Lieu of Law Number. 51/1960 is deemed not provide protection to the entitled party and therefore is not widely implemented.

9-22. In many areas, asset clearing from acquired land or occupation of other parties (non-land rights holders) are conducted by giving *kadeudeuh* money (allowance) or a replacement of the assets acquired and resettlement assistance. In the West Tarum Canal Rehabilitation Project in return for the land clearing, compensation was granted on the affected assets, loss of business income, as well as relocation assistance. This compensation scheme is set forth in the Decree of the Governor as its legal basis. In some other projects (Road Rehabilitation Project 2) of the Ministry of Public Works and Housing, compensation, either in cash or resettlement provision is also given to people occupying state land for their loss of assets, and income. While in various projects in Jakarta, the Government of Jakarta provides resettlement facilities and means needed to restore economic income of the displaced residents.

9-23. Other relevant laws, regulations and provisions are:

Related to IP/Customary/Adat (if any)

- a. Law No. 5/1960 concerning Basic Agrarian Affairs – acknowledges customary rights of Indigenous Peoples (IPs).
- b. Law No. 32/2004 concerning Local Government – establishes state respect of customary and traditional rights and laws, devolves authority to village or customary governance systems and empowers them to promulgate customary village rules that may affect projects e.g. levying land transaction tax.
- c. Law No 38/2004 Concerning Streets/Roads. Article 58 of Law 38/2004 says that land acquisition for road development for public use is carried out based on City/ district spatial management plan and the project must be informed to the affected people.

³² Elucidation of Article 33, Law No. 2/ 2012

³³ Article 19 (5) specifies that "After the agreement referred to in paragraph (4), Agency requiring land must apply to the government for confirmation of the location".

³⁴ See Regulation of the Number 40/2014 an amendment to Article 121 of the President of the Republic of Indonesia Regulation No. 71/2012

³⁵ Per Article 33 of the Land Law 2012 means nonphysical loss equivalent to money value, for example, loss due to loss of business or job, cost of change of location, cost of change of profession, and loss of value of the remaining property.

³⁶ Public interest is the interest of the nation, state, and society that must be realized by the government and used as much as possible for the prosperity of the people. Law No. 2/2012, General Elucidation.

Further, land right holder or state land user or customary law community whose land is needed for development are entitled for compensation that will be carried out through consensus.

- d. Constitutional Court Decree (MK) canceled the provisions of the Forestry Law No. 41/1999 on indigenous forests, which establishes that indigenous forest is state forest in the area of indigenous peoples. This Decree excluded indigenous forest within the state forest.

Related to compensation and Improvement of living standards

- a. Law no. 41/1999 on Forestry – regulates land acquisition in forests, requiring compensation land to be acquired for afforestation in a ratio of 2:1
- b. Law No.11/2005 on the Ratification of the International Covenant on Economic, Social and Cultural Rights. This Act protects people rights of economy, social, and culture including right to live descent and protection of culture. As stated in Article 11 of the Convention that the state recognizes the right of everyone to an adequate standard of living for himself and his family, including adequate food, clothing and housing, and to the continuous improvement of living conditions. The State will take appropriate steps to ensure the realization of this right, recognizing the essential importance of international cooperation based on free and prior informed consent.
- c. Law No.41/2009 on Protection of Agricultural Land for Sustainable Food – stipulates special compensation if a project impacts *sawah* (wet rice) land, which is important to food security
- d. Head of BPN Regulation No. 1/2010 – on Standard of Land Service and Regulation regulates the time frame for certification of the remaining land after compensation payment.
- e. Presidential Decree No. 34/2003 on National Policy on Land- regulates authorities of national and local governments on land. It stipulates that the authorities of local government on land include; i) undertake land acquisition for development; ii) provide compensation and allowance (*santunan*) for land acquisition.
- f. The Indonesian Government Regulation No. 38/2007 about distribution of state activities between the Central Government, Provincial Government, and district/municipality government. Government regulations set the state activities that must be conducted by the provincial government and district / municipality government related to basic services³⁷ including among others land issues.³⁸
- g. Indonesia Valuation Standards 306 (SPI 306) on the Assessment of Land Acquisition for Development for the Public Interest. The Indonesia Professional Appraisers Society (MAPPI) formulated the standards by adopting the development of international standards (IVS 2011). The Standards 306 provides guidelines on land acquisition object assessment for compensation in land acquisition for the public interest. Assessment includes the adequate replacement value of property and land. Assessment standards are also associated with other standards, such as scope of assignment, land property and structures valuation, farmland property valuation, valuation of property with particular business, business valuation, and inspection of cases under consideration.

Related to Vulnerability and Severity Assistance

- a. The Law No. 11/2009 on Social Welfare and its implementing regulation Ministry of Social Welfare Decree No. 39/2012 on Delivery of Welfare.

³⁷ Article 7 Paragraph 1.

³⁸ Compulsory activities with reference to Article 7, Section 2 includes a. education; b. health; c. the environment; d. public works; e. spatial planning; f. development planning; g. housing; h. youth and sport; i. capital investment; j. cooperatives and small and medium enterprises. demographic and civil registry; l. employment; m. food security; n. empowerment of women and protection of children; o. family planning and family welfare; p. transportation; q. communication and informatics; r. land; s. national unity and internal political; t. regional autonomy, public administration, regional financial administration, the regional equipment, personnel, and coding; u. empowering communities and villages; v. social; w. culture; x. statistics; y. archives; and z. library.

- b. Law No. 39/1999 On Human Rights (Article 5, elucidation), describes the vulnerable groups include the elderly, children, the poor, pregnant women and people with disabilities.
- c. Vulnerable / severely affected people are identified as early as possible through the Social Impact Assessment of AMDAL as referred to in the Environmental Law no. 32/2009 on Environmental Protection and Management; Indonesia Government Regulation on the Environmental Permit, Ministry of Environment Regulation No. 17/2012 with regard to participation guidance of local community in order to obtain AMDAL and Environmental Permit Issuance. Decree of the Head of Environmental Impact Management Agency No. 299/1996 on Guidelines for the Technical Assessment on Social Aspects in preparation of the Environmental Impact Analysis.

Related to Tax Incentive

- a. Income Tax Rate of Land and / or Building ownership transfer.
- b. Basic Law: Government Regulation (PP). 48/1994 jo; PP. 27/1996 jo; PP. 79/1999 jo; PP. 71/2008. On the Third Amendment of Government Regulation No. 48/1994.

7.2. ADB Safeguards Policy

9-24. The objectives of the ADB social safeguards policy are to avoid involuntary resettlement whenever possible; to minimize involuntary resettlement by exploring project and design alternatives; and to enhance, or at least restore, the livelihoods of all displaced and vulnerable persons in real terms relative to pre-project levels; and to improve the standards of living of the displaced poor and other vulnerable groups. The policy indicates four important elements in involuntary resettlement:

- (i) Avoid the need for involuntary resettlement by exploring project and design alternatives;
- (ii) If avoidance is not possible, compensate for lost assets and loss of livelihood and income of displaced / affected population so that their livelihood will be enhanced or at least equal or restored to the pre-project level;
- (iii) Assist in relocation including provision of relocation sites with appropriate facilities and services; and
- (iv) Enhance the living standards of the poor and other vulnerable affected / displaced groups.

9-25. The absence of legal title to land cannot be considered an obstacle to compensation and rehabilitation privileges per ADB Policy. All persons affected by the Project, especially the poor, landless, and semi-landless persons shall be included in the compensation, resettlement, and rehabilitation package. APs and/or AHs, whichever is deemed applicable, who are unable to demonstrate a legalizable or recognizable claim to the land being acquired will be eligible for compensation with respect to non-land assets only, and not the land itself. They will however be provided with other benefits and allowances as provided to other APs.

9-26. The following ADB-SPS principles on involuntary resettlement are put forward and will also apply to the Project:³⁹

- (i) Develop procedures in a transparent, consistent, and equitable manner, if land acquisition is through negotiated settlement in order to ensure that those people who enter into negotiated settlements will maintain the same or better income and livelihood status.
- (ii) Prepare a resettlement plan elaborating on displaced persons' entitlements, the income and livelihood restoration strategy, institutional arrangements, monitoring and reporting framework, budget, and time-bound implementation schedule.
- (iii) Disclose a draft resettlement plan, including documentation of the consultation process in a timely manner, before subproject appraisal, in an accessible place and a form and language(s) understandable to affected persons and other stakeholders.

- (iv) Disclose the final resettlement plan and its updates to affected persons and other stakeholders.
- (v) Monitor and assess resettlement outcomes, their impacts on the standards of living of displaced persons, and whether the objectives of the resettlement plan have been achieved by taking into account the baseline conditions and the results of resettlement monitoring. Disclose monitoring reports.

9-27. ADB's SPS includes Indigenous Peoples safeguards, which is triggered if a project directly or indirectly affects the dignity, human rights, livelihood systems, or culture of IPs or affects the territories or natural or cultural resources that IPs own, use, occupy, or claim as their ancestral domain. If impacts on IPs involve involuntary resettlement, SPS Safeguard Requirements 3 will likewise govern the resettlement framework. There are no IP will be impacted positively or negatively by the three identified core sub-projects and future projects, therefore IPPF (Indigenous People Framework) is not prepared, and the project is categorized as C for IP.

9-28. The ADB Policy on Gender and Development (1998) adopts gender mainstreaming as a key strategy for promoting gender equity, and for ensuring participation of women and that their needs are explicitly addressed in the decision-making process for development activities. The new safeguard policy also reiterates the importance of including gender issues in the preparation of safeguards documents at all stages to ensure that gender concerns are incorporated, including gender-specific consultation and information disclosure. This includes special attention to guarantee women's assets, property, and land-use rights and restoration/improvement of their living standards; and to ensure that women will receive project benefits.

9-29. Another policy that has bearing on resettlement planning and implementation is the Public Communications Policy (2011) that seeks to encourage the participation and understanding of people and other stakeholders affected by ADB-assisted activities. Information on ADB-funded projects should start early in the resettlement preparation phase and continue throughout all stages in order to facilitate dialogue with affected people and other stakeholders.

7.3. Comparison of Government Law and Regulations with ADB Policies⁴⁰

9-30. The Government enhanced its country system in order to address land acquisition issues for public interest development project purposes. The new Land Acquisition Law No. 2/2012 and its implementing rules and regulations approximate harmonization with the ADB SPS of 2009. The new law grants that persons with no legal title over the land they occupy or utilize are entitled to compensation⁴¹ for improvements found thereon, including compensation for job and business losses, moving cost,⁴² etc. A land acquisition plan also needs to be prepared by the agency requiring land. People affected by land acquisition are consulted and their complaints heard and resolved in the most expeditious way during the planning and implementation of land acquisition.

9-31. Most of principles in Law No. 2/2012 have been in line with ADB SPS. There are some differences identified and the gaps have been addressed by the provisions of other relevant laws, regulations, and guidance. The gaps include compensation principle for affected buildings / structures without depreciation, provision of livelihood recovery programs for severely affected people and vulnerable groups to ensure that their lives will not be worse due to the project, and relocation assistance for physically displaced residents as well as transition allowance. Some gaps identified between land acquisition law and its implementing regulation and ADB SPS 2009 Policy Principle is presented in the table below.

9-32. The table below outlines some gaps between Land Acquisition Law and Regulation with ADB SPS and Proposed Project Principles⁴³

⁴⁰ Re-adjustment from RRP INO 35182: Flood Management in Selected River Basins Sector Project

⁴¹ See Act No.2/2012 Elucidation of Article 40.

⁴² Elucidation of Article 40 of Law No. 2/2012 with the following provisions: For building rights or land use right, Compensation granted to the holder of building right or use rights on buildings, plants, or other objects related to land owned by him/her, while Compensation on land granted to the holder of the ownership or management rights.

⁴³ Adapted from RRP INO 35182: Flood Management in Selected River Basins Sector Project

Principles	Indonesian Regulations; Law No 2/2012 and Presidential Decree No. 71/2012	ADB Policy	Gaps	Project Policy
<p>Level of compensation and bases of calculation:</p> <p>Depreciation of affected structure value</p>	<p>Compensation will be provided based on valuation of independent appraiser for a parcel by parcel of land that include i) land; ii) over ground and underground spaces; iii) building; iv) plants; v) objects related to land and/or; vi) other appraisable loss such loss of business, jobs, change of profession, and moving costs.</p> <p>Yet, for affected buildings, MAPPI applies <i>solatium</i> (emotional compensation) of 10% - 30% of the total compensation for physical loss.</p>	<p>The rate of compensation will be calculated at full replacement cost that will be based on; i) fair market value; ii) transaction cost; interest accrued, iv) transitional and restoration cost; and v) other applicable payment.</p> <p>No deduction on taxes and administrative costs for affected lands, as well as depreciation in the value of the affected structure will be applied.</p>	<p>The law is silent on the issue of whether or not depreciation will be applied when calculating compensation for affected structures. While valuation standard set by Independent appraisers association (MAPPI) indicates that depreciation for physical condition of the affected building is applied in order to meet sense of justice⁴⁴. Yet, for affected buildings, MAPPI applies <i>solatium</i> (emotional compensation) of 10% - 30% of the total compensation for physical loss.</p> <p>Tax incentive is provided to: a) person who supports the project; b) does not file a complaint related to project location determination and/or compensation.</p>	<p>The principle of full replacement cost will be applied. Capital gains tax and the costs of transferring ownership, including the cost of new land certificates, will not be deducted from the compensation of those who will lose lands.</p> <p>Compensation at full replacement cost for affected structures will be determined based on the replacement cost of a new building with adjustment with physical condition⁴⁵. Depreciation deduction of the structures physical condition will be covered through the provision of emotional compensation (<i>solatium</i>). Dismantled materials become the property of the state.</p>
<p>Relocation assistance: Transitional allowance.</p>	<p>Resettlement is one of the compensation options that shall be given by the agency needing the lands via Land Acquisition Implementation Committee. The implementation of resettlement shall continue for maximum 1 (one) year since the establishment of compensation form by Land Acquisition Implementation Committee. Location of resettlement area shall be based on the deliberation with entitled parties. Moving cost is</p>	<p>If there is relocation, provide assistance for physically or economically displaced persons including i) secure tenure to land and housing with comparable access to employment and production opportunities; ii) assist to integrate and share benefits with hosts, iii) restore social amenity; iv) provide moving and transitional support e.g. land preparation,</p>	<p>Law No. 2/2012 and PD No, 71/2012 is silent about transition assistance for the physically relocating APs.</p> <p>However, Act No. 9/2009 on Transmigration and Ministry of Transmigration Decree No. 17/1997 stipulates on transmigration services including food aid during</p>	<p>Transition and moving allowance will be provided for relocating AHs and will be covered in <i>solatium</i>.</p>

Principles	Indonesian Regulations; Law No 2/2012 and Presidential Decree No. 71/2012	ADB Policy	Gaps	Project Policy
	covered under the compensation elements.	training, access to credit, civic infrastructure and community services if required.	transition period. The Indonesia appraiser standard provide solatium for the building/structure owners including physically relocated AHs.	
High Risk of Impoverishment	<p>Entitled Party means any party by whom objects of the acquired land are possessed or owned. Entitled party with high risk of impoverishment is not covered in the new Land Acquisition Law. However, the Law No. 11/2009 on Social Welfare and its implementing regulation Ministry of Social Welfare Decree No. 39/2012</p> <p>To cover or identify vulnerable / severity impacted people by the project as early as possible it can be covered in Social Impact Assessment of AMDAL as referred in Environmental Law no. 32/2009; Government of Republic of Indonesia Regulation No. 27/2012 on Environmental Permit, Ministry of Environment Regulation No. 17/2012 on guidelines for Community Involvement In Analysis Process of Environmental Impact and Environmental Permits, Head of BAPEDAL Decree No. 299/1996 on Technical Guidelines for the Social Aspects Study in preparation of the Environmental Impact Assessment.</p>	Particular attention must be given to the needs of poor APs and vulnerable AHs that face the risk of further marginalization and impoverishment.	Law No. 2/2012 and PD No.71/2012 is silent about paying special attention to poor APs and vulnerable AHs and severely AHs.	<p>Livelihood / income rehabilitation program will be provided to severely affected and vulnerable populations. Programs for vulnerable groups refer to Law No. 11/2009 and its implementing regulations. In this Law the regional government is responsible for addressing these issues. The programs that will be implemented are included in the social Action Plan for affected persons / households.</p> <p>Severely affected Residents / households and other vulnerable groups will be identified at land acquisition / resettlement planning. Livelihood improvement assistance will be provided to them through: i) social programs implemented by local government; ii) development program for community under the project components. Dirjen Bina Pembangunan Daerah Will facilitate the coordination of program implementation at the regional level.</p>
Monitoring of Project Implementation	Monitoring and evaluation of the performance of Acquisition of Land in the Public Interest shall be made by the Government.	ADB requires monitoring of resettlement plan implementation by the executing agency for	The Law No. 2/2012 and PD No, 71/2012 is silent about monitoring on resettlement impact	The Project is rated as Category B for resettlement. Nevertheless, the acquisition of

Principles	Indonesian Regulations; Law No 2/2012 and Presidential Decree No. 71/2012	ADB Policy	Gaps	Project Policy
	National Land Agency shall monitor and evaluate the occupation, ownership, use and utilization of land acquisition results for the development in public interests.	resettlement Category B projects, and by an independent external organization for resettlement Category A projects	to the entitled parties and external monitoring by independent external party	consulting services will include provision of external monitoring consulting services.

7.4. Principles of Land Acquisition and Resettlement Policy for the Project

9-33. The Policy on land acquisition and resettlement harmonizes relevant Indonesian laws and procedures with those of the ADB-Safeguards Policy Statement (SPS) 2009. The subprojects will avoid or minimize involuntary resettlement wherever possible by exploring project and design alternatives. If unavoidable, efforts to enhance or at least restore the livelihoods of all entitled parties to pre-project levels, and to improve the standards of living of the displaced poor and other vulnerable groups will be made.

9-34. Based on the above legal framework and equivalence gap analysis, the involuntary resettlement objective and policy principles are set as follows:

- (i) Screen subproject components during early stages to identify involuntary resettlement impacts and risks indicators. These impacts and risks must be minimal, so that appropriate resettlement planning should be developed precisely and accurately as a result of a social assessment.
- (ii) Carry out meaningful consultations with entitled parties particularly living in the project areas, and concerned civil organizations. Inform all entitled parties on restriction to access to natural resources as their sources of income, and ensure their participation in the project cycle.
- (iii) Improve or at least restore the livelihood of the entitled parties/APs through 1) land-based resettlement strategies or cash compensation at replacement cost for land; ii) prompt replacement of assets with access to assets of equal or higher value; iii) prompt compensation at full replacement cost for lost assets that cannot be restored; and iv) additional revenues and services through benefit sharing schemes where possible
- (iv) APs without title or any recognizable legal rights to land are eligible for resettlement assistance and compensation for non-land assets at replacement cost.
- (v) Entitled parties shall be involved in resettlement planning and resettlement plan should cover all appropriate mitigation measures to improve, or at least restore, the livelihoods of all entitled parties, so that the living standard of entitled parties do not become worse compared to pre-project levels. Resettlement plan should elaborate on their entitlements, strategy for income and livelihood restoration, including institutional arrangements, monitoring and evaluation, budgeting, and time-bound implementation schedule. Provide entitled parties with appropriate assistance considering options provided by the entitlement matrix.
- (vi) Particular attention will be paid to women, women-headed households, the elderly and other vulnerable persons including indigenous communities.
- (vii) Disclose a draft resettlement plan and its updates to the entitled parties and other stakeholders in a timely manner, in an accessible place and a form and understandable language.
- (viii) A well-defined, culturally acceptable and gender sensitive grievance redress mechanism will be established in order to ensure that all entitled parties grievances and complaints on any aspect of land acquisition and compensation are addressed in a timely and satisfactory manner, and that all possible avenues are available to entitled parties to air their grievances. Civil works and/or restrictions to use of

land/coastal resources will not commence unless entitled parties are fully compensated and all other entitlements provided.

- (ix) Any voluntary “donation” and negotiated settlement will follow procedure in a transparent, consistency, and equitable manner principles as set forth in the resettlement framework and be confirmed through written record.
- (x) Monitor and assess land acquisition/resettlement activities and outputs, outcomes, their impacts on the standards of living of entitled parties, and whether the objectives of the resettlement plan have been achieved. Disclose the monitoring reports.
- (xi) Should unanticipated involuntary resettlement impacts be determined during project implementation, the project will ensure the conduct of a social impact assessment and update the resettlement plan or formulate a new resettlement plan covering all applicable requirements specified in the resettlement framework.

A9-8. Entitlements, Assistance and Benefits

9-8. The most important thing in land acquisition is to explain the entitlement of the party entitled to obtain compensation and assistance with reference to the Law of the Republic of Indonesia No. 2/2012 and its implementing regulations. It includes assistance to vulnerable groups and parties seriously affected by land acquisition, as well as the opportunity of affected and affected parties to benefit from development.

9-9. All the eligible parties are presented in the table below. This table contains the scope of the overall impact and entitlements that may arise in the land acquisition process. The application of the livelihood is adjusted to the coverage of impacts in land acquisition.

Table 117: Entitlement Matrix⁴⁶

No	Category of Impact / Loss	Eligible Party	The Project Policy	Basic Legal Implementation	Agency Responsible / Source of Funds	Note
A. LOSS OF LAND						
1	Land losses, including agricultural land and housing	Those who own title certificates or those whose land ownership is recognized as a full right, including those who occupy state land with good faith. ⁴⁷	<ul style="list-style-type: none"> Cash compensation equals fair and fair replacement value; or Replacement of land with attributes that are at least similar to those obtained in terms of value, productivity, location, and certification; or Share ownership in the case of: (i) an agency requiring land is a State-owned Enterprise in the form of an open company and assigned a special assignment from the government; (ii) the entitled party is a company whose capital is of stock and releases shares to investors through the capital market (Tbk). 	<ul style="list-style-type: none"> Law of the Republic of Indonesia No. 2/2012, Article 36 Presidential Regulation of the Republic of Indonesia no. 71/2012, Sections 65 and 81 Indonesian Assessment Standards 306 (SPI 306) / 2015 Law of the Republic of 	<ul style="list-style-type: none"> Agency needing the land to allocate compensation for land The Land Acquisition Team submits compensation An independent appraiser conducts asset valuation. 	<ul style="list-style-type: none"> Appraisal of compensation is determined based on assessment by independent appraisers and deliberations at the time of land acquisition. Eligible parties are given prior notice six months before they have to dismantle the entire house or shop. If the entitled parties are individuals, if they want compensation in the form of share ownership, they can use cash compensation received to buy shares.

⁴⁶ Re-adjustment from RRP INO 35182: Flood Management in Selected River Basins Sector Project

No	Category of Impact / Loss	Eligible Party	The Project Policy	Basic Legal Implementation	Agency Responsible / Source of Funds	Note
			<ul style="list-style-type: none"> Administrative costs, taxes and renewal of land ownership documents (certificates and land of documents recognized as full ownership rights) for remaining land borne by the land-holding agency. If the remaining land cannot be used for certain uses and utilization, the rightful party may request compensation for all their land. 	Indonesia No. 2/2012, Article 35		
			Tax incentives are granted to all eligible parties if they do not file a lawsuit against the location decision and the form and / or amount of the indemnity.	<ul style="list-style-type: none"> Law of the Republic of Indonesia No. 2/2012, Article 44 Presidential Regulation of the Republic of Indonesia no. 71/2012, Article 122 	Provide tax incentives (BPHTB) to agencies requiring land	<i>Parties entitled to bear the tax expense payable in the current year if they file a lawsuit. However, if there is an agreement / disposal of land, then they are entitled to tax incentives.⁴⁸</i>
2	Losing land	Individual land owner or land owned by an agency	<p>I. Substitute land to continue livelihoods and incomes (especially for eligible parties based on arable land as a source of income and livelihood); or</p> <p>II. Cash compensation for crops or other assets on the land:</p> <ul style="list-style-type: none"> Secondary structures (farm huts / fences or other): compensation equivalent to full replacement cost reflecting applicable material market prices; and the 	<ul style="list-style-type: none"> Presidential Regulation of the Republic of Indonesia No. 71/2012, Article 23 s.d 26 Regulation of the President of the Republic of Indonesia No.56 / 2017 Presidential Regulation of the 	<ul style="list-style-type: none"> Agency needing the land allocate compensation The Land Acquisition Executing Team submits compensation An Independent Appraiser undertakes an asset valuation. 	<ul style="list-style-type: none"> Assessment is determined by an independent appraiser First notification 30 - 60 days before harvest / discharge of land.

No	Category of Impact / Loss	Eligible Party	The Project Policy	Basic Legal Implementation	Agency Responsible / Source of Funds	Note
			cost of dismantling, transfer and rebuilding at the time of payment without any depreciation <ul style="list-style-type: none"> • Annual food crops: cash compensation will be provided based on market value. • Chronic food crops: compensation equivalent to replacement costs taking into account productivity and age. Wood, Tree: compensation worth of prevailing market price based on age, tree type and stem diameter at chest height. III. For arable land in protected forest area / production forest refers to Presidential Regulation of Republic of Indonesia no. 88/2017	Republic of Indonesia No. 88/2017		
B. LOSS OF FOODS AND TREE PLANTS						
1.	Loss of crops and trees:	Owners, regardless of ownership status (with certificates or recognized rights or squatters)	<ul style="list-style-type: none"> • Annual food crops: cash compensation will be provided based on market value. • Chronic food crops: compensation equivalent to replacement costs taking into account productivity and age. • Wood, tree: compensation worth the prevailing market price based on age, tree type and stem diameter at chest height. 	<ul style="list-style-type: none"> • Law of the Republic of Indonesia no. 2/2012, Article 33 • Presidential Regulation of the Republic of Indonesia No. 71/2012, Article 65 • Head of BPN Regulation no. 5/2012 Articles 23 and 24 • Government Regulation of the Republic of 	<ul style="list-style-type: none"> • Agency needing the land allocate compensation • The Land Acquisition Executing Team submits compensation • An independent appraiser conducts asset valuation. 	<ul style="list-style-type: none"> • Commercial food crops: refers to the income approach using DCF for one cycle • Crops: refers to a market approach, using price references issued by the local government. • Unproductive plants: refers to the price approach • First notification 30 - 60 days before harvest / discharge of land.

No	Category of Impact / Loss	Eligible Party	The Project Policy	Basic Legal Implementation	Agency Responsible / Source of Funds	Note
				Indonesia No. 38/2007 • Indonesian Assessment Standards 306/2015		
C. LOSS OF STRUCTURES						
1	Loss of major buildings (houses, offices, shops) and secondary structures (fences, driveways, warehouses, rooftops)	Owners of structures without distinction of ownership status.	<ul style="list-style-type: none"> • Compensation equivalent to full replacement cost reflecting the applicable material market price, and the cost of dismantling, relocation and redevelopment at the time of payment. • There is no depreciation, or • Resettlement options with equal access to employment and production. • For partially affected structures, the cost of remediation of residual structures unaffected in addition to compensation is equivalent to replacement cost. for affected parts of the same structure. • Compensation for electricity, telephone and other services based on the cost of termination and reassembling. 	<ul style="list-style-type: none"> • Law of the Republic of Indonesia no. 2/2012, Article 33 • Elucidation of Law of the Republic of Indonesia No. 2/2012 Articles 35 and 40 • Presidential Regulation of the Republic of Indonesia No. 71/2012, Article 65 • Head of BPN Regulation no. 5/2012, Articles 23 and 24 • Government Regulation of the Republic of Indonesia No. 38/2007 • Indonesian Assessment 	<ul style="list-style-type: none"> • Agency needing the land allocate compensation • The Land Acquisition Team handed over compensation • An independent appraiser conducts asset valuation. 	<ul style="list-style-type: none"> • Assessment is determined by an independent appraiser • If there is depreciation, this applies only to the physical condition of the building / building only. There is no depreciation for the age of the building. • The depreciation deductions for the affected structures shall be re-awarded to the entitled party in the form of premiums on nonphysical losses. Premium referred to hereinafter may be referred to premium of nonphysical loss for depreciation expense whose amount is amount of depreciation expense. • Prior notices are granted to parties eligible six months prior to the date on which they must destroy affected homes or shops. • If more than 50% of the main structure is affected, the entire

No	Category of Impact / Loss	Eligible Party	The Project Policy	Basic Legal Implementation	Agency Responsible / Source of Funds	Note
				Standards 306/2015		<p>structure will be replaced at full replacement cost.</p> <ul style="list-style-type: none"> • If less than 50% of the main structure is exposed, but will compromise the stability of the remaining main structures, ie, structurally unstable, then the project will provide compensation equivalent to full replacement cost. • If resettlement / relocation is selected then the resettlement site should be discussed with the rightful party, including the provision of services and public facilities and access to work and production. • If there is a delay in the construction of a residential location, cash assistance is equivalent to the temporary rental price of the house until the completion of the settlement in a new place. • Notice in advance 3 months before the date on which the affected tenants must move.
		Moving the rightful party regardless of ownership of the land	<ul style="list-style-type: none"> • Cash allowance for moving costs if the project cannot provide the use of trucks or means of transport to bring the goods to a new location. • Transitional life support refers to the life insurance system for transmigration. Food aid or life 	<ul style="list-style-type: none"> • Elucidation of Article 33 f of the Law of the Republic of Indonesia No. 2/2012, 	<ul style="list-style-type: none"> • Agency needing the land allocate compensation • The Land Acquisition Executing Team submits compensation 	<ul style="list-style-type: none"> • First notification 3 months - 1 year before the date on which the affected tenants must move • This requirement shall be incorporated into the TOR for the valuation of the object /

No	Category of Impact / Loss	Eligible Party	The Project Policy	Basic Legal Implementation	Agency Responsible / Source of Funds	Note
			insurance in the form of rice and non-rice assistance. The amount of rice aid is: head of household (husband) of 17.5 kg; wife of 10 kg; and children as much as 7.5 kg. While non-rice aid is provided in the form of packets per KK, in the form of: salted fish (5 kg); sugar 93 kg; cooking oil (3 kg); kerosene (8 liters); laundry soap (1 kg); iodine salt (2 kg) green beans (3 kg); soy sauce (3 bottles). Food aid is intended to enable eligible parties to be relocated to productive activities.	<ul style="list-style-type: none"> • Head of BPN Regulation 5/2012, Articles 30 and 31 • Standard Assessment Indonesia 306/2015 • Law of the Republic of Indonesia no. 11/2009 on Social Welfare 	<ul style="list-style-type: none"> • An independent appraiser conducts asset valuation. • Local governments make social programs (land discharge) 	land loss obtained in determining the compensation value.
		Renters of houses / stores regardless of ownership	Cash assistance is equivalent to 12 months rental fee.	<ul style="list-style-type: none"> • Elucidation of Article 33 f of the Law of the Republic of Indonesia No. 2/2012, • Head of BPN Regulation 5/2012, Articles 30 and 31 • Indonesian Assessment Standards 306/2015 • Law of the Republic of Indonesia no. 11/2009 on Social Welfare 	<ul style="list-style-type: none"> • Agency needing the land allocate budgets for compensation • The Land Acquisition Team provides compensation • An independent appraiser conducts asset valuation. Local governments make social programs (land discharge) 	Notice in advance three months before the date on which the affected tenant must move.

No	Category of Impact / Loss	Eligible Party	The Project Policy	Basic Legal Implementation	Agency Responsible / Source of Funds	Note
2	General facilities and infrastructure / objects attached to the soil	Property and assets of the Government or SOE / public property (eg schools, mosques, power poles of village offices, etc.)	Rebuilding facilities or providing cash compensation in value for reimbursement based on agreement with affected parties.	<ul style="list-style-type: none"> • Law of the Republic of Indonesia no. 2/2012, Article 33 • Presidential Regulation of the Republic of Indonesia No. 71/2012, Article 82 	<ul style="list-style-type: none"> • Agency needing the land allocate budgets for compensation • The Land Acquisition Team provides compensation • An Independent Appraiser undertakes an asset valuation. • Local governments allocate budgets or rebuild facilities. 	Assessment of affected assets will be undertaken by an independent appraiser.
3	Temporary impact during construction	For those who have a certificate of property rights or those who make claims on land that is recognized as full rights	<ul style="list-style-type: none"> • For land rent payments impacted by the contractor on the basis of the applicable rental fee and agreement with the landowner. • For productive land, the rental cost will not be less than the net profit to be generated from the affected productive land • Compensation for exempt non-cash assets (trees / plants, buildings) will be provided equivalent to replacement cost • The soil will be returned to its original state or even better. 	Contract documents / agreements with civil works contractors	Contractor	<ul style="list-style-type: none"> • The advance notice is given to the land owner 30-60 days before the land is used temporarily by the contractor. • This provision is expressed in contracts / agreements with civil works contractors • Temporary impacts during construction include activities in the borrow pit area.
4		Those who have no legal rights and rights can be recognized as full ownership	There is no land rent charge during the impact period, the land will be returned as it was before the project, or even better.	Documents / agreements with civil contractors	Contractor	

No	Category of Impact / Loss	Eligible Party	The Project Policy	Basic Legal Implementation	Agency Responsible / Source of Funds	Note
D. ANY OTHER LOSS OF DAMAGES						
1.	Loss of income, effort and employment	Business owners and employees regardless of term of office	The loss of a permanent business (restaurant, barber) or the closure of a business premises obtains compensation in cash based on a loss of business investment (capital, other mode of production), is added to the total loss of income, and provides the transitional allowance as needed to stabilize the business.	<ul style="list-style-type: none"> • Elucidation of Article 33 f of the Law of the Republic of Indonesia No. 2/2012 • Presidential Regulation No. RI. 71/2012, Article 33 f • RI Government Regulation no. 38/2007 • Indonesian Assessment Standards 306/2013, 	<ul style="list-style-type: none"> • Agency needing the land allocate budgets for compensation • The Land Acquisition Team provides compensation • An independent appraiser conducts asset valuation. • Local governments create social programs 	<ul style="list-style-type: none"> • For permanent losses, SPI 306 assesses all business losses including business interruptions. • Waiting costs are required, so that business operations affected by the operation can continue
			Temporary Loss: Cash compensation for expected loss of income will be derived from the use of the affected asset. ⁴⁹	<ul style="list-style-type: none"> • Elucidation of Article 33 f Law RI. 2/2012 • Presidential Regulation No. RI. 71/2012, Article 33 f • RI Government Regulation no. 38/2007 • Indonesia Assessment 	<ul style="list-style-type: none"> • Agency needing the land allocates budget for compensation • The Land Acquisition Team allocates the compensation budget • An independent appraiser performs assets. 	For clearing land compensation can be closed from social programs.

⁴⁹ See SPI 306/2013, "General Concepts and Principles of Assessment", p. 17.

No	Category of Impact / Loss	Eligible Party	The Project Policy	Basic Legal Implementation	Agency Responsible / Source of Funds	Note
				Standards 306/2013,	<ul style="list-style-type: none"> Local governments create social programs 	
			<ul style="list-style-type: none"> Loss of permanent employment of cash compensation equivalent to the value of lost employment income multiplied - at least - six months, or Change of profession: cash compensation is based on the costs required to change professions equivalent to the previous profession based on the assessment results by licensed appraisers 	<ul style="list-style-type: none"> Elucidation of Article 33 f Law RI. 2/2012 Presidential Regulation No. RI. 71/2012, Article 33 f RI Government Regulation no. 38/2007 Indonesia Assessment Standards 306/2013, 	<ul style="list-style-type: none"> Agency needing the land allocates budget for compensation The Land Acquisition Team allocates the compensation budget An independent appraiser performs assets. Local governments create social programs 	<ul style="list-style-type: none"> Proof of payment, or if there is no proof of payment, the minimum wage will be used for the calculation of restitution. For land clearing, compensation may be closed from social programs.
			Loss of temporary employees: compensation is equivalent to loss of income during interruption.	<ul style="list-style-type: none"> Elucidation of Article 33 f Law RI. 2/2012 RI Government Regulation no. 38/2007 Indonesia Assessment Standards 306/2013, 	<ul style="list-style-type: none"> Agency needing the land allocates budget for compensation The Land Acquisition Team allocates the compensation budget An independent appraiser performs assets. Local governments create social programs 	<ul style="list-style-type: none"> Proof of payment, or if there is no proof of payment, the minimum wage will be used for the calculation of restitution. For land clearing, compensation may be closed from social programs.

No	Category of Impact / Loss	Eligible Party	The Project Policy	Basic Legal Implementation	Agency Responsible / Source of Funds	Note
2	Transaction fees	<i>Eligible parties who lost land and non-cash assets</i>	Allowances for administrative costs, renewal of ownership certificates (behind names) for residual land and land discharges.	<ul style="list-style-type: none"> Presidential Regulation of the Republic of Indonesia No. 71/2012, Article 112 Indonesia assessment standard 306/2013 	<ul style="list-style-type: none"> Agency needing the land allocate budgets for compensation The Land Acquisition Team provides compensation An independent appraiser conducts asset valuation. 	Calculations are based on IOL and SES
3	Compensation for the waiting period (interest)	<i>The party entitled to receive compensation for the late payment</i>	Cash compensation based on risk-free interest, government bank interest	Indonesia assessment standard 306/2013	<ul style="list-style-type: none"> Agency needing the land allocate budgets for compensation The Land Acquisition Team provides compensation An independent appraiser conducts asset valuation. 	
4	Loss of residual soil	Those who have ownership certificates or those who claim land and are recognized as legitimate owners including those who occupy state land with good intentions.	If any residual land can not be used for a particular purpose, the entitled party is entitled to receive compensation for the entire land equivalent to replacement cost.	<ul style="list-style-type: none"> Law of the Republic of Indonesia no. 2/2012, Article 35 Presidential Regulation of the Republic of Indonesia No. 71/2012, Article 67 	<ul style="list-style-type: none"> Agency needing the land allocate budgets for compensation The Land Acquisition Team provides compensation An independent appraiser conducts asset valuation. 	

No	Category of Impact / Loss	Eligible Party	The Project Policy	Basic Legal Implementation	Agency Responsible / Source of Funds	Note
5	Another material loss	The owner, regardless of ownership	Compensation for repair costs of damaged material	<ul style="list-style-type: none"> Indonesia Assessment Standards 306/2013 Elucidation of Article 33 f of the Law of the Republic of Indonesia No. 2/2012 Indonesian Assessment Standards 305/2013, 	<ul style="list-style-type: none"> Agency needing the land allocate budgets for compensation The Land Acquisition Team provides compensation An independent appraiser conducts asset valuation. 	
6	High risk of impoverishment	<i>Eligible parties who lose 10% or more of total assets or sources of productive income; the right, the poor and the vulnerable, regardless of the severity of the impact</i>	<ul style="list-style-type: none"> Participate in income and livelihood restoration programs Given the opportunity to get project-related work 	<ul style="list-style-type: none"> Law of the Republic of Indonesia no. 2/2012, Article 33 Elucidation of Article 2b of the Law of the Republic of Indonesia No. 2 of 2012, Article 2b Law of the Republic of Indonesia no. 11/2009 on Social Welfare Government Regulation of the Republic of Indonesia No. 38/2007 	<ul style="list-style-type: none"> Local governments undertake social programs Implementing agency / unit of project implementer integrated in program nonstructural component. The contractor does the related project work 	<ul style="list-style-type: none"> Livelihood and livelihood recovery programs include agricultural assistance, training provision, work placements, additional financial grants and microcredit for equipment and buildings, and support / logistics organizations to build income-generating alternatives for affected communities. Livelihoods recovery programs will be integrated with local government social programs where projects are located.

8.1. Special Assistance to Vulnerable Sector

9-10. The vulnerable sector is a distinct group of people who might suffer more or face the risk of being further marginalized due to the project. Per Law No. 39/1999 on Human Rights (Art 5 elucidation), it specifically includes (i) households headed by women; (ii) household heads with disabilities; (iii) households falling under the regional poverty line; and (iv) elderly household heads. The handling of the vulnerable sector must also refer to Law Number 11 of 2009 concerning Social Welfare.

8.2. Strategy to address gender issues

9-11. The following specific actions are imperative to ensure women's participation:

- (i) In conducting consultations on resettlement activities and relocation options, both women and men will participate in the discussions.
- (ii) Gender issues, including HIV/AIDS and human trafficking prevention measures, will be included in the training to be provided during resettlement plan implementation.
- (iii) Both husband and wife will be invited to receive the compensation and other allowances due to the household for affected assets.
- (iv) Women will be given equal chance in getting hired for unskilled labor and to receive equal remuneration for the same work as the men.
- (v) Ensure that women will be prioritized for livelihood restoration program/income restoration.
- (vi) Special measures will be taken in helping elderly, disabled and women-headed households relocate or reconstruct their affected shops and houses.
- (vii) Women will be prioritized in livelihood restoration program/income restoration.
- (viii) Disaggregated monitoring indicators by gender will be developed for monitoring social benefits, economic opportunities, livelihood, and resettlement activities.

8.3. Strategy to assist other vulnerable and severely households

9-12. As discussed in preceding sections, on top of compensation and allowances that vulnerable AHs will receive for their losses as provided in the entitlement matrix, vulnerable AHs are entitled to participate in the income restoration that will be designed with their active participation and priority for employment in project-related jobs during the civil works.

A9-9. Relocation of Housing and Settlements

9-13. The WWTP sites in Mataram and Bekasi require relocation of households, while the sites in Banda Aceh have no inhabitants.

9-14. Resettlement as a form of compensation, and explanation of resettlement options / options. Resettlement process options are as follows:

- (i) Relocate in the same place as the affected site. This option may be possible if the party to be relocated is low, the population density on the project site is low, and the project requires only a relatively small amount of land. This relocation does not result in socioeconomic changes as they move in the same environment.
- (ii) Self-relocation is where the parties are eligible to choose their own place of relocation, either individually or in groups. This option is usually taken because of economic considerations (location of livelihood), availability of relocation sites or social factors / proximity to the family. Social support and livelihood recovery from agencies requiring land or government is relatively unnecessary.

- (iii) Relocation to resettlement sites provided by the project in consultation with eligible entities and host communities where relocation is undertaken. This relocation option requires more income and livelihood recovery assistance.

9-15. Some things to consider in choosing relocation sites:

- (i) the same environmental, social, cultural and economic characteristics of the original location;
- (ii) land quality, carrying capacity of relocation sites, shared resources, public facilities, and population composition (eg caste, ethnicity, gender, ethnic minorities);
- (iii) access to educational, health and economic facilities (markets) and work sites;\
- (iv) opportunities for income-generating activities;
- (v) gender considerations, easy access to clean water, easy access to basic social services, convenient design for women.

A9-10. Income Restoration and Rehabilitation

9-16. Income Restoration and Rehabilitation of this resettlement plan will be conducted by the local government level, locally referred to as the Social Action Plan or Livelihood Restoration Program (LRP). The LRP is a program to reduce social risk in the implementation of the Project in order to ensure that the implementation of the program can be undertaken appropriately. The LRP contains livelihood recovery program which is based on socio-economic survey (SES).

9-17. This LRP will be implemented in the form of various programs, i.e. economic empowerment, institutional capacity building of farmers groups, education and entrepreneurship training, business assistance during the transition period, community institutional capacity building, improvement of education quality, improvement of sanitation facility and environment, Hygienic and Healthy Life Behavior (PHBS) improvement program.

9-18. Budget for Livelihood Restoration Program. Several budget funding options for the implementation of income and livelihood recovery programs:

- a) the budget for program implementation may come from an agency that needs its own land;
- b) the program is integrated with the economic empowerment program implemented by the local government;
- c) the program is integrated with the Corporate Social Responsibility (CSR) program around the project site;
- d) the program is integrated with the NGO program that is being implemented at the project site (if any).

9-19. Integration of income recovery programs with other agencies will further ensure the sustainability of program implementation. Livelihood and livelihood recovery programs may require years of support and service before the affected parties are deemed to have returned to life. Short-term programs are funded by agencies that need land, while long-term programs are integrated with other agencies

9-20. Typical Income and Livelihood Recovery Program:

- a) Land-based livelihood recovery program. This program replaces lost land with new land with the same or better productivity potential elsewhere. This option is more suitable in rural areas.
- b) Employment-based livelihood recovery program. Provide an opportunity for eligible parties to work on the project, at the construction site or at their office, but the work is temporary only during construction activities. For that program needs to be combined with skills training program.
- c) Business-based livelihood recovery programs. This program can be applied to eligible parties who already have a well-established business or stimulate the emergence of new economic ventures. Program design should include: (i) training to improve existing skills and to learn new skills, including skills for business management; (ii) technical assistance; (iii) access to credit; and (iv) assistance in marketing.

9-21. Indicators of the Revenue and Livelihoods Recovery Program

9-22. To determine when the implementation of the program is deemed completed can be by using the time indicator or if one or more of the following conditions have been met:

- a) a monitoring survey shows improvement or recovery of the income of the entitled party;
- b) productive assets have been replaced in the form of goods, on more or less similar social, economic and environmental conditions;
- c) after compensation and assistance for initial capital has been granted in accordance with the results of the independent appraiser, the party entitled to accept responsibility and risk inherent in entrepreneurship;
- d) the replacement of work is considered economically feasible and there is a guarantee that work will be provided in no less than 3 (three) years;
- e) there is economic independence, which has a source of family income.

9-23. Monitoring of income and livelihood restoration programs focuses on income levels and socioeconomic indicators, including the responses of displaced populations to new economic opportunities, the number of displaced residents who participate in the program, the success of each type of program and the problems at hand. Intensive monitoring is needed especially in the early stages of program implementation to evaluate whether the program is working properly.

9-24. Here are some key indicators in revenue recovery program monitoring:

- a) activities beneficial to each member of the household, including information on income and expenses or savings associated with each activity (such as transportation costs and liability costs associated with new job sites and capital grants);
- b) the type of problem encountered;
- c) the need for additional assistance (and type);
- d) individual satisfaction with current economic activity;
- e) home furnishings (sales may indicate impoverishment, while purchases indicate purchasing power);
- f) agricultural and veterinary equipment (sales may indicate impoverishment).

A9-11. Resettlement Budget and Financing Plan

9-25. The land acquisition budget includes compensation for land, buildings, crops and business, as well as solatium and livelihood restoration programs (if any). It should also be budgeted for resettlement plan administration and internal monitoring, if there are resettlement activities.

11.1. Institutional Arrangements

9-26. The land required for this WWTP has an average of ± 5 ha, therefore the land acquisition can be proceeded by direct payment between the land-owners and city government. The institutions arrangements of land acquisition process include: City Administration, National Land Agency in city level, Sub-district Head, Village Head and Independent Appraisal (*KJPP=Konsultan Jasa Penilai Publik*). The institutional arrangements for land acquisition process with direct payment will be confirmed after consultation with the local governments.

11.2. Implementation Schedule

9-27. The land to be acquired for SSDP is generally less than 5 ha, so that according to Law No. 12 of 2012 on Land Acquisition for Public Interest can be done by direct purchase with reference to the compliance of RTRW, RPJMD and the price must be reference to independent appraisal. The estimation of the land acquisition process for this project with direct purchases can be presented in table form.

11.3. Monitoring and Reporting

Internal monitoring and supervision

9-28. Land acquisition impact of this project is category B, not significant land acquisition and resettlement impacts: a Resettlement Action Plan (RP) is required. Not significant mean less than 200 people (approximately 35 households) will experience major impacts that are defined as (i) being physically displaced from housing and/or shops or (ii) losing 10% or more of productive land or other income-generating assets. The category B project enough by internal monitoring by the internal project team.

9-29. Internal monitoring and supervision will be done by local government will look into the following aspects and indicators:

- (i) Delivery of entitlement (Payment of compensation including entitlements disbursed, compared with number and category of losses set out in the entitlement matrix; Timely disbursements of the agreed transport costs, relocation costs, income substitution support, and any resettlement allowances, according to schedule; Provision of replacement land plots; Quality of new plots and issue of land titles; Restoration of social infrastructure and services.
- (ii) Public consultation and awareness of compensation policy. Consultations organized as scheduled including general meetings, focus group discussion, etc; Knowledge of entitlements of APs; Translation of information disclosure in the local languages Use of the grievance redress mechanism by AP including Information on the resolution of the grievances and number of complaints received.
- (iii) Throughout the implementation process, the trends of living standards will be observed and surveyed. Any potential problems in the restoration of living standards will be reported.
- (iv) Monitoring indicators will be selected to address the specific contents of the activities and entitlements matrix

9-30. Commencement of activities depends on final decisions about land acquisition required in each city. The Component 1 consultant team is coordinating with the local governments to determine the locations of WWTPs and pumping stations for land acquisition. Whilst they expect commitments by the respective LGs to be confirmed by January 2018, we will examine related legal issues and/or potential stumbling stones for each prospective site, before commencing the preparation of LARPs.

9-31. The main output of the Social Due Diligence activities of our approach outlined in above sections will be a Summary Poverty Reduction and Social Strategy (SPRSS) Report as specified in the Handbook on Poverty and Social Analysis (2012).

APPENDIX 10: PROCUREMENT RISK ASSESSMENT

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A10-1. Executive Summary

10-1. The Project Procurement Risk Assessment Report for Sewerage System Development Program (SSDP) has been prepared in accordance with the ADB's Guidelines for Project Procurement Risk Assessment and Project Classification (August 2015). It is based on information from document review, experience shared by Indonesia Resident Mission of ADB, interviews with key stakeholders and the application of procurement capacity questionnaire included in ADB's Guidelines.

10-2. The main weakness related to procurement include (i) inadequate capacity of the Implementing Agency (IA) and Implementing Units (IU) with ADB financed projects in urban sector; (ii) some gaps between national procurement laws and ADB's procurement procedures and regulations.

10-3. The project is assessed as Category B, with provision of prior approval of all the bid documents including bid evaluation reports, by OSFMD or IRM of ADB. The proposed mitigation measures include an intensive training by the Capacity Development Consultant for procurement, to be recruited prior to initiation of procurement activities. It is proposed to conduct an orientation seminar for the project cadres in the Ministry at the start the training program, to make the cadres familiar with ADB procurement procedures and regulations. It is also proposed to recruit a Procurement Agent to provide technical support to the professional cadres in IUs including hand-on training for all the project procurement activities to ensure fairness, transparency including economy and efficiency.

A10-2. Introduction

10-4. The scope of services for project preparation of Sewerage System Development Program (SSDP) in 3 cities, (Banda Aceh, Mataram, and Bekasi) include project procurement risk assessment and project risk classification during project preparatory stage. The risk assessment is primarily intended to make recommendations to overcome any weakness or constraints.

10-5. Specifically the assessment process seeks to (i) evaluate the adequacy of EA/IAs existing procurement process and their ability to comply with ADB's latest Procurement Guidelines, (ii) identify the need for capacity building and training for the EA/IAs during project implementation stage to develop staff's competence in areas relating procurement, and (iii) define the appropriate level of review, either prior or post by ADB.

10-6. The procurement risk assessment is carried out in accordance with ADB Guidelines for Project Risk Assignment and Project Procurement Classification, dated August 2015. This assessment report contains 3 components;

- a. The assessment of the general procurement environment;
- b. Questionnaire completed by the Directorate of Environment and Sanitation (PPLP) the Implementing Agency (IA) and Implementing Units (IUs), SATKER Strategik and SATKER at provincial level;
- c. Procurement risk assessment report and recommendations to mitigate the risks.

10-7. The scope of works for SSDP includes inter alia procurement of civil work, goods and services and implementation of sewerage network including wastewater treatment plants for 3 cities, viz. Banda Aceh, Mataram and Bekasi. Out of 3 cities, the works for Mataram city will be carried out in 3 stages, and for other 2 cities, all the works will be carried out in a single stage. The civil works component broadly comprises the following:

❖ **City-1 (Banda Aceh)- Estimated Cost: US\$ 82.65m**

- **Waste Water Treatment Plant: Total 2 No's; 1 –Capacity 8 MLD**

- Pumping Stations: 5 nos
- Sewer Network: main trunk- 8.5km, secondary and tertiary-110km

❖ **City-2 (Mataram)**

- Stage-1 (completed by 2022) –Estimated Cost: US\$ 70.0m
 - Waste Water Treatment Plant- 8 MLD
 - Pumping Stations-2no's
 - Sewer Network: main trunk-8.4 km, secondary and tertiary-92.4 km
- Stage-2 (Completed by 2025) –Estimated Cost: US\$ 50.0m
 - Waste Water Treatment Plant- plus 8 MLD
 - Pumping Stations-2no's
 - Sewer Network: main trunk-5.2 km, secondary and tertiary-86.6 km
- Stage-3 (Completed by 2027) –Estimated Cost: US\$ 51.0m
 - Waste Water Treatment Plant- plus 8 MLD
 - Pumping Stations-2no's
 - Sewer Network: main trunk-5.8 km, secondary and tertiary-96.6 km

❖ **City-3 (Bekasi)** Estimated Cost: US\$ 56.8m

- Stage-1 (completed by 2022) –Estimated Cost: US\$ 70.0m
 - Waste Water Treatment Plant- 3 no's each of capacity around 1.5 MLD
 - Sewer Network: 12 km

The works for wastewater treatment plants will be procured on Design-Build contract.

- 10-8. The risk assessment was carried out in the April- May, 2018 based on;
- a. assessment of the general public procurement environment in Indonesia
 - b. experience shared by Indonesia Resident Mission (IRM) of ADB for on-going projects and the Risk Assessment Report dated August 2016 for works carried out by MPWH in three sectors: roads, irrigation and urban infrastructure.
 - c. questionnaire completed by the Implementing Units, both at central and provincial levels;
- 10-9. Discussions were also held with the; (i) Project Management Consultant (PMC) for ESP projects (Urban Sector); (ii) the experts of the national consulting firm, engaged in the previous urban development projects in Indonesia funded by international donor agencies.
- 10-10. In addition, supplementary information was collected during interactive sessions held with the stakeholders.

A10-3. Country and Sector Agency Procurement System Overview

10-11. Procurement reform in Indonesia was initiated as early as in 1999. The reform was aimed to improving the integrity and accountability of the procurement system. The public procurement system has undergone changes with decentralization of authority and accountability in 2004. Provincial governments have now been given more power to manage their own budgets for public spending.

10-12. World Bank, in collaboration with the other donor agencies, including ADB, carried out the first country procurement assessment review (CPAR) on Indonesia in 2001. The findings of CPAR provided the key input and also an impetus in expediting procurement reforms in Indonesia and since then discernible changes in reforms have been made over a period of time to ensure efficiency and transparency. Presidential Decree Perpres No, 54 in 2010-2018 governed the

procurement system in Indonesia till January 2018. The new Perpres No.16 -2018 issued in March 2018, now supersedes the Perpres No.54.

10-13. World Bank in their CPAR in 2001 also identified that the “Procurement” is not a profession in Indonesia, though a large number of technical cadres were engaged in procurement and project administration. Based on this finding, the Government established a National Procurement Agency (LKPP) in the year 2007, which conducts capacity building process and professionalise the cadres in the field of procurement. Currently the professionals accredited with certification from National Procurement Agency are only eligible to work as procurement cadre in the public sector.

10-14. Directorate General of Human Settlement (DGHS), will be the executing agency (EA), and responsible to overview the procurement and implementation of works. The office of the Director of Environment and Sanitation (PPLP) will act as the Implementing Agency (IA) and will be responsible for project preparation and implementation of the project. SATKER Strategik (PLP) will be the Implementation Unit (IU) at national level, and will be directly responsible for recruitment of consultants; one (1) Capacity Development Consultant ; one Procurement Agent; and one project implementation support consultant (PISC) for all the three project cities. The PLP will report to SATKER Pusat (Waste Water).

10-15. The Detailed Engineering Design (DED) consultants appointed for Engineering Services Project (ESP) will be responsible to prepare the bid documents for works and goods, suitable for ADB funded projects. The RFP and TOR for recruitment of consulting services, in accordance with ADB guidelines will be prepared by SATKER Strategik with support of DED Consultant. Their performance will be monitored by the ULP with support from POKJA.

10-16. SATKER at provincial level will act as an Implementation Unit (IU) for respective project city. The responsibilities of SATKER at provincial levels (IUs) include: to conduct the bidding process (i.e. right from issuance of IFB to contract finalization) and contracts administration with professional assistance from the construction supervision consultant (CSC) on day-to-day basis. The roles and responsibilities of the implementation units are illustrated in the Project Organization Chart (Fig-1).

10-17. For SSDP, the implementation schedule is such that multiple contracts are to be executed concurrently and therefore the provincial procurement unit to be established for SSDP, need to be adequately staffed with professionals having sound knowledge and experience in procurement for ADB or other international donors funded projects.

10-18. The ULP, the central procurement unit of MPWH works directly under the Secretary General and monitor all the procurement activities with support from POKJA. ULP also acts at provincial levels to support SATKERS at provincial level in procurement activities with assistance of POKJA. The MPWH has a ULP at the ministerial level, which is primarily responsible to review and clear the procurement process above the minister's thresholds prior to minister's approval. This function of the ULP ensures the quality assurance function in procurement⁵⁰.

10-19. POKJA is a working unit operating on project-to-project basis, and directly work for the IAs both at national and provincial levels for procurement related activities. Once the staffs required for procurement activities for a particular project is identified, ULP pools the resources from all the sectors under MPWH and assign the staffs to POKJA for a particular project through a Decree as per Government regulations. The irrigation and roads sector of the MPWH has a proven track record of successful management of large projects financed by multilateral funding agencies. However the urban sector division of the MPWH has little experience and expertise in procurement of works for foreign assisted projects.

10-20. The PPLP and SATKER Strategik is competent to procure works, goods and services with national competitive bidding (NCB) procedure and the procurement with international competitive bidding procedures are mostly done with the consultants appointed with prior

⁵⁰ Risk Assessment Report dated August 2016 by ADB.

approval of IA. In general the IA and IUs do not have sufficient experience in procurement of services for international consultants and international contractors with FIDIC or MDB contracts.

10-21. In spite of the procurement reforms in Indonesia, some gaps still exist between the ADB guidelines for procurement and the procurement practices followed by the procurement entities in Indonesia. The following stipulations of National Procurement laws are found to be in conflict with ADB guidelines for procurement and as such this kind provisions make the bidding procedure restrictive. ADB is assisting the GOI to developing the further procurement reform of Indonesia.

- i. The international contractors can only participate in a bid if they are registered in Indonesia or to obtain working license in Indonesia prior to signing the contract award and join with a national contractor;
- ii. The international consultants are eligible to compete if make some kind of association with the national consultants and obtain license prior to signing the contract award.

10-22. The key provisions related to International Tender/Selection and Foreign Loan funds or Foreign Grants in the new Perpres 16-2018 are reproduced below;

Article 63

1. International Tender/ Selection can be carried out to:

- (a) Procurement of Construction Works with the value slightly above Rp1,000,000,000,000.00 (one trillion rupiah);
- (b) Procurement of Other Goods/Services with the value slightly above Rp 50,000,000,000.00 (fifty billion rupiah);
- (c) Procurement of Consulting Services with the value slightly above Rp 25,000,000,000.00 (twenty-five billion rupiah)
- (d) Procurement of Goods/Services financed by the Institution Guarantor of Export Credit or Foreign Private Creditor.

2. International Tender/Selection is exercised for value less than the limit referred to in paragraph (1) a, b, and c, in the absence of a Performer Domestic Business capable and fulfilling requirements.

3. Foreign business entities that follow the Tender/Selection international as referred to in paragraph (1) shall doing business cooperation with

4. Foreign business entities that implement Procurement Goods/ Construction Works, must work together with domestic industry in making spare parts and after sales services.

5. Procurement of Goods/Construction Works/Services Consultancy/Other Services undertaken through International Tender/Selection announced on the website on Ministry/Institution/ Local Government and website of international donor.

6. Bidding Documents through International Tender/Selection at least written in 2 (two) languages, namely Bahasa Indonesia and English.

7. In the case of different interpretations of meaning the Tender Documents as referred to in paragraph (6) documents that in Bahasa Indonesia are used as reference.

8. Contract payments through International Tender /Selection can use rupiah currency and /or accordingly with the provisions of legislations.

Article 64

1. Procurement of Goods/ Services for activities that the funding is sourced from foreign loans or grants should apply as regulated in this Presidential Regulation, unless otherwise stipulated in foreign loan agreements or foreign grant agreements. (This is most probably to be reflected in Risk mitigation plan).

2. Procurement of Goods/ Services for activities that the funding comes from foreign loans can be implemented prior to the loan agreement (advance procurement).

3. In drawing the foreign loan/ grant agreements referred to in paragraph (1) may be consulted with LKPP.

A10-4. Project Procurement Risk Assessment

4.1. Organizational and Staff Capacity

i. Procurement Department

10-23. The Directorate of Human Settlement (DGHS) has a dedicated procurement unit (ULP). The setup and the staff strength of ULP are found to be adequate to cater to the current needs of ongoing projects at national level.

10-24. All the staff in procurement division are accredited with certificate of proficiency in procurement by the national procurement agency (LKPP) and conversant with national procurement laws.

10-25. The proficiency of the staff in verbal English is reasonably good, but most do not have good skills in written English. This lack of proficiency in English language will pose a constraint in procurement and implementation of an ADB assisted project.

10-26. The staff of ULP and SATKER Strategik usually receive internal training on procurement, but they require specific training on procurement for ADB Loan projects. An extensive training program by the Capacity Development Consultant, to IA and IUs including the cadres of SATKER at provincial levels is recommended to develop the procurement capacity on a sustainable and national basis. The training by Capacity Development Consultant and support of the Procurement Agent will be a key input in mitigating the risks in procurement. The consultant for capacity building will be recruited under a separate contract with ADB Grant, prior to initiating any procurement activities.

ii. Project Implementation Agency

10-27. The organization of MPWH is well structured and well reputed for its efficient functioning. However, due to its heavy workload, the Ministry may face resource constraint to deal with new large and complex projects. Both the EA and IA have strong audit arrangements in place and anticorruption agencies also operate at each level. Training in ADB procurement guidelines have been provided in the past and IRM of ADB has a programme to conduct more training programme in the future.

10-28. The weakness is that the IA and IU have very limited experience in procurement of multilateral funded projects including ADB and have no experience in Design-Build contracts. Working with Procurement Agent and international project implementation support consultants (PISC) and extensive training on procurement at the initial stages, by the capacity development consultant, will mitigate the risks attributable to limited experience on ADB funded projects.

10-29. DGHS uses the national guidelines for public procurement, but the guidelines need to be modified to suit the requirement for ADB assisted projects.

4.2. Information Management

10-30. Procurement records are kept in a systematic manner and warranty periods are tracked on regular basis. The key documents related to procurement process (original contracts, bid evaluation reports, bid documents, contract administration papers) are maintained at least for 10 years. Both the hard copy and soft copy of all the documents related to procurement and contract administration are maintained. After 10 years the hard copies of records are transferred to the separate stores, for maintaining record by the Ministry, The risk assessed is low.

4.3. Procurement Practices

i. Procurement of Goods and Works

10-31. DED consultants for ESP will prepare the bid documents for procurement of Goods and Works. Their performance will be monitored by DGHS and ULP. Both the IA and IU at national level have past experience, but limited, on procurement for foreign assisted projects.

10-32. DGHS and Satker follow very sound procurement practices, established by the Ministry. Most of the bidding and contract awarding activities are controlled by e-procurement systems. MPWH is pioneer in developing and following an efficient e-procurement system in Indonesia. Late bids are not accepted and the e-procurement system automatically blocks them. The minutes of meetings and the award decisions are uploaded in the website.

10-33. The evaluation of bids are carried out by POKJA-an ad hoc committee, established by ULP, under a Decree. All the evaluators are procurement professionals, certified by LKPP.

10-34. The Ministry has a sound complaint address mechanism and complaints are resolved through e-procurement system within a short period not exceeding 7 to 10 days.

10-35. It is reported that, the time taken to finalise a contract for foreign assisted projects is discernibly more than that for national funded projects. The reasons for delay, as stated by IA, are attributable to the delay in approval of the bid documents and bid evaluation report by the funding agencies.

ii. Procurement of Consulting Services

10-36. The ULP and IA have past experience in recruitment of consultants mostly for government funded projects. They have very limited experience in ADB, World Bank and JICA funded projects. Recently they prepared bid document on Design-Build contract for Jakarta Sewerage system, funded by JICA. But the bidding is yet to be processed as the project is scheduled to take off in early 2019 and therefore the procurement performance is yet to be tested.

10-37. DGHS mostly uses QCBS method for recruitment of consultants. Both the technical and financial criteria are determined by the recruitment selection committee in advance and included in the TOR. The selection committee is formed with appropriate individual professionals.

10-38. The technical and financial proposals are submitted in separate sealed envelopes. The sealed envelopes having financial proposal is opened publicly only after the results of the technical evaluation is announced through website.

10-39. SATKER Strategik, responsible for recruitment of consultants, informed during the interview that they need specific training on procurement for ADB Loan projects. Development of procurement capacity through comprehensive training by the capacity development consultant is recommended to mitigate the risk.

4.4. Effectiveness

10-40. The current institutional arrangements are assessed to be fairly adequate in supporting the national procurement procedures. However the issues of open competition still remains a concern. While there are a number of capable national contractors in Indonesia to carry out large civil works, the past experience reveals that national contractors could not demonstrate technical and management capability in executing large city sewerage system projects satisfactorily. Therefore, international contract bidding for some contract packages, depending on the complexity of the contract, may be an effective option. Though the risk assessed is medium, procurement effectiveness can be enhanced with the support of project implementation support consultant for SSDP and compliance of ADB's procurement procedure.

4.5. Accountability Measures

10-41. Accountabilities and allocation of responsibilities are well defined and covered under national laws. DGHS, as Executing Agency (EA) will be responsible to oversee the project in details, and IA will be responsible for project implementation with the support of the implementation support consultants. DGHS in the past has experience in procurement of contracts funded by World Bank, JICA and ADB, and therefore conflict with ADB's accounting

procedure is not anticipated. Audit mechanism is already in place in MPWH, but the frequency and level of procurement audit by DGHS could not be confirmed.

4.6. Strengths

10-42. The Ministry of Public Works and Health is extensively using the e-procurement system. All the Directorates under MPWH are now conversant with e-procurement system for procurement of goods, works under national and local budget. The data center unit (PUSDATA), located at the office of the Secretary General manages the e-procurement system. This in general, has improved the procurement performance and transparency

10-43. National Procurement Law is in force and DGHS follows the law judiciously.

10-44. The audit division in MPWH is active and also the complaint mechanism is in place through e-procurement system, which is an effective step to restrict corruption and promote transparency.

10-45. The Procurement unit (ULP) is staffed only with certified professional cadres and ULP works directly under Secretary General. Head of the procurement department has more than 15 years of experience and is familiar with national procurement rules and regulations, including procurement practices for foreign agencies funded projects. The operational, oversight and supervision functions are consistent with the best practices of procurement.

10-46. Record keeping is practiced in an efficient manner.

10-47. As per national law on procurement, persons with conflict of interest are not involved in related project procurement.

10-48. Bids are opened in public. Late bids are not opened and are rejected.

4.7. Weaknesses

10-49. The DGHS' procurement cadres lack sufficient experience with procurement of foreign financed projects and they are not familiar with the ADB procurement procedures.

10-50. The staff in general has limited English language skills, which is a major constraint for the IA and IUs in communicating with international consultants/contractors and ADB; and having control over documents provided by the bidders and other parties.

10-51. The current workload in the IA and IUs is high, and especially their commitments on ESP procurement make them more overloaded. This may make the PLP under-resourced for SSDP procurement.

10-52. The DGHS does not have knowledge on procuring Design-Build contracts.

A10-5. Procurement Risk Assessment and Management

SI No	Risk	Impact	Likelihood	Risk Mitigation Plan
1	Low Proficiency in English language of the Agency and inadequate staff	High	Likely	<ul style="list-style-type: none"> Develop the procurement capacity through training by Capacity Development Consultant prior to initiate procurement activities; Recruit one Procurement Agent to support the Satker Strategik and Satkers at provincial levels; Provide more procurement cadre staffs with exposure to ADB projects, to Satkers at provincial level Use of e-procurement system extensively to maximize the efficiency and transparency.
2	Lack of training to the staff of the Agency, on procurement for ADB assisted projects	High	Likely	<ul style="list-style-type: none"> Develop the procurement capacity through training by Capacity Development Consultant prior to initiate procurement activities; Recruit one Procurement Agent to support the Satker Strategik and Satkers at provincial levels;
3	No or little experience on recruitment of international consultants for ADB projects	High	Likely	<ul style="list-style-type: none"> Develop the procurement capacity through training by Capacity Development Consultant prior to initiate procurement activities; Recruit one Procurement Agent to support the Satker Strategik and Satkers at provincial levels
4	No procurement manual for foreign assisted projects	Medium	Likely	<ul style="list-style-type: none"> Develop Procurement Manual for Foreign assisted projects with the support of Procurement Agent
5	No experience of the agency on D-B contracts	High	Likely	<ul style="list-style-type: none"> Arrange extensive training by Capacity Development Consultant to the Satkers at provincial levels, prior to initiate procurement activities; On-the-job training by Procurement Agent to support the Satker Strategik and Satkers at provincial levels during bidding process;
6	Non-familiarity of the procurement cadres of the Departments with letter of credit (LOC)	Medium	Likely	<ul style="list-style-type: none"> Train the IUs familiar with LOC with support of Procurement Agent and Procurement Implementation Support Consultant.;
7	Agency does not promote non-discriminatory participation, transparent tender processes (including IFB, EOI, bid/TOR	Medium	Likely	<ul style="list-style-type: none"> Procurement Agent to advise the IA and IUs in advance on balanced structuring of the TORs to ensure optimal representation of international and national experts to meet the project requirement;

	documents, complaint mechanism.			<ul style="list-style-type: none"> Reflect in PAM and the Loan Agreement that foreign bidders are required to submit the working license prior to signing the contract award;
8	Procedural delay in approval of cost estimate of high value projects	Medium	Likely	<ul style="list-style-type: none"> Develop and operate a MIS for procurement scheduling and management system with provision for early warning of the tasks or commitments causing delay.
9	Mandatory requirement of obtaining license to work in Indonesia for the international contractors before signing the contract agreement.	Medium	Likely	<ul style="list-style-type: none"> Reflect in PAM and Loan Agreement that mandatory association of local contractors is not required: However the following provision may be included to foster capacity building of local contractor, “ The international contractors are encouraged to form association/subcontract or joint venture with local contractors for works”
10	Mandatory requirement for international firms (consultants) to form association/ partnerships with local firms to operate in Indonesia.	Medium	Likely	<ul style="list-style-type: none"> Reflect in PAM and Loan Agreement that mandatory association with local consulting firms is required.
11	The interpretations of provisions in bid/contract documents in Bahasa language will prevail over provisions in documents made in English language.	High	Likely	<ul style="list-style-type: none"> Reflect in the PAM and Loan Agreement that the interpretations of provisions in the bid document in English language will be prevail over bid documents made in any other language.

A10-6. Project Specific Procurement Threshold

6.1. Procurement Method Threshold

10-53. The applicable thresholds are in the Table below;

Table 118: Procurement Method Threshold

Method	Threshold (US \$)
Works	
International Competitive Bidding (ICB)	≥ \$20.0m
National Competitive Bidding (NCB)	Below \$20.0m and above \$ 0.2m
Shopping	\$ 0.2m
Goods	
International Competitive Bidding (ICB)	≥ \$3.0m
National Competitive Bidding (NCB)	Below \$ 3.0 m and above \$0.05 m
Shopping	Below \$0.05 m

6.2. Procurement Supervision Threshold

10-54. The risk rating of both Implementing Agency and Implementation Units are assessed “**Medium**”. The maximum allowable prior review threshold is \$10.0 million (PAI 3.02 of ADB). Based on the specific project risk assessment, with risk primarily associated with IA and IU’s lack of experience with procurement for ADB financed projects, the following prior/post review arrangements are proposed.

Works

- Procurement review threshold is set at \$10 million
- Prior review will apply to all packages under advance contracting irrespective of amount of contract
- No post review sampling

Goods

- Prior review threshold is set to \$3 million
- Prior review will apply to first contracts irrespective of the contract amount
- No post review sampling

Consulting Services

- Prior review (all contracts)

6.3. Procurement Plan

10-55. The proposed project facilities are a combination of conventional engineering and output based (Design-Build) contracting.

10-56. The draft procurement plan for each city is provided in Appendix 11.

6.4. Conclusion

10-57. Based on the risk assessment above, procurement arrangement is considered to be satisfactory.

A10-7. Procurement Risk Assessment Questionnaire

7.1. Mataram City

Name of Agency: SATKER at Provincial Level

City: Mataram (West Nusa Tenggara Province)

Date Interviewed: 18 April 2018

QUESTION	RESPONSE	RISK ⁵¹
A. ORGANIZATIONAL AND STAFF CAPACITY		
Procurement Department/Unit		
A.1 Does the agency or Government have a Procurement Committee that is independent from the head of the agency?	Yes	Medium
A.2 Does the agency have a procurement department/unit, including a permanent office that performs the function of a Secretariat of the Procurement Committee?	ULP has an office in the province and they maintain office at every province. ULP provides resource support to POKJA for procurement related tasks on project basis.	Medium
A.3 If yes, what type of procurement does it undertake?	NA	Medium
A.4 How many years' experience does the head of the procurement department/unit have in a direct procurement role?	NA	Medium
A.5 How many staff in the procurement department/unit are: i. full time ii. part time iii. seconded	Not Applicable. The Satker does not have any procurement unit.	High
A.6 Do the procurement staff have a high level of English language proficiency (verbal and written)?	No. The proficiency level of the staff members of SATKER English language is not good.	*High
A.7 Are the number and qualifications of the staff sufficient to undertake the additional procurement that will be required under the proposed project?	No,	*High
A.8 Does the unit have adequate facilities, such as PCs, internet connection, photocopy facilities, printers etc. to undertake the planned procurement?	Yes	Low
A.9 Does the agency have, or have ready access to, a procurement training program?	No	*High

⁵¹ Questions indicated with * are associated with potentially 'High' or 'Substantial' risks due to the impact being 'High', therefore the strategy for managing those risks should be addressed in the Project Procurement Risk Analysis.

QUESTION	RESPONSE	RISK ⁵¹
A.10 At what level does the department/unit report (to the head of agency, deputy etc.)?	NA	Medium
A.11 Do the procurement positions in the agency have job descriptions, which outline specific roles, minimum technical requirements and career routes?	At present there is no separate procurement department. 5 licensed procurement professionals are proposed for SATKER at this province.	Medium
A.12 Is there a procurement process manual for goods and works?	No Procurement Department. From 2019, SATKER will establish a procurement division.	Low
A.13 If there is a manual, is it up to date and does it cover foreign-assisted projects?	Not Applicable (NA)	High
A.14 Is there a procurement process manual for consulting services?	NA	High
A.15 If there is a manual, is it up to date and does it cover foreign-assisted projects?	NA	High
Project Management Unit		
A.16 Is there a fully (or almost fully) staffed PMU for this project currently in place?	Yes. The organization of SATKER for this province is well structured and adequately staffed for ongoing projects.	*Medium
A.17 Are the number and qualifications of the staff sufficient to undertake the additional procurement that will be required under the proposed project?	No	* High
A.18 Does the unit have adequate facilities, such as PCs, internet connection, photocopy facilities, printers etc. to undertake the planned procurement?	Yes	Low
A.19 Are there standard documents in use, such as Standard Procurement Documents/Forms, and have they been approved for use on ADB funded projects?	Yes, for NCB for Government funded projects. Not suitable for ADB projects.	*High
A.20 Does the agency follow the national procurement law, procurement processes, guidelines?	Yes. National procurement laws are found in conflict with ADB procedures and rules for procurement	*Low
A.21 Do ToRs for consulting services follow a standard format such as background, tasks, inputs, objectives and outputs?	Not sure	High
A.22 Who drafts the procurement specifications?	Project Management Department (PPK)	Low
A.23 Who approves the procurement specifications?	PPK, Project Manager	Low
A.24 Who in the PMU has experience in drafting bidding documents?	No person	*High
A.25 Are records of the sale of bidding documents immediately available?	Yes. e-procurement system	*Low
A.26 Who identifies the need for consulting services requirements?	N/A	–
A.27 Who drafts the Terms of Reference (ToR)		–

QUESTION	RESPONSE	RISK ⁵¹
A.28 Who prepares the request for proposals (RFPs)		–
B. INFORMATION MANAGEMENT		
B.1 Is there a referencing system for procurement files?	Yes	Low
B.2 Are there adequate resources allocated to record keeping infrastructure, which includes the record keeping system, space, equipment and personnel to administer the procurement records management functions within the agency?	Filing system is workable, but not properly maintained to retrieve the documents.	*Medium
B.3 Does the agency adhere to a document retention policy (i.e. for what period are records kept)?	Yes. Hard Copy for 10 years. No policy for retention of soft copy.	*Low
B.4 Are copies of bids or proposals retained with the evaluation?	Not applicable as e-procurement is followed. For evidence purpose, originals of three lowest bidders are maintained.	Low
B.5 Are copies of the original advertisements retained with the pre-contract papers?	Yes	Low
B.6 Is there a single contract file with a copy of the contract and all subsequent contractual correspondence?	Multiple contract files	Low
B.7 Are copies of invoices included with the contract papers?	Yes	Low
B.8 Is the agency's record keeping function supported by IT?	Yes. SATKER has software packages for record keeping. Progress Report, Financial status, GPS are maintained on line with MPWH.	Low
C. PROCUREMENT PRACTICES		
Goods and Works		
C.1 Has the agency undertaken procurement of goods or works related to foreign assistance recently (last 12 months or last 36 months)? If yes, indicate the names of the development partner/s and project/s.	No	*High
C.2 If the answer is yes, what were the major challenges faced by the agency?	NA	* Not Applicable
C.3 Is there a systematic process to identify procurement requirements (for a period of one year or more)?	Yes, this is done by PPLP, Ministry.	Low
C.4 Is there a minimum period for the preparation of bids and if yes, how long?	No. But it generally takes 2 to 3 weeks.	* Medium
C.5 Are all queries from bidders replied to in writing?	Reply made on line through e-procurement system. Reply is made within 5 days.	*Low
C.6 Does the bidding document state the date and time of bid opening?	Yes	*Low
C.7 Are bids opened in public?	No, but through e-procurement system.	*Low
C.8 Can late bids be accepted?	No. The system blocks it.	*Low

QUESTION	RESPONSE	RISK ⁵¹
C.9 Can bids (except late bids) be rejected at bid opening?	No. The system does not permit it.	*Low
C.10 Are minutes of the bid opening taken?	Yes, circulated on line.	*Low
C.11 Are bidders provided a copy of the minutes?	Made available on line.	*Low
C.12 Are the minutes provided free of charge?	Yes.	*Low
C.13 Who undertakes the evaluation of bids (individual(s), permanent committee, ad-hoc committee)?	POKJA at the office of ULP at provincial levels. ULP is directly under MPWH and no interference from SATKER.	Medium
C.14 What are the qualifications of the evaluators with respect to procurement and the goods and/or works under evaluation?	Procurement Professionals certified by National Procurement Agency.	*Medium
C.15 Is the decision of the evaluators final or is the evaluation subject to additional approvals?	POKJA will evaluate and evaluation report will be submitted to PPK (Project Manager) of SATKER Province. If PPK is not happy with evaluation report, will forward the report to ULP to check again.	*Medium
C.16 Using the three 'worst-case' examples in the last year, how long from the issuance of the invitation for bids can the contract be awarded?	No such experience. There were instances that no bidder participated for some projects in the past.	Medium
C.17 Are there processes in place for the collection and clearance of cargo through ports of entry?	SATKER experiences problems in clearance of goods at port especially for goods supplied by foreign supplier.	Medium
C.18 Are there established goods receiving procedures?	NA	High
C.19 Are all goods that are received recorded as assets or inventory in a register?	Yes, separate division (Asset Management) maintains the record.	Medium
C.20 Is the agency/procurement department familiar with letters of credit?	No	High
C.21 Does the procurement department register and track warranty and latent defects liability periods?	Yes	Medium
Consulting Services		
C.22 Has the agency undertaken foreign-assisted procurement of consulting services recently (last 12 months, or last 36 months)? (If yes, please indicate the names of the development partner/s and the Project/s.)	No	* High
C.23 If the above answer is yes, what were the major challenges?	NA	Not Applicable
C.24 Are assignments and invitations for expressions of interest (EOIs) advertised?	No	*High
C.25 Is a consultants' selection committee formed with appropriate individuals, and what is its composition (if any)?	No, separate committee, with POKJA, Satker	Medium

QUESTION	RESPONSE	RISK ⁵¹
C.26 What criteria is used to evaluate EOIs?	NA. National Consultants are invited for DED and Construction Supervision	Medium
C.27 Historically, what is the most common method used (QCBS, QBS, etc.) to select consultants?	QCBS (80:20)	*Low
C.28 Do firms have to pay for the RFP document?	No	*Low
C.29 Does the proposal evaluation criteria follow a pre-determined structure and is it detailed in the RFP?	Yes. POKJA and ULP.	*Medium
C.30 Are pre-proposal visits and meetings arranged?	No. This is not allowed. Bidder is not allowed to meet POKJA or SATKER.	Medium
C.31 Are minutes prepared and circulated after pre-proposal meetings?	NA	*Medium
C.32 To whom are the minutes distributed?	NA	*Medium
C.33 Are all queries from consultants answered/addressed in writing?	e-procurement	*Medium
C.34 Are the technical and financial proposals required to be in separate envelopes and remain sealed until the technical evaluation is completed?	e-procurement	*Medium
C.35 Are proposal securities required?	e-procurement	*Low
C.36 Are technical proposals opened in public?	e-procurement	*Low
C.37 Are minutes of the technical opening distributed?	e-procurement	*Low
C.38 Who determines the final technical ranking and how?	e-procurement	Medium
C.39 Are the technical scores sent to all firms?	e-procurement	*Low
C.40 Are the financial proposal opened in public?	e-procurement	*Low
C.41 Are minutes of the financial opening distributed?	e-procurement	*Low
C.42 How is the financial evaluation completed?	POKJA	*Low
C.43 Are face to face contract negotiations held?	Not aware of	*Medium
C.44 How long after financial evaluation is negotiation held with the selected firm?	One week	Low
C.45 What is the usual basis for negotiation?	Technical and financial –both.	Medium
C.46 Are minutes of negotiation taken and signed?	Yes	*Medium
C.47 How long after negotiation is the contract signed, on average?	2 weeks	Low
C.48 Is there an evaluation system for measuring the outputs of consultants?	No	Medium
Payments		
C.49 Are advance payments made?	Yes, at 20%.	Low
C.50 What is the standard period for payment included in contracts?	Not stated. Generally, payment is made on monthly basis, based on the work progress.	Medium

QUESTION	RESPONSE	RISK ⁵¹
C.51 On average, how long is it between receiving a firm's invoice and making payment?	3 days	Medium
C.52 When late payment is made, are the beneficiaries paid interest?	No	Medium
D. EFFECTIVENESS		
D.1 Is contractual performance systematically monitored and reported?	Yes	Medium
D.2 Does the agency monitor and track its contractual payment obligations?	Yes	Low
D.3 Is a complaints resolution mechanism described in national procurement documents?	Yes, 5 days	Medium
D.4 Is there a formal non-judicial mechanism for dealing with complaints?	Not aware of	Medium
D.5 Are procurement decisions and disputes supported by written narratives such as minutes of evaluation, minutes of negotiation, notices of default/withheld payment?	Through e-mail	*Medium
E. ACCOUNTABILITY MEASURES		
E.1 Is there a standard statement of ethics and are those involved in procurement required to formally commit to it?	Same as DGHS	*Medium
E.2 Are those involved with procurement required to declare any potential conflict of interest and remove themselves from the procurement process?	No, same as DGHS.	*Medium
E.3 Is the commencement of procurement dependent on external approvals (formal or de-facto) that are outside of the budgeting process?	No. Satker can prepare the bid in advance and also invite the bids in advance, but the contracting is made subject to budget approval by the Parliament.	Medium
E.4 Who approves procurement transactions, and do they have procurement experience and qualifications?	POKJA	* Medium
E.5 Which of the following actions require approvals outside the procurement unit or the evaluation committee, as the case may be, and who grants the approval?	Not Applicable. e-procurement	Medium
a) Bidding document, invitation to pre-qualify or RFP		
b) Advertisement of an invitation for bids, pre-qualification or call for EOIs		
c) Evaluation reports		*
d) Notice of award		*
e) Invitation to consultants to negotiate		
f) Contracts		*
E.6. Is the same official responsible for: authorizing procurement transactions, procurement invitations, documents, evaluations and contracts; (ii) authorizing payments; (iii) recording procurement transactions and events; and (iv) the custody of assets?	Yes	*Medium

QUESTION	RESPONSE	RISK ⁵¹
E.7 Is there a written auditable trail of procurement decisions attributable to individuals and committees?	Internal auditing by MPWH, once in a year. External audit by Supreme Audit Board (BPK)	*Medium

General Rating

Criterion	Risk
A. Organizational and Staff Capacity	Medium
B. Information Management	Medium
C. Procurement Practices	Medium
D. Effectiveness	Medium
E. Accountability Measures	Medium
Overall Risk Rating	Medium

7.2. Bekasi City

Name of Agency: SATKER at Provincial Level
City : Bekasi (West Java) Date Interviewed: 24 April, 2018

QUESTION	RESPONSE	RISK ⁵²
A. ORGANIZATIONAL AND STAFF CAPACITY		
Procurement Department/Unit		
A.1 Does the agency or Government have a Procurement Committee that is independent from the head of the agency?	Yes	Medium
A.2 Does the agency have a procurement department/unit, including a permanent office that performs the function of a Secretariat of the Procurement Committee?	ULP has an office in West Java and as such they maintain office at every province. ULP provides resource support to POKJA for procurement related tasks on project basis.	Medium
A.3 If yes, what type of procurement does it undertake?	Consulting Services, Works and Goods, funded by Government of Indonesia.	Medium
A.4 How many years' experience does the head of the procurement department/unit have in a direct procurement role?	No Procurement unit of Satker at province level.	High
A.5 How many staff in the procurement department/unit are: i. full time ii. part time iii. seconded	Not Applicable. The Satker does not have any procurement unit. They have a plan to setup a procurement unit in 2019.	High
A.6 Do the procurement staff have a high level of English language proficiency (verbal and written)?	The proficiency of staffs in English is not good. Mostly they work with Bhasha, Indonesia.	*High
A.7 Are the number and qualifications of the staff sufficient to undertake the additional procurement that will be required under the proposed project?	No. Substantial Capacity Building on procurement is required.	*High
A.8 Does the unit have adequate facilities, such as PCs, internet connection, photocopy facilities, printers etc. to undertake the planned procurement?	Yes	Low
A.9 Does the agency have, or have ready access to, a procurement training program?	Yes. It is provided by ULP twice in a year. One at the start and other at the end of each year. The training is imparted only on national bidding procedures.	*Medium
A.10 At what level does the department/unit report (to the head of agency, deputy etc.)?	Report to ULP, West Java.	Low
A.11 Do the procurement positions in the agency have job descriptions, which outline specific roles, minimum technical requirements and career routes?	Satker province staff is assigned to POKJA and responsible to ULP.	Medium

⁵² Questions indicated with * are associated with potentially 'High' or 'Substantial' risks due to the impact being 'High', therefore the strategy for managing those risks should be addressed in the Project Procurement Risk Analysis.

QUESTION	RESPONSE	RISK ⁵²
A.12 Is there a procurement process manual for goods and works?	Yes, for government funded projects.	Low
A.13 If there is a manual, is it up to date and does it cover foreign-assisted projects?	Yes	Low
A.14 Is there a procurement process manual for consulting services?	Yes	Medium
A.15 If there is a manual, is it up to date and does it cover foreign-assisted projects?	No, only for local projects	Medium
Project Management Unit		
A.16 Is there a fully (or almost fully) staffed PMU for this project currently in place?	Yes, Well structured and almost fully staffed for current workload.	*Medium
A.17 Are the number and qualifications of the staff sufficient to undertake the additional procurement that will be required under the proposed project?	No	*High
A.18 Does the unit have adequate facilities, such as PCs, internet connection, photocopy facilities, printers etc. to undertake the planned procurement?	Yes	Low
A.19 Are there standard documents in use, such as Standard Procurement Documents/Forms, and have they been approved for use on ADB funded projects?	Yes for NCB for Government funded projects. Not suitable for ADB projects	*High
A.20 Does the agency follow the national procurement law, procurement processes, guidelines?	Yes. National procurement laws are found in conflict with ADB procedures and rules for procurement.	*Low
A.21 Do ToRs for consulting services follow a standard format such as background, tasks, inputs, objectives and outputs?	No. Satker is not aware of ADB format.	High
A.22 Who drafts the procurement specifications?	Project Management Department (PPK).	Low
A.23 Who approves the procurement specifications?	PPK, Project Manager	Low
A.24 Who in the PMU has experience in drafting bidding documents?	POKJA, but in urban sector mainly for government funded projects.	*High
A.25 Are records of the sale of bidding documents immediately available?	Yes, E-procurement System	*Low
A.26 Who identifies the need for consulting services requirements?	PPK (Satker)	Low
A.27 Who drafts the Terms of Reference (ToR)	PPK (Satker), for recruitment of national consulting firms.	Low
A.28 Who prepares the request for proposals (RFPs)	PPK and POKJA (for national funded projects)	Low
B. INFORMATION MANAGEMENT		
B.1 Is there a referencing system for procurement files?	Yes	Low
B.2 Are there adequate resources allocated to record keeping infrastructure, which includes the record keeping system, space, equipment and personnel to administer the procurement records management	Yes	*Medium

QUESTION	RESPONSE	RISK ⁵²
functions within the agency?		
B.3 Does the agency adhere to a document retention policy (i.e. for what period are records kept)?	Yes at least for 5 years. After 5 years, the document is retained in a different store.	*Low
B.4 Are copies of bids or proposals retained with the evaluation?	Yes	Low
B.5 Are copies of the original advertisements retained with the pre- contract papers?	Yes	Low
B.6 Is there a single contract file with a copy of the contract and all subsequent contractual correspondence?	Yes, each contract papers in separate files/folders	Medium
B.7 Are copies of invoices included with the contract papers?	Not with contract papers but in payment files.	Medium
B.8 Is the agency's record keeping function supported by IT?	Yes with IT.	Low
C. PROCUREMENT PRACTICES		
Goods and Works		
C.1 Has the agency undertaken procurement of goods or works related to foreign assistance recently (last 12 months or last 36 months)? If yes, indicate the names of the development partner/s and project/s.	No.	*High
C.2 If the answer is yes, what were the major challenges faced by the agency?	Not Applicable. (NA)	*NA
C.3 Is there a systematic process to identify procurement requirements (for a period of one year or more)?	Yes. This is done by PPLP, Ministry.	Low
C.4 Is there a minimum period for the preparation of bids and if yes, how long?	No, but generally 2 to 3 months.	*Medium
C.5 Are all queries from bidders replied to in writing?	Reply made on line through e-procurement system. Reply is made within 5 days.	*Low
C.6 Does the bidding document state the date and time of bid opening?	Yes	*Low
C.7 Are bids opened in public?	No, but through e-procurement system.	*Low
C.8 Can late bids be accepted?	No. System blocks it.	*Low
C.9 Can bids (except late bids) be rejected at bid opening?	No. The system does not permit it.	*Low
C.10 Are minutes of the bid opening taken?	Yes, circulated on line	*Low
C.11 Are bidders provided a copy of the minutes?	Made available on line.	*Low
C.12 Are the minutes provided free of charge?	Yes.	*Low
C.13 Who undertakes the evaluation of bids (individual(s), permanent committee, ad-hoc committee)?	POKJA at the office of ULP at provincial levels. ULP is directly under MPWH and no interference from SATKER. But only for projects funded by GOI.	Medium

QUESTION	RESPONSE	RISK ⁵²
C.14 What are the qualifications of the evaluators with respect to procurement and the goods and/or works under evaluation?	Procurement Professionals certified by National Procurement Agency.	*Medium
C.15 Is the decision of the evaluators final or is the evaluation subject to additional approvals?	POKJA will evaluate and evaluation report will be submitted to PPK (Project Manager) of SATKER Province. If PPK is not happy with evaluation report, will forward the report to ULP to check again.	*Medium
C.16 Using the three 'worst-case' examples in the last year, how long from the issuance of the invitation for bids can the contract be awarded?	No such experience. There were instances that no bidder participated for some projects in the past.	Medium
C.17 Are there processes in place for the collection and clearance of cargo through ports of entry?	SATKER experiences problems in clearance of goods at port especially for goods supplied by foreign supplier.	High
C.18 Are there established goods receiving procedures?	NA	High
C.19 Are all goods that are received recorded as assets or inventory in a register?	Yes, Separate division (Asset Management) maintains the record.	Medium
C.20 Is the agency/procurement department familiar with letters of credit?	No	High
C.21 Does the procurement department register and track warranty and latent defects liability periods?	Yes	Medium
Consulting Services		
C.22 Has the agency undertaken foreign- assisted procurement of consulting services recently (last 12 months, or last 36 months)? (If yes, please indicate the names of the development partner/s and the Project/s.)	No.	*High
C.23 If the above answer is yes, what were the major challenges?	Not Applicable (NA)	*NA
C.24 Are assignments and invitations for expressions of interest (EOIs) advertised?	No	*High
C.25 Is a consultants' selection committee formed with appropriate individuals, and what is its composition (if any)?	NO separate committee, with POKJA, Satker	Medium
C.26 What criteria is used to evaluate EOIs?	NA. National Consultants are invited for DED and Construction Supervision.	Medium
C.27 Historically, what is the most common method used (QCBS, QBS, etc.) to select consultants?	QCBS (80:20)	*Low
C.28 Do firms have to pay for the RFP document?	No	*Low
C.29 Does the proposal evaluation criteria follow a pre-determined structure and is it detailed in the RFP?	Yes. POKJA and ULP.	*Medium
C.30 Are pre-proposal visits and meetings arranged?	No. This is not allowed. Bidder is not allowed to meet POKJA or SATKER.	Medium
C.31 Are minutes prepared and circulated after pre-	NA	*High

QUESTION	RESPONSE	RISK ⁵²
proposal meetings?		
C.32 To whom are the minutes distributed?	NA	*Medium
C.33 Are all queries from consultants answered/addressed in writing?	E-procurement	*Medium
C.34 Are the technical and financial proposals required to be in separate envelopes and remain sealed until the technical evaluation is completed?	E-procurement	*Medium
C.35 Are proposal securities required?	No	*Low
C.36 Are technical proposals opened in public?	E-procurement	*Low
C.37 Are minutes of the technical opening distributed?	E-procurement	*Low
C.38 Who determines the final technical ranking and how?	By POKJA	*Medium
C.39 Are the technical scores sent to all firms?	Yes, through on-line	*Low
C.40 Are the financial proposal opened in public?	Yes, e-procurement	*Low
C.41 Are minutes of the financial opening distributed?	No clear answer	*High
C.42 How is the financial evaluation completed?	POKJA carries out the financial evaluation	*Low
C.43 Are face to face contract negotiations held?	Yes	*Low
C.44 How long after financial evaluation is negotiation held with the selected firm?	1 (one) week	Low
C.45 What is the usual basis for negotiation?	Technical and financial both, through meeting .	Medium
C.46 Are minutes of negotiation taken and signed?	Yes	*Low
C.47 How long after negotiation is the contract signed, on average?	1 (one) week	Low
C.48 Is there an evaluation system for measuring the outputs of consultants?	No	Medium
Payments		
C.49 Are advance payments made?	Yes (20% to 35%)	Low
C.50 What is the standard period for payment included in contracts?	No standard payment method. Generally, 3 to 4 instalments over the entire contract period.	Medium
C.51 On average, how long is it between receiving a firm's invoice and making payment?	1 week	Low
C.52 When late payment is made, are the beneficiaries paid interest?	No	Medium
D. EFFECTIVENESS		
D.1 Is contractual performance systematically monitored and reported?	Yes	Medium
D.2 Does the agency monitor and track its contractual payment obligations?	Yes, Satker Treasury	Medium
D.3 Is a complaints resolution mechanism described in national procurement documents?	Yes, normally 5 days	Medium
D.4 Is there a formal non-judicial mechanism for dealing with complaints?	Not aware of	Medium
D.5 Are procurement decisions and disputes supported by written narratives such as minutes of	Through e-mail.	*Medium

QUESTION	RESPONSE	RISK ⁵²
evaluation, minutes of negotiation, notices of default/withheld payment?		
E. ACCOUNTABILITY MEASURES		
E.1 Is there a standard statement of ethics and are those involved in procurement required to formally commit to it?	Same as followed in DGHS.	*Medium
E.2 Are those involved with procurement required to declare any potential conflict of interest and remove themselves from the procurement process?	No, same as in DGHS	*Medium
E.3 Is the commencement of procurement dependent on external approvals (formal or de-facto) that are outside of the budgeting process?	No. SATKER can prepare the bid in advance and also invite the bids in advance, but the contracting is made subject to budget approval by the Parliament.	Low
E.4 Who approves procurement transactions, and do they have procurement experience and qualifications?	POKJA	*Medium
E.5 Which of the following actions require approvals outside the procurement unit or the evaluation committee, as the case may be, and who grants the approval?	Not Applicable. E-procurement by ULP.	Medium
a) Bidding document, invitation to pre-qualify or RFP		
b) Advertisement of an invitation for bids, pre-qualification or call for EOIs		
c) Evaluation reports		*
d) Notice of award		*
e) Invitation to consultants to negotiate		
f) Contracts		*
E.6. Is the same official responsible for: authorizing procurement transactions, procurement invitations, documents, evaluations and contracts; (ii) authorizing payments; (iii) recording procurement transactions and events; and (iv) the custody of assets?	Yes. May delegate to other persons as well.	*Medium
E.7 Is there a written auditable trail of procurement decisions attributable to individuals and committees?	Internal auditing by MPWH, once in a year. External audit by Supreme Audit Board (BPK)	*Medium

7.3. Banda Aceh City

Name of Agency: SATKER PSPLP PROVINSI NAD

City: Banda Aceh (North Sumatra) Date Interviewed: 2-5 May 2018

QUESTION	RESPONSE ⁵³	RISK ⁵⁴
A. ORGANIZATIONAL AND STAFF CAPACITY		
Procurement Department/Unit		
A.1 Does the agency or Government have a Procurement Committee that is independent from the head of the agency?	Yes	Medium
A.2 Does the agency have a procurement department/unit, including a permanent office that performs the function of a Secretariat of the Procurement Committee?	Procurement Unit (ULP) centralized under MPWH and has office at each province. In this Working Unit (Satker), procurement is conducted by a temporary Working Group/Pokja (procurement committee) at the time of auction. Pokja's member is 70% - 80% of Satker and 20% -30% ULP. Pokja members are staff or Satker officials, while ULP has a permanent office and has staff from various DG	Medium
A.3 If yes, what type of procurement does it undertake?	Has the main task in carrying out the process of selection of providers of goods / services	Medium
A.4 How many years' experience does the head of the procurement department/unit have in a direct procurement role?	8 years since 2011. In the past ULP was in the Provincial Government	Medium
A.5 How many staff in the procurement department/unit are: i. full time ii. part time iii. seconded	Full time for 5 people working in Satker. 1 person work as staff and 4 persons are placed as Head of Satker and PPK. The 5 persons have a procurement certificate	Medium
A.6 Do the procurement staff have a high level of English language proficiency (verbal and written)?	Can not speak English both oral and written	High
A.7 Are the number and qualifications of the staff sufficient to undertake the additional procurement that will be required under the proposed project?	Yes, the 5 persons have a procurement certificate issued by LKPP and only have national experience. For the project to be proposed, the PPLP Directorate will recruit working group members who have procurement certificates and experience with international projects	Medium
A.8 Does the unit have adequate facilities, such as PCs, internet connection, photocopy facilities, printers etc. to undertake the planned procurement?	The Office of Satker is located in the office complex of PUPR Office of NAD Provincial Government, the facilities for room, photocopy, internet, PC, and printer are not adequate	Medium

⁵³ Responses should include a discussion of the e-procurement component if an e-procurement system is in use or if is being planned for implementation.

⁵⁴ Questions indicated with * are associated with potentially 'High' or 'Substantial' risks due to the impact being 'High', therefore the strategy for managing those risks should be addressed in the Project Procurement Risk Analysis (Appendix 3).

QUESTION	RESPONSE ⁵³	RISK ⁵⁴
A.9 Does the agency have, or have ready access to, a procurement training program?	Training was undertaken by Provincial ULP and LKPP	Medium
A.10 At what level does the department/unit report (to the head of agency, deputy etc.)?	Results of Pokja are distributed to ULP Province for review and back to Pokja then to BinaKonstruksi. BinaKonstruksi submit the recommendation to Ministry of PUPR	Medium
A.11 Do the procurement positions in the agency have job descriptions, which outline specific roles, minimum technical requirements and career routes?	The job description of ULP and Pokja is set out in PerPres16, 2018 and Head of LKPP Regulation No. 2, 2015	Low
A.12 Is there a procurement process manual for goods and works?	SOP of the procurement process is regulated in the regulations of the Minister of PUPR, and the Head of LKPP	Medium
A.13 If there is a manual, is it up to date and does it cover foreign-assisted projects?	Sometimes they forgot to update a manual based on Presidential/LKPP regulation and it also cover foreign-assisted projects	Medium
A.14 Is there a procurement process manual for consulting services?	Yes	Low
Project Management Unit		
A.16 Is there a fully (or almost fully) staffed PMU for this project currently in place?	No, the fully staffed at PMU doesn't fit this project. The staff looks relax	Medium
A.17 Are the number and qualifications of the staff sufficient to undertake the additional procurement that will be required under the proposed project?	Not enough and need additional procurement certified and experienced for international bid	Medium
A.18 Does the unit have adequate facilities, such as PCs, internet connection, photocopy facilities, printers etc. to undertake the planned procurement?	Room and equipment facilities are insufficient	Medium
A.19 Are there standard documents in use, such as Standard Procurement Documents/Forms, and have they been approved for use on ADB funded projects?	This satker is experienced with the assistance of AFD project (France) and JICA (Japan). Not yet experienced with the ADB project	Medium
A.20 Does the agency follow the national procurement law, procurement processes, and guidelines?	Satker and Pokja must follow PerPres 16 2018, SOP MPWH and SOP LKPP	Low
A.21 Do ToRs for consulting services follow a standard format such as background, tasks, inputs, objectives and outputs?	The TOR will be compiled by PPK referring to the PWH format and subject to the specifications of the consultant services	Low
A.22 Who drafts the procurement specifications?	PPK with the assistance from the technical team	Low
A.23 Who approves the procurement specifications?	PPK on the recommendation of ULP	Low
A.24 Who in the PMU has experience in drafting bidding documents?	PPK	Low
A.25 Are records of the sale of bidding documents immediately available?	Yes	Low
A.26 Who identifies the need for consulting services requirements?	Satker	Low

QUESTION	RESPONSE ⁵³	RISK ⁵⁴
A.27 Who drafts the Terms of Reference (ToR)	PPK assisted by Technical Team (consultant)	Low
A.28 Who prepares the request for proposals (RFPs)	Pokja with the Satker Team and assisted by the Planning Consultant	Low
B. INFORMATION MANAGEMENT		
B.1 Is there a referencing system for procurement files?	Yes	Low
B.2 Are there adequate resources allocated to record keeping infrastructure, which includes the record keeping system, space, equipment and personnel to administer the procurement records management functions within the agency?	Available but not yet well integrated	Medium
B.3 Does the agency adhere to a document retention policy (i.e. for what period are records kept)?	Yes at least for 5 years. After 5 years, the document is retained in a different store.	Low
B.4 Are copies of bids or proposals retained with the evaluation?	Yes	Low
B.5 Are copies of the original advertisements retained with the pre-contract papers?	Yes	Low
B.6 Is there a single contract file with a copy of the contract and all subsequent contractual correspondence?	Yes, each contract papers in separate files/folders	Low
B.7 Are copies of invoices included with the contract papers?	Not with contract papers but in payment files	Low
B.8 Is the agency's record keeping function supported by IT?	Yes with IT mostly excel spreadsheet	Low
C. PROCUREMENT PRACTICES		
Goods and Works		
C.1 Has the agency undertaken procurement of goods or works related to foreign assistance recently (last 12 months or last 36 months)? If yes, indicate the names of the development partner/s and project/s.	No, but they experienced with foreign assistance back to 2012 (AFD, JICA)	Medium
C.2 If the answer is yes, what were the major challenges faced by the agency?	Not Applicable. (NA)	Medium
C.3 Is there a systematic process to identify procurement requirements (for a period of one year or more)?	Yes. This is done by Direktorat PPLP, Kemen PUPR.	Medium
C.4 Is there a minimum period for the preparation of bids and if yes, how long?	NCB: pre-qualification 2 months, post-qualification is 45 days	Medium
C.5 Are all queries from bidders replied to in writing?	Through online chat	Low
C.6 Does the bidding document state the date and time of bid opening?	Yes	Low
C.7 Are bids opened in public?	No, administrative, financial and technical proposals are only opened by Pokja	Low
C.8 Can late bids be accepted?	No	Low

QUESTION	RESPONSE ⁵³	RISK ⁵⁴
C.9 Can bids (except late bids) be rejected at bid opening?	Proposals that are delayed logging in will be automatically blocked by the system	Low
C.10 Are minutes of the bid opening taken?	Yes	Low
C.11 Are bidders provided a copy of the minutes?	Yes, minutes will be sent via email and available also on the website	Low
C.12 Are the minutes provided free of charge?	Yes	Low
C.13 Who undertakes the evaluation of bids (individual(s), permanent committee, ad-hoc committee)?	The Pokja ULP as an ad-hoc committee will conduct an evaluation.	Medium
C.14 What are the qualifications of the evaluators with respect to procurement and the goods and/or works under evaluation?	Pokja ULP has minimum 10 years experience, undergraduate majoring in Technical / Economics / Law, and has procurement certificate	Medium
C.15 Is the decision of the evaluators final or is the evaluation subject to additional approvals?	Bid evaluation report by Pokja ULP → sent to ULP Province for review → the results by Provincial ULP sent to Direktur PPLP → Result review by Direktur PPLP sent back to Pokja ULP → then Pokja ULP set a bids award	Medium
C.16 Using the three 'worst-case' examples in the last year, how long from the issuance of the invitation for bids can the contract be awarded?	Failed of bidding; 1) because nobody is bidding because OE is low, 2) no bidders are qualified in accordance with TOR	Medium
C.17 Are there processes in place for the collection and clearance of cargo through ports of entry?	No, the contractor do	Medium
C.18 Are there established goods receiving procedures?	Yes, but too bureaucratic	High
C.19 Are all goods that are received recorded as assets or inventory in a register?	Yes	Medium
C.20 Is the agency/procurement department familiar with letters of credit?	No	High
C.21 Does the procurement department register and track warranty and latent defects liability periods?	Yes, no tight monitor	Medium
Consulting Services		
C.22 Has the agency undertaken foreign- assisted procurement of consulting services recently (last 12 months, or last 36 months)? (If yes, please indicate the names of the development partner/s and the Project/s.)	Solid waste project, drainage, and waste water for national bidding	Medium
C.23 If the above answer is yes, what were the major challenges?	With the existing rules, the winner of consulting services is the company that has the longest experience. In fact, highly experienced experts are old, power of thought is down, irritability, and low productivity	High
C.24 Are assignments and invitations for expressions of interest (EOIs) advertised?	Yes, it was announced in mass media	Low

QUESTION	RESPONSE ⁵³	RISK ⁵⁴
C.25 Is a consultants' selection committee formed with appropriate individuals, and what is its composition (if any)?	Yes, organized educational composition, certification, relevant field experience	Medium
C.26 What criteria are used to evaluate EOs?	1) Registered as a partner in Ministry PUPR, 2) Have more than 10 years experience, 3) Handle larger project scale, 4) Have adequate equipment, 5) Have adequate financial capacity and supported by banking	Low
C.27 Historically, what is the most common method used (QCBS, QBS, etc.) to select consultants?	QCBS composition; Administration 10%, Financial 30%, and Technical 60%	Low
C.28 Do firms have to pay for the RFP document?	No, all free	Low
C.29 Does the proposal evaluation criteria follow a pre-determined structure and is it detailed in the RFP?	Yes, Pokja and ULP	Medium
C.30 Are pre-proposal visits and meetings arranged?	The is only allow to meet on prebid meeting and pre-poposal meetings	Low
C.31 Are minutes prepared and circulated after pre-proposal meetings?	Yes	Low
C.32 To whom are the minutes distributed?	The bidders will receive by email and they also can access int ULP website	Low
C.33 Are all queries from consultants answered/addressed in writing?	By e-mail, chatting through e-procurement	Low
C.34 Are the technical and financial proposals required to be in separate envelopes and remain sealed until the technical evaluation is completed?	They have to sent their electronics files to e-procurement , however bidder usually will sent large file their own and the server capacity are not enough	Low
C.35 Are proposal securities required?	Yes	Low
C.36 Are technical proposals opened in public?	No, only Pokja ULP is allowed to open this technical proposal	Low
C.37 Are minutes of the technical opening distributed?	Yes, bidder will receive email and they also can access in ULP website	Low
C.38 Who determines the final technical ranking and how?	By Pokja	Low
C.39 Who determines the final technical ranking and how?	By Pokja with scoring system. The highest technical score is calculated from; methodologies and work plans, personnel, and working methods	Low
C.40 Are the technical scores sent to all firms?	No, after the final evaluation completed	Medium
C.41 Are the financial proposal opened in public?	No, only Pokja ULP is allowed to open this technical proposal	Low
C.42 Are minutes of the financial opening distributed?	Yes, bidder will receive email and they also can access in ULP website	Low
C.43 How is the financial evaluation completed?	By Pokja with scoring system. The lowest price is the highest rank	Low

QUESTION	RESPONSE ⁵³	RISK ⁵⁴
C.44 Are face to face contract negotiations held?	Yes, only the highest rank is invited	Low
C.45 How long after financial evaluation is negotiation held with the selected firm?	4 days	Low
C.46 What is the usual basis for negotiation?	1. Billing rate of consultant 2. Administration expenses 3. Availability to work as plan 4. Availability to work at the field	Medium
C.47 Are minutes of negotiation taken and signed?	Yes	Medium
C.48 How long after negotiation is the contract signed, on average?	2 weeks.	Low
C.49 Is there an evaluation system for measuring the outputs of consultants?	No	Medium
Payments		
C.50 Are advance payments made?	Yes, at 20%.	Medium
C.51 What is the standard period for payment included in contracts?	Not stated. Generally payment is made on monthly basis, based on the work progress.	Medium
C.52 On average, how long is it between receiving a firm's invoice and making payment?	3 days	Medium
C.53 When late payment is made, are the beneficiaries paid interest?	No	Medium
D. EFFECTIVENESS		
D.1 Is contractual performance systematically monitored and reported?	Yes, they used SILABI system application to conduct monitoring and evaluation on daily basis	Medium
D.2 Does the agency monitor and track its contractual payment obligations?	Yes, they use integrated system of RKAKL (budgeting), SAS (treasury), SPM (disbursement) for tracking payment	Medium
D.3 Is a complaints resolution mechanism described in national procurement documents?	Yes, 5 days	Medium
D.4 Is there a formal non-judicial mechanism for dealing with complaints?	Yes through complain handling under Satker or they also can report to ULP center at MPH	Medium
D.5 Are procurement decisions and disputes supported by written narratives such as minutes of evaluation, minutes of negotiation, notices of default/withheld payment?	Through e-mail	Medium
E. ACCOUNTABILITY MEASURES		
E.1 Is there a standard statement of ethics and are those involved in procurement required to formally commit to it?	Same as DGHS	Medium
E.2 Are those involved with procurement required to declare any potential conflict of interest and remove themselves from the procurement process?	No, same as DGHS.	Medium
E.3 Is the commencement of procurement dependent on external	No. SATKER can prepare the bid in advance and also invite the bids in advance, but the	Medium

QUESTION	RESPONSE ⁵³	RISK ⁵⁴
approvals (formal or de-facto) that are outside of the budgeting process?	contracting is made subject to budget approval by the Parliament.	
E.4 Who approves procurement transactions, and do they have procurement experience and qualifications?	POKJA	Medium
E.5 Which of the following actions require approvals outside the procurement unit or the evaluation committee, as the case may be, and who grants the approval?	Not Applicable. E-procurement	Medium
a) Bidding document, invitation to pre-qualify or RFP		
b) Advertisement of an invitation for bids, pre-qualification or call for EOI		
c) Evaluation reports		
d) Notice of award		
e) Invitation to consultants to negotiate		
f) Contracts		
E.6 Is the same official responsible for: (i) authorizing procurement transactions, procurement invitations, documents, evaluations and contracts; (ii) authorizing payments; (iii) recording procurement transactions and events; and (iv) the custody of assets?	Yes	Medium
E.7 Is there a written auditable trail of procurement decisions attributable to individuals and committees?	Internal auditing by Inspectorate General of MPWH, twice a year. External audit by Supreme Audit Board (BPK), once a year.	Medium

General Rating

Criterion	Risk
A. Organizational and Staff Capacity	Medium
B. Information Management	Low
C. Procurement Practices	Medium
D. Effectiveness	Medium
E. Accountability Measures	Medium
Overall Risk Rating	Medium

APPENDIX 11: PROCUREMENT PLAN

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A11-1. Mataram City Procurement Plan

Basic Data

Project Name: INO Sewerage System Development Project (SSDP)	
Project Number:-----	Approval Number:-----
Country: Republic of Indonesia	Executing Agency:-----
Project Procurement Classification: -----	Implementing Agency: -----
Procurement Risk: -----	
Project Financing Amount:\$ ----- million; ADB Financing:-----% Non-ADB/ Government Financing:-----	Project Closing Date:-----
Date of First Procurement Plan:	Date of this Procurement Plan:

A. Methods, Thresholds, Review and 18-Month Procurement Plan

1. Procurement and Consulting Methods and Thresholds

Except as the Asian Development Bank (ADB) may otherwise agree, the following process thresholds shall apply to procurement of goods and works.

Procurement of Goods and Works		
Method	Threshold	Comments
International Competitive Bidding (ICB) for Works	\$ 25,000,001 and above	Prior Review
International Competitive Bidding (ICB) for Goods	Between \$100,000 and \$ 5,000,000	Prior Review
National Competitive Bidding (NCB) for Works	Between \$100,000 and \$25,000,000	The first NCB is subject to prior review, thereafter post review.
National Competitive Bidding for Goods	Between \$ 100,000 and \$ 5,000,000	The first NCB is subject to prior review, thereafter post review.
Shopping for Works	Up to \$ 99,999	
Shopping for Goods	Up to \$ 99,999	
Consulting Services		
Method	Comments	
Quality and Cost Based Selection (QCBS)		
Quality Based Selection (QBS)		
Consultants' Qualifications Selection(CQS)		
Least-Cost Selection (LCS)		
Fixed Budget Selection (FBS)		
Individual Consultant Selection (ICS)		

2. Goods and Works Contracts Estimated to Cost \$1 Million or More

The following table lists goods and works contracts for which the procurement activity is either ongoing or expected to commence within the next 18 months.

Package Number	General Description	Estimated Value (\$ in million)	Procurement Method	Review	Bidding Procedure	Advertisement Date	Comments
Works							
1	Sewer Network-Stage-1	25.00	ICB	Prior	1S2E		Advance Contracting: No; Without Pre-qualification: Yes; Bidding Document: SBD Works (Large); (ICB) Contract Completion period ----- months followed by Defect Liability Period.
2	Waste Water Treatment Plant (Stage-1)	29.55	ICB	Prior/Post	1S2E		Advance Contracting: No; Without Pre-qualification: Yes; Bidding Document: SBD Plant – Design, Build, Install; Contract Completion Period: ----- months followed by Defect Liability Period.
3	House Connection-Stage-1 (Stage-1)		NCB	Prior/Post	1S2E		Advance Contracting: No; Without Pre-qualification: Yes; Bidding Document: SBD Works (Small);(NCB) Contract Completion period ----- months followed by Defect Liability Period.
Goods							
4	Procurement of Six (6) numbers of Vacuum Trucks	1.0	NCB	Prior/Post	1S2E		Advance Contracting: No; Without Pre-qualification: Yes;(NCB) Bidding Document: SBD Goods; Contract (Supply) Completion Period: ----- months followed by Warranty Period.

Package Number	General Description	Estimated Value (\$ in million)	Procurement Method	Review	Bidding Procedure	Advertisement Date	Comments
5	Procurement of one (1) number High Pressure-water Truck		NCB	Prior/Post	1S2E		Advance Contracting: No; Without Pre-qualification: Yes; Bidding Document: SBD Goods; (NCB) Contract (Supply) Completion Period: ----- months followed by Warranty Period.

3. Consulting Services Contracts Estimated to Cost \$100,000 or More

The following table lists consulting services contracts for which the recruitment activity is either ongoing or expected to commence within the next 18 months.

Package Number	General Description	Estimated Value	Recruitment Method	Review	Advertisement Date	Type of Proposal	Comments
Nil							

4. Goods and Works Contracts Estimated to Cost Less than \$1 Million and Consulting Services Contracts Less than \$100,000 (Smaller Value Contracts)

The following table groups smaller-value goods, works and consulting services contracts for which the activity is either ongoing or expected to commence within the next 18 months.

Goods and Works								
Package Number	General Description	Estimated Value	Number of Contracts	Procurement Method	Review	Bidding Procedure	Advertisement Date	Comments
Nil								

Consulting Services								
Package Number	General Description	Estimated Value	Number of Contracts	Recruitment Method	Review	Advertisement Date	Type of Proposal	Comments
Nil								

B. Indicative List of Packages Required Under the Project

The following table provides an indicative list of goods, works and consulting services contracts over the life of the project, other than those mentioned in previous sections (i.e., those expected beyond the current period).

Goods and Works							
Package Number	General Description	Estimated Value (cumulative)	Estimated Number of Contracts	Procurement Method	Review [Prior / Post/Post (Sampling)]	Bidding Procedure	Comments
				<i>Nil</i>			

Consulting Services							
Package Number	General Description	Estimated Value (cumulative)	Estimated Number of Contracts	Recruitment Method	Review (Prior / Post)	Type of Proposal	Comments
							<i>Nil</i>

C. List of Awarded and On-going, and Completed Contracts

The following tables list the awarded and on-going contracts, and completed contracts.

1. Awarded and On-going Contracts

Goods and Works							
Package Number	General Description	Estimated Value	Awarded Contract Value	Procurement Method	Advertisement Date	Date of ADB Approval of Contract Award	Comments
							<i>Nil</i>

Consulting Services							
Package Number	General Description	Estimated Value	Awarded Contract Value	Recruitment Method	Advertisement Date	Date of ADB Approval of Contract Award	Comments
							<i>Nil</i>

2. Completed Contracts

Goods and Works								
Package Number	General Description	Estimated Value	Contract Value	Procurement Method	Advertisement Date	Date of ADB Approval of Contract Award	Date of Completion	Comments
Nil								

Consulting Services								
Package Number	General Description	Estimated Value	Contract Value	Recruitment Method	Advertisement Date	Date of ADB Approval of Contract Award	Date of Completion	Comments
Nil								

D. Non-ADB Financing

The following table lists goods, works and consulting services contracts over the life of the project, financed by Non-ADB sources.

Goods and Works				
General Description	Estimated Value (cumulative)	Estimated Number of Contracts	Procurement Method	Comments
		Nil		

Consulting Services				
General Description	Estimated Value (cumulative)	Estimated Number of Contracts	Recruitment Method	Comments
		Nil		

A11-2. Bekasi City Procurement Plan

Basic Data

Project Name: INO Sewerage System Development Project (SSDP)	
Project Number:-----	Approval Number:-----
Country: Republic of Indonesia	Executing Agency:-----
Project Procurement Classification: -----	Implementing Agency: -----
Procurement Risk: -----	
Project Financing Amount: \$ ----- million; ADB Financing: -----% Non-ADB/ Government Financing:-----	Project Closing Date:-----
Date of First Procurement Plan:	Date of this Procurement Plan:

A. Methods, Thresholds, Review and 18-Month Procurement Plan

1. Procurement and Consulting Methods and Thresholds

Except as the Asian Development Bank (ADB) may otherwise agree, the following process thresholds shall apply to procurement of goods and works.

Procurement of Goods and Works		
Method	Threshold	Comments
International Competitive Bidding (ICB) for Works	\$ 25,000,001 and above	Prior Review
International Competitive Bidding (ICB) for Goods	Between \$100,000 and \$ 5,000,000	Prior Review
National Competitive Bidding (NCB) for Works	Between \$100,000 and \$25,000,000	The first NCB is subject to prior review, thereafter post review.
National Competitive Bidding for Goods	Between \$ 100,000 and \$ 5,000,000	The first NCB is subject to prior review, thereafter post review.
Shopping for Works	Up to \$ 99,999	
Shopping for Goods	Up to \$ 99,999	
Consulting Services		
Method	Comments	
Quality and Cost Based Selection (QCBS)		
Quality Based Selection (QBS)		
Consultants' Qualifications Selection(CQS)		
Least-Cost Selection (LCS)		
Fixed Budget Selection (FBS)		
Individual Consultant Selection (ICS)		

2. Goods and Works Contracts Estimated to Cost \$1 Million or More

The following table lists goods and works contracts for which the procurement activity is either ongoing or expected to commence within the next 18 months.

Package Number	General Description	Estimated Value (\$ in million)	Procurement Method	Review	Bidding Procedure	Advertisement Date	Comments
Works							
1	Waste Water Treatment Plant		ICB	Prior/Post	1S2E		Advance Contracting: No; Without Pre-qualification: Yes; Bidding Document: SBD Plant – Design, Build, Install; Contract Completion Period: ----- months followed by Defect Liability Period.
2	Sewer Network, including Pumping Stations	25.00	ICB	Prior	1S2E		Advance Contracting: No; Without Pre-qualification: Yes; Bidding Document: SBD Works (Large); Contract Completion period ----- months followed by Defect Liability Period.
3	House Connection-		NCB	Post	1S2E		Advance Contracting: No; Without Pre-qualification: Yes; Bidding Document: SBD Works (Small); Contract Completion period ----- months followed by Defect Liability Period.
4	House Connection-		NCB	Post	1S2E		Advance Contracting: No; Without Pre-qualification: Yes; Bidding Document: SBD Works (Small); Contract Completion period ----- months followed by Defect Liability Period.

Package Number	General Description	Estimated Value (\$ in million)	Procurement Method	Review	Bidding Procedure	Advertisement Date	Comments
5	House Connection-		NCB	Post	1S2E		Advance Contracting: No; Without Pre-qualification: Yes; Bidding Document: SBD Works (Small); Contract Completion period ----- months followed by Defect Liability Period.
6	Septic Tanks		NCB	Post	1S2E		Advance Contracting: No; Without Pre-qualification: Yes; Bidding Document: SBD Works (Small); Contract Completion period ----- months followed by Defect Liability Period.
7	Septage Treatment Plant		NCB	Post	1S2E		Advance Contracting: No; Without Pre-qualification: Yes; Bidding Document: SBD Works (Small); Contract Completion period ----- months followed by Defect Liability Period.
Goods							
8	Procurement of f Vacuum Trucks		NCB	Prior/Post	1S2E		Advance Contracting: No; Without Pre-qualification: Yes;(NCB) Bidding Document: SBD Goods; Contract (Supply) Completion Period: ----- months followed by Warranty Period.
9	Procurement of one (High Pressure-water Truck		NCB	Prior/Post	1S2E		Advance Contracting: No; Without Pre-qualification: Yes; Bidding Document: SBD Goods; Contract (Supply) Completion Period: ----- months followed by Warranty Period.

3. Consulting Services Contracts Estimated to Cost \$100,000 or More

The following table lists consulting services contracts for which the recruitment activity is either ongoing or expected to commence within the next 18 months.

Package Number	General Description	Estimated Value	Recruitment Method	Review	Advertisement Date	Type of Proposal	Comments
1	Project Implementation on Support Consultant		QCBS	Yes		Time Based	International Consultant in association with National Consultants. Advance Contracting

4. Goods and Works Contracts Estimated to Cost Less than \$1 Million and Consulting Services Contracts Less than \$100,000 (Smaller Value Contracts)

The following table groups smaller-value goods, works and consulting services contracts for which the activity is either ongoing or expected to commence within the next 18 months.

Goods and Works								
Package Number	General Description	Estimated Value	Number of Contracts	Procurement Method	Review	Bidding Procedure	Advertisement Date	Comments
Nil								

Consulting Services								
Package Number	General Description	Estimated Value	Number of Contracts	Recruitment Method	Review	Advertisement Date	Type of Proposal	Comments
Nil								

B. Indicative List of Packages Required Under the Project

The following table provides an indicative list of goods, works and consulting services contracts over the life of the project, other than those mentioned in previous sections (i.e., those expected beyond the current period).

Goods and Works							
Package Number	General Description	Estimated Value (cumulative)	Estimated Number of Contracts	Procurement Method	Review [Prior / Post/Post (Sampling)]	Bidding Procedure	Comments
				<i>Nil</i>			

Consulting Services							
Package Number	General Description	Estimated Value (cumulative)	Estimated Number of Contracts	Recruitment Method	Review (Prior / Post)	Type of Proposal	Comments
Nil							

C. List of Awarded and On-going, and Completed Contracts

The following tables list the awarded and on-going contracts, and completed contracts.

3. Awarded and On-going Contracts

Goods and Works							
Package Number	General Description	Estimated Value	Awarded Contract Value	Procurement Method	Advertisement Date	Date of ADB Approval of Contract Award	Comments
<i>Nil</i>							

Consulting Services							
Package Number	General Description	Estimated Value	Awarded Contract Value	Recruitment Method	Advertisement Date	Date of ADB Approval of Contract Award	Comments
<i>Nil</i>							

4. Completed Contracts

Goods and Works								
Package Number	General Description	Estimated Value	Contract Value	Procurement Method	Advertisement Date	Date of ADB Approval of Contract Award	Date of Completion	Comments
Nil								

Consulting Services								
Package Number	General Description	Estimated Value	Contract Value	Recruitment Method	Advertisement Date	Date of ADB Approval of Contract Award	Date of Completion	Comments
Nil								

D. Non-ADB Financing

The following table lists goods, works and consulting services contracts over the life of the project, financed by Non-ADB sources.

Goods and Works				
General Description	Estimated Value (cumulative)	Estimated Number of Contracts	Procurement Method	Comments
		Nil		

Consulting Services				
General Description	Estimated Value (cumulative)	Estimated Number of Contracts	Recruitment Method	Comments
		Nil		

A11-3. Banda Aceh City Procurement Plan

Basic Data

Project Name: INO Sewerage System Development Project (SSDP)	
Project Number:-----	Approval Number:-----
Country: Republic of Indonesia	Executing Agency:-----
Project Procurement Classification: -----	Implementing Agency: -----
Procurement Risk: -----	
Project Financing Amount:\$ ----- million; ADB Financing:-----% Non-ADB/ Government Financing:-----	Project Closing Date:-----
Date of First Procurement Plan:	Date of this Procurement Plan:

A. Methods, Thresholds, Review and 18-Month Procurement Plan

1. Procurement and Consulting Methods and Thresholds

Except as the Asian Development Bank (ADB) may otherwise agree, the following process thresholds shall apply to procurement of goods and works.

Procurement of Goods and Works		
Method	Threshold	Comments
International Competitive Bidding (ICB) for Works	\$ 20,000,001 and above	Prior Review
International Competitive Bidding (ICB) for Goods	Between \$100,000 and \$ 5,000,000	Prior Review
National Competitive Bidding (NCB) for Works	Between \$100,000 and \$20,000,000	The first NCB is subject to prior review, thereafter post review.
National Competitive Bidding for Goods	Between \$ 100,000 and \$ 5,000,000	The first NCB is subject to prior review, thereafter post review.
Shopping for Works	Up to \$ 99,999	
Shopping for Goods	Up to \$ 99,999	
Consulting Services		
Method	Comments	
Quality and Cost Based Selection (QCBS)		
Quality Based Selection (QBS)		
Consultants' Qualifications Selection(CQS)		
Least-Cost Selection (LCS)		
Fixed Budget Selection (FBS)		
Individual Consultant Selection (ICS)		

2. Goods and Works Contracts Estimated to Cost \$1 Million or More

The following table lists goods and works contracts for which the procurement activity is either ongoing or expected to commence within the next 18 months.

Package Number	General Description	Estimated Value (\$ in million)	Procurement Method	Review	Bidding Procedure	Advertisement Date	Comments
Works							
1	Waste Water Treatment Plant	25.00	ICB	Prior/Post	1S2E		Advance Contracting: No; Without Pre-qualification: Yes; Bidding Document: SBD Plant – Design, Build, Install; Contract Completion Period: ----- months followed by Defect Liability Period.
2	Sewer Network, including Pumping Stations	25.00	ICB	Prior	1S2E		Advance Contracting: No; Without Pre-qualification: Yes; Bidding Document: SBD Works (Large); Contract Completion period ----- months followed by Defect Liability Period.
3	Sewer Network, including Pumping Stations	25.00	ICB	Prior	1S2E		Advance Contracting: No; Without Pre-qualification: Yes; Bidding Document: SBD Works (Large); Contract Completion period ----- months followed by Defect Liability Period.
4	Sewer Network, including Pumping Stations		ICB	Prior	1S2E		Advance Contracting: No; Without Pre-qualification: Yes; Bidding Document: SBD Works (Large); Contract Completion period ----- months followed by Defect Liability Period.

Package Number	General Description	Estimated Value (\$ in million)	Procurement Method	Review	Bidding Procedure	Advertisement Date	Comments
5	House Connection		NCB	Post	1S2E		Advance Contracting: No; Without Pre-qualification: Yes; Bidding Document: SBD Works (Small); Contract Completion period ----- months followed by Defect Liability Period.
6	House Connection		NCB	Post	1S2E		Advance Contracting: No; Without Pre-qualification: Yes; Bidding Document: SBD Works (Small); Contract Completion period ----- months followed by Defect Liability Period.
7	Septic Tanks		NCB	Post	1S2E		Advance Contracting: No; Without Pre-qualification: Yes; Bidding Document: SBD Works (Small); Contract Completion period ----- months followed by Defect Liability Period.
8	Septage Treatment Plant		NCB	Post	1S2E		Advance Contracting: No; Without Pre-qualification: Yes; Bidding Document: SBD Works (Small); Contract Completion period ----- months followed by Defect Liability Period.
Goods							
9	Procurement of Vacuum Trucks	1.0	NCB	Prior/Post	1S2E		Advance Contracting: No; Without Pre-qualification: Yes;(NCB) Bidding Document: SBD Goods;

Package Number	General Description	Estimated Value (\$ in million)	Procurement Method	Review	Bidding Procedure	Advertisement Date	Comments
							Contract (Supply) Completion Period: ----- months followed by Warranty Period.
10	Procurement of one High Pressure-water Truck		NCB	Prior/Post	1S2E		Advance Contracting: No; Without Pre-qualification: Yes; Bidding Document: SBD Goods; Contract (Supply) Completion Period: ----- months followed by Warranty Period.

3. Consulting Services Contracts Estimated to Cost \$100,000 or More

The following table lists consulting services contracts for which the recruitment activity is either ongoing or expected to commence within the next 18 months.

Package Number	General Description	Estimated Value	Recruitment Method	Review	Advertisement Date	Type of Proposal	Comments
1	Project Implementation on Support Consultant		QCBS	Yes		Time Based	International Consultant in association with National Consultants Advance Contracting:

4. Goods and Works Contracts Estimated to Cost Less than \$1 Million and Consulting Services Contracts Less than \$100,000 (Smaller Value Contracts)

The following table groups smaller-value goods, works and consulting services contracts for which the activity is either ongoing or expected to commence within the next 18 months.

Goods and Works								
Package Number	General Description	Estimated Value	Number of Contracts	Procurement Method	Review	Bidding Procedure	Advertisement Date	Comments
Nil								

Consulting Services								
Package Number	General Description	Estimated Value	Number of Contracts	Recruitment Method	Review	Advertisement Date	Type of Proposal	Comments
Nil								

B. Indicative List of Packages Required Under the Project

The following table provides an indicative list of goods, works and consulting services contracts over the life of the project, other than those mentioned in previous sections (i.e., those expected beyond the current period).

Goods and Works							
Package Number	General Description	Estimated Value (cumulative)	Estimated Number of Contracts	Procurement Method	Review [Prior / Post/Post (Sampling)]	Bidding Procedure	Comments
				Nil			

Consulting Services							
Package Number	General Description	Estimated Value (cumulative)	Estimated Number of Contracts	Recruitment Method	Review (Prior / Post)	Type of Proposal	Comments
Nil							

C. List of Awarded and On-going, and Completed Contracts

The following tables list the awarded and on-going contracts, and completed contracts.

5. Awarded and On-going Contracts

Goods and Works							
Package Number	General Description	Estimated Value	Awarded Contract Value	Procurement Method	Advertisement Date	Date of ADB Approval of Contract Award	Comments
Nil							

Consulting Services							
Package Number	General Description	Estimated Value	Awarded Contract Value	Recruitment Method	Advertisement Date	Date of ADB Approval of Contract Award	Comments
Nil							

6. Completed Contracts

Goods and Works								
Package Number	General Description	Estimated Value	Contract Value	Procurement Method	Advertisement Date	Date of ADB Approval of Contract Award	Date of Completion	Comments
Nil								

Consulting Services								
Package Number	General Description	Estimated Value	Contract Value	Recruitment Method	Advertisement Date	Date of ADB Approval of Contract Award	Date of Completion	Comments
Nil								

D. Non-ADB Financing

The following table lists goods, works and consulting services contracts over the life of the project, financed by Non-ADB sources.

Goods and Works				
General Description	Estimated Value (cumulative)	Estimated Number of Contracts	Procurement Method	Comments
		Nil		

Consulting Services				
General Description	Estimated Value (cumulative)	Estimated Number of Contracts	Recruitment Method	Comments
		Nil		

A11-4. National Competitive Bidding

11-1. The following section applies to all three of the project cities of Mataram, Bekasi, and Banda Aceh.

4.1. Regulation and Reference Documents

General

11-2. The procedures to be followed for national competitive bidding shall be those set forth in Presidential Decree Regulation No. 16-2018 of the Republic of Indonesia, with the clarifications and modifications described in the following paragraphs required for compliance with the provisions of the Procurement Guidelines.

4.2. Procurement Procedures

Eligibility

11-3. The eligibility of bidders shall be as defined under Section-1 of ADB Procurement Guidelines;; accordingly no bidder or potential bidder should be declared ineligible for reasons other than those provided in section-1 of the Guidelines amended from time to time.

4.3. Participation of Foreign Bidders and Joint Ventures

11-4. Foreign Bidders shall be eligible to participate under the same conditions as national bidders regardless of the estimated value of the contract.

11-5. Foreign bidders shall not be asked or required to form joint ventures with, or be subcontractors to, national bidders in order to submit a bid and obtain a contract award.

4.4. Preferences

11-6. No preference of any kind shall be given to domestic bidder or for domestically manufacture goods.

4.5. Prequalification and Bidding Period

11-7. The time allowed for the preparation and submission of prequalification documents and/or bids for large and /or complex contracts shall not be less than twenty eight (28) days from the date of the last day of publication of invitation to bid or the last day of availability of the bidding documents, whichever is later.

4.6. Bidding Documents

Bid Evaluation

11-8. No bid shall be rejected on the basis of a comparison with the owner's estimate or budget ceiling without the ADB's prior approval.

Rejection of All Bids and Rebidding

11-9. Bids shall not be rejected and new bids solicited in a rebidding without the ADB's prior concurrence.

4.7. ADB Policy Clauses

11-10. A provision shall be included in all NCB works and goods contracts financed by ADB requiring suppliers and contractors to permit ADB to inspect their accounts and records and other documents relating to the bid submission and the performance of the contract, and to have then audited by auditors appointed by ADB.

11-11. A provision shall be included in all bidding documents for NCB works and goods contracts financed by ADB stating that the Borrower shall reject a proposal for award if it determines that the bidder recommended for award has directly or through an agent, engaged in corrupt, fraudulent, collusive or coercive practices in competing for the contract in question.

11-12. A provision shall be included in all bidding documents for NCB works and goods contracts financed by ADB stating that ADB will declare a firm or individual eligible, either indefinitely or for a stated period, to be awarded a contract financed by ADB, if at any time determines that the firm or individual has, directly or through an agent, engaged in corrupt, fraudulent, collusive, coercive or obstructive practices or any integrity violation in competing for, or in executing, ADB financed contract.

A11-5. Procurement Packaging

	Contract	General Description	Type
1.	Consulting services (SSDP-CS1)	Project Implementation and Support Consultant (PISC)	QCBS (90:10),
	Consulting services (SSDP-CS2)	Capacity Development Consultant	QCBS (90:10), Advance Action
	Consulting services (SSDP-CS3)	Construction Supervision Consultant	QCBS (80:20)
2.	SSDP-01 Banda Aceh 1	<ul style="list-style-type: none"> Wastewater Treatment Plants, civil works & M/E 	Advance Contracting: No; Without Pre-qualification: Yes; Bidding Document: SBD Plant – Design, Build, Install; (ICB)
	SSDP-02 Banda Aceh 2	Sewer Network, including Pumping Stations	Advance Contracting: No; Without Pre-qualification: Yes; Bidding Document: SBD Works (Large); (ICB)
	SSDP-03 Banda Aceh 3	Sewer Network, including Pumping Stations	Advance Contracting: No; Without Pre-qualification: Yes; Bidding Document: SBD Works (Large);(ICB)
	SSDP-04 Banda Aceh 4	Sewer Network, including Pumping Stations	Advance Contracting: No; Without Pre-qualification: Yes; Bidding Document: SBD Works (Large);(ICB)
	SSDP-05 Banda Aceh 5	Household (HH) connections	Advance Contracting: No; Without Pre-qualification: Yes; Bidding Document: SBD Works (Small); (NCB)
	SSDP-06 Banda Aceh 6	Household (HH) connections	Advance Contracting: No; Without Pre-qualification: Yes;

			Bidding Document: SBD Works (Small);
4.	SSDP-07 Banda Aceh 7	<ul style="list-style-type: none"> Septic Tanks 	Advance Contracting: No; Without Pre-qualification: Yes; Bidding Document: SBD Works (Small);
5.	SSDP-08 Banda Aceh 8	<ul style="list-style-type: none"> Suction Trucks (goods) 	NCB
6.	SSDP-09 Banda Aceh 9	<ul style="list-style-type: none"> Septage Treatment Plant (Goods) 	NCB
7.	SSDP-10 Bekasi 1	<ul style="list-style-type: none"> Wastewater Treatment Plants, civil works & M/E 	Advance Contracting: No; Without Pre-qualification: Yes; Bidding Document: SBD Plant – Design, Build, Install; (ICB)
	SSDP-11 Bekasi 2	Sewer Network, including Pumping Stations	Advance Contracting: No; Without Pre-qualification: Yes; Bidding Document: SBD Works (Large);(ICB)
8.	SSDP-12 Bekasi 3	<ul style="list-style-type: none"> Household (HH) connections 	Advance Contracting: No; Without Pre-qualification: Yes; Bidding Document: SBD Works (Small); (NCB)
9.	SSDP-13 Bekasi 4	<ul style="list-style-type: none"> Septic Tanks 	Advance Contracting: No; Without Pre-qualification: Yes; Bidding Document: SBD Works (Small); (NCB)
10.	SSDP-14 Bekasi 5	<ul style="list-style-type: none"> Suction Trucks (Goods) 	NCB

11.	SSDP-15 Bekasi 6	<ul style="list-style-type: none"> Septage Treatment Plant (Goods) 	NCB
	SSDP-16 Mataram 1	<ul style="list-style-type: none"> Wastewater Treatment Plants, civil works & M/E 	Advance Contracting: No; Without Pre-qualification: Yes; Bidding Document: SBD Plant – Design, Build, Install; (ICB)
	SSDP-17 Mataram 2	<ul style="list-style-type: none"> Sewer Network, including Pumping Stations 	Advance Contracting: No; Without Pre-qualification: Yes; Bidding Document: SBD Works (Large);(ICB)
13.	SSDP-18 Mataram 3	<ul style="list-style-type: none"> Household (H) connections 	NCB Advance Contracting: No; Without Pre-qualification: Yes; Bidding Document: SBD Works (Small); (NCB)
14.	SSDP-19 Mataram 4	<ul style="list-style-type: none"> Septic Tanks 	Advance Contracting: No; Without Pre-qualification: Yes; Bidding Document: SBD Works (Small); (NCB)
15.	SSDP-20 Mataram 5	<ul style="list-style-type: none"> Suction Trucks 	NCB (Goods)
16.	SSDP-21 Mataram 6	<ul style="list-style-type: none"> Septage Treatment Plant 	NCB (Goods)

APPENDIX 12: CAPACITY DEVELOPMENT PLAN SCOPE OF WORK (SOW)

SSDP – Capacity Development Plan – National and Local Government (Status July 2018)

Lot 1 - Pre-Construction:

- A. Procurement Management
- B. Financial Project Management
- C. Safeguards Management
 - C.1 Environmental Safeguards
 - C.2 Social Safeguards

Lot 2 - Post-Construction:

- D. Local Government Enabling Environment
- E. WWM Operations / Service Deliveries
 - E.1 Utility Management
 - E.2 Asset Management
 - E.3 Community Outreach / Business Development / Customer Management
 - E.4 Financial Operational Management
- F. Public Awareness Campaign

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Note: *) Year: Start of construction = Year 0
 → minus (-) Year x indicates the Year prior to the start of construction
 → plus (+) Year x indicates the Year after the start of construction

Time allocations for **Head Trainer** and **Assistant Trainer** include time for training preparation.
 Proposed factor → 3 x for Head Trainer / 2 x for Assistant Trainer (e.g. Training duration = 3 days → Time allocation for Head Trainer = 9 days / Assistant Trainer = 6 days)

3 days)									
	Module	Objective	Days	Content	Participants		When *)	Budget (USD)	
A. PROCUREMENT MANAGEMENT	1. Procurement at Satker Strategis	Familiarity with current ADB Procurement Procedures	1	<ul style="list-style-type: none">Brief on ADB ProceduresADB guidelines for Procurement of Services	<ul style="list-style-type: none">Satker Strategis	12	(-) 0.4 Y 1		
		Recruitment of Consultant (International)- as per ADB Procedures	5	<ul style="list-style-type: none">Compliance of ADB formalities by filling S1 through S6 formsAdvertise EOIShortlisting of ConsultantsPreparation of TOR and RFPTypes of Selection Methods and Consulting ContractingEvaluation of ProposalsNegotiation and Contract finalisation					
	Training Resources: 1 Head Trainer (int) 18 working days, 1 Assistant Trainer (nat)12 working days, Training Venue 7 days (Jkt), 12 Pax Meeting Packages								
	2. Procurement at Satker Province (for each city)	Training on Procurement of Civil Works with NCB and ICB Contracting	5	<ul style="list-style-type: none">Brief on ADB Procedures and SBD,Procurement Plan and Threshold Value – NCB/ICBPreparation of Bid Document (NCB & ICB) with special emphasis on Clauses related to conflict and disputePreparation of Evaluation and Qualification CriteriaFIDIC Contract (GCC)How to develop SCCBid EvaluationHand on training on preparation and evaluation of bid	<ul style="list-style-type: none">Satker Province	10	(-) 0.3 Y1		

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Module	Objective	Days	Content	Participants	When *)	Budget (USD)
	Training on D-B contracts	1	<ul style="list-style-type: none"> Brief on ADB Procedures and SBD, for Plant on Design-Build Installation Preparation of Bid Document Development of Section-6 (Employer's Requirement) Key clauses to be addressed in preparation of bid document 			
	Training on Procurement of Goods with Shopping, NCB and ICB Contracting	1	<ul style="list-style-type: none"> Preparation of Bid Document with Shopping, NCB and ICB method of contracting Payment Terms and Conditions Clarifications on Letter of Credit Evaluation of Bids 			
Training Resources: 1 Head Procurement Trainer (int) 21 working days, 1 Assistant Trainer (nat) 14 days, Training Venue 7days (Prov), 10 Pax Meeting Packages, 1(one) Return Flights (Jkt-Prov-Jkt)						

Module	Objective	Days	Content	Participants	When *)	Budget (USD)
B. FINANCIAL PROJECT MANAGEMENT	3. FM at Satker Strategis	ADB Disbursement polices and Procedures	1/2	<ul style="list-style-type: none"> Familiarization with the Loan Disbursement Handbook 2017 and completing withdrawal applications 		
		Familiarization with ADB Website: The Loan Financial Information System (LFIS)/ Grant Financial Information System (GFIS)	1/2	<ul style="list-style-type: none"> How to access and use ADB's websire in relation to loans and grants 	(-) Y1	
		Setting up the Client Portal for Disbursements (CPD)	1/2	<ul style="list-style-type: none"> Authority levels, who prepares, checks and authorizes. Access to the system 		
		Finnacial Management / reporting and auditing	1/2	<ul style="list-style-type: none"> ADB requirements, finacical statements, Statements of 		

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Module	Objective	Days	Content	Participants	When *)	Budget (USD)
			expenditure (SOE), internal and external auditing			
Training Resources: 1 Head Trainer (int) 14 days, 1 Assistant Trainer (nat) 14 days, Training Venue 2 days (Jkt), 12 Pax Meeting Packages (including consultants)						
4. FM at Satker Province	ADB Disbursement polices and Procedures (Loan Disbursement Handbook 2017)	½	<ul style="list-style-type: none">Familization with the Loan Disbursement Handbook 2017 and completing withdrawal applications	<ul style="list-style-type: none">Satker Province	10	(-) Y1
	Familiarization with ADB Website: The Loan Financial Information System (LFIS)/ Grant Financial Information System (GFIS)	½	<ul style="list-style-type: none">How to access and use ADB’s websire in relation to loans and grants			
	Setting up the Client Portal for Disbursements (CPD)	1/2	<ul style="list-style-type: none">Authority levels, who prepares, checks and authorizes. Access to the system			
	Finnacial Management / reprrting and auditing	1/2	<ul style="list-style-type: none">ADB requirements, finacial statements, Statements of expenditure (SOE), internal and external auditing			
Training Resources: 1 Head Trainer (int) 10 days, 1 Assistant Trainer (nat) 10 days, Training Venue 2 days (Prov), 14 Pax Meeting Packages, 2 Return Flights (Jkt-Prov-Jkt)						

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		Module	Objective	Days	Content	Participants	When *	Budget (USD)
C.1 ENVIRONMENTAL SAFEGUARD	5. ADB Safeguard Policy and National Regulations	Requirements of ADB Environmental and Social Safeguard Policies and the National Regulatory Framework	3/4	<ul style="list-style-type: none">• ADB Environmental Safeguard Policy Requirements in SSDP• National Environmental Safeguard Framework requirements (AMDAL) in relation to ADB Safeguards• ADB Social Safeguard Policy, Redress and Resettlement Processes• National Health and Safety Requirements in relation to ADB Safeguards• Climate and Disaster Risks and Resilient Planning Requirements• Relevant National Climate Strategies and Plans	<ul style="list-style-type: none">• SSDP National Project Director• Provincial Environment Agency• District Environment Agency• Local PIU• Mataram Public Works• Select kelurahan chiefs or their representatives, District Governor and relevant agencies, Department of Spatial Planning (for redress, acquisition, compensations)	15	(-) Y 1 → (+) Y 1	
		Identification of regulatory gaps and agreements on necessary amendments for compliance with ADB Policy in Project implementation	3/4	<ul style="list-style-type: none">• Identification and documentation of critical regulatory gaps• Formulation of implementation plans and assigning main responsibilities for regulatory framework adjustments and project implementation• SSDP Environmental Safeguard Framework• SSDP Social Safeguard Framework• SSDP Climate Risk Assessment and Climate Proofing				
	Training Resources: 1 Head Trainer (int) 1.5 days, 1 Assistant Trainer (nat) 1.5 days, Training Venue 1.5 days (Jkt), 15 Pax Meeting Packages, 15 Return Flights (LG-Jkt-LG), 15 Hotel room nights for LG (Jkt)							
	6. City specific Environmental and Social Safeguards	Defining key documents, procedures and tasks for Project implementation compliance with safeguards and monitoring	1	<ul style="list-style-type: none">• Defining main stages and relevant procedures of Project implementation for safeguard compliance• Compliance Mechanisms for Environmental and Social Safeguards and Climate & Disaster Resilency• Responsible Institutions with Units/Staff• Budgets and Operational Requirements• Project Information Disclosure and Dissemination Practices and Tasks• Consultation and Participation• Grievance Redress Mechanism• Monitoring and Reporting	<ul style="list-style-type: none">• SSDP National Project Director• Provincial Environment Agency• District Environment Agency• Local PIU• Mataram Public Works• Select kelurahan chiefs or their representatives, District Governor and relevant agencies, Department of Spatial	15	(-) Y 1 → (+) Y 1	

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Module		Objective	Days	Content	Participants	When *)	Budget (USD)
					Planning (for redress, acquisition, compensations) (Central Level directors as relevant) <ul style="list-style-type: none">• Select stakeholders• Possible external service providers (eg. Monitoring)		
Training Resources: 1 Head Trainer (int) 1 days, 1 Assistant Trainer (nat) 1 days, Training Venue 1 days (LG), 15 Pax Meeting Packages, Max. 5 Return Flights (Jkt-LG-Jkt)							
1. ADB Safeguard Policy and National Regulations: The idea is to hold this session in Jakarta with participants from all 3 cities – time efficient and at the same time facilitates communication among the participants from the cities.							
2. City specific Environmental and Social Safeguards: separately in each city							

Module		Objective	Days	Content	Participants	When *)	Budget (USD)
C.2 SOCIAL SAFEGUARD	7. ADB Safeguard Policy and National Regulations	Understanding ADB Social Safeguard Policy and National Regulatory Framework	1	<ul style="list-style-type: none">• ADB Social Safeguard Policy• National Social Safeguard Framework	<ul style="list-style-type: none">• DPRD• Ass. Sekda• LPIU/LPMU• Provincial Satker	8	(-) Y 1 → (+) Y 1
		Identification of regulatory gaps and agreement on necessary amendments for compliance with ADB Policy	1	<ul style="list-style-type: none">• Identification of critical regulatory gaps• SSDP Social Safeguard Framework			
	Training Resources: 1 Head Trainer (int) 6 days, 1 Assistant Trainer (nat) 4 days, Training Venue 2 days (Jkt), 20 Pax Meeting Packages, 24 Return Flights (LG-Jkt-LG), 16 Hotel room nights for LG (Jkt)						
	8. City specific Social Safeguards	Understanding of key documents and safeguard procedures, implementation competence and	6	<ul style="list-style-type: none">• Responsible LG institutions• Budget requirements• Information Disclosure• Consultation and Participation• Grievance Redress Mechanism• Monitoring and Reporting	<ul style="list-style-type: none">• DPRD• Ass. Sekda• LPIU?/PMU• Provincial Satker• Academics• Others	12	(-) Y 1 → (+) Y 1

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Module	Objective	Days	Content	Participants	When ^{*)}	Budget (USD)
	monitoring formats and requirements					
Training Resources: 1 Head Trainer (int) 18 days, 1 Assistant Trainer (nat) 12 days, Training Venue 6 days (LG), 42 Pax Meeting Packages, 6 Return Flights (Jkt-LG-Jkt)						

1. **ADB Safeguard Policy and National Regulations:** The basic idea is to hold this session in Jakarta with participants from all cities – time efficient and at the same time facilitates communication among the participants from the cities.
2. **City specific Environmental and Social Safeguards:** separately in each city.

Module	Objective	Days	Content	Participants	When ^{*)}	Budget (USD)
E.1 WWM OPERATIONS	9. Utility Management	Introduction into Utility Management	1/2	<ul style="list-style-type: none"> • Scope and principles, governance, authorities and responsibilities of utility management within the Indonesia regulatory framework 	10	(+) Y 2
		Institutional and regulatory awareness	1/2	<ul style="list-style-type: none"> • Current sector regulation and structure • Objective and scope of WWM sector regulation • Good national & international practices • Review of prevailing LG regulation • Review WWM Road Map • Identification of operational gaps • Formulation of recommended improvements 		
		Competence on WWM advocacy	1/2	<ul style="list-style-type: none"> • Stakeholder mapping • Influencing policy development • Managing (social) media • Influencing public perceptions 		
		Leadership competence	1/2	<ul style="list-style-type: none"> • Leadership fundamentals • Interpersonal skills • Teamwork, coaching, empowerment 		
		Service benchmarking and monitoring	1/2	<ul style="list-style-type: none"> • Fundamentals and principles • Identification of indicators • Data sources and means of verification • Planning and reporting 		

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		Analytical thinking, problem solving and decision making	1/2	<ul style="list-style-type: none"> Methodology and strategies Analytical tools Decision-making techniques 				
	Training Resources: 1 Head Trainer (int) 12 days, 1 Assistant Trainer (nat) 9 days, Training Venue 3 days (LG), 12 Pax Meeting Packages, 2 Return Flights (Jkt-LG-Jkt)							
	10. HRM Development	Competence on human resources recruitment and development	3	<ul style="list-style-type: none"> Scope and principles of HRM Develop HR Strategy Job descriptions Performance & Training Needs Assessment Staff mentoring and training Compensation and benefits 	<ul style="list-style-type: none"> Utility Management Assistant Sekda Bagian SDM 	6	(+) Y 2	
Training Resources: 1 Head Trainer (nat) 12 days, 1 Assistant Trainer (nat) 9 days, Training Venue 3 days (LG), 8 Pax Meeting Packages, 2 Return Flights (Jkt-LG-Jkt)								
Module Objective Days Content Participants When ^{*)} Budget (USD)								
E.2 WWM OPERATIONS	11. Asset Management	1. CLASSROOM Introduction into operation and maintenance of fixed and mobile assets	8	<ul style="list-style-type: none"> Scope and principles of asset management Live cycle planning considerations Asset Inventory Standard operation procedures (SOP) Operational planning, budgeting and documentation Preventive maintenance planning, budgeting and documentation Repair analysis and documentation Staff requirements / Job Profile 	<ul style="list-style-type: none"> Utility Management & Technical Staff Dinas PU 	10	(+) Y 2	
		2. On-the-Job Training during Construction	20 (intermittent)	<ul style="list-style-type: none"> WWTP Sewer Network Pumping Stations House Connections 		10		

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		3. CLASSROOM Refresher into operation and maintenance of fixed and mobile assets	8	<ul style="list-style-type: none">• Scope and principles of asset management• Live cycle planning considerations• Asset Inventory• Standard operation procedures (SOP)• Operational planning, budgeting and documentation• Preventive maintenance planning, budgeting and documentation• Repair analysis and documentation• Staff requirements / Job Profile		10	(+) Y 3	
		4. On-the-Job Training during Operation	20 (intermittent)	<ul style="list-style-type: none">• WWTP• Sewer Network• Pumping Stations• House Connections		10		
Training Resources: CLASSROOM (2 x): 1 Head Trainer (nat) 45 days, 1 Assistant Trainer (nat) 30 days, Training Venue 16 days (LG), 12 Pax Meeting Packages, 4 Return Flights (Jkt-LG-Jkt) ON-THE-JOB (2 x intermittent): 1 Head Trainer (nat) 60 days, 1 Assistant Trainer (nat) 50 days, Training Venue 40 days (LG), 12 Pax Meeting Packages, 16 Return Flights (Jkt-LG-Jkt) INTERNSHIP: 4 Technical Staff (2 WWTP / 2 Network & Pumping Station) each 1-month Maynilad or Manila Water + 1-month Indah Water								

		Module	Objective	Days	Content	Participants	When *)	Budget (USD)
E.3 WWM OPERATIONS	12. Community Outreach	Competence and planning of social marketing / community campaigns on promotion of service provisions	5	<ul style="list-style-type: none">• Scope and principles of community outreach• Stakeholder analysis & formative research• Trans Sec• Social marketing concept and tools, communication materials• Organization and monitoring of Socialization Teams (volunteer)• Linkage with micro-finance institutes and sanitation businesses	<ul style="list-style-type: none">• Utility Management• Social Facilitators• (-> UPTD customer & sales staff)	25	(+) Y 2	
	13. Business Development and Marketing Strategy	Competence on planning and implementing marketing strategy	4	<ul style="list-style-type: none">• Business development targets• Marketing strategy, methods, tools, incentives• Sanitation business directory and links	<ul style="list-style-type: none">• Utility Management• Customer & Sales Staff• (Sanitation business representatives)	10	(+) Y 3	
	14. Customer Management	Competence of service-oriented customer management	4	<ul style="list-style-type: none">• Scope and principles of customer management• Customer inventory• Communication and interaction• Complaint management• Customer satisfaction• Standard operation procedures (SOP)	<ul style="list-style-type: none">• Utility Management• Customer Mtg Staff• Others	10	(+) Y 3	
	Training Resources: COMMUNITY OUTREACH:1 Head Trainer (nat) 15 days, 1 Assistant Trainer (nat) 10 days, Training Venue 5 days (LG), 25 Pax, 27 Meeting Packages, 2 Return Flights (Jkt-LG-Jkt) BD & CUSTOMER MANAGEMENT: 1 Head Trainer (nat) 25 days, 1 Assistant Trainer (nat) 15 days, Training Venue 8 days (LG), 10 Pax, 12 Meeting Packages, 4 Return Flights (Jkt-LG-Jkt)							

	Module	Objective	Days	Content	Participants	When ^{*)}	Budget (USD)	
E.4 WWM OPERATIONS	15. Financial Management	Competence on development of sustainable financial operations	3	<ul style="list-style-type: none">• Scope and principles of financial management• Financial regulatory framework• Sources of funding• Analysis of operations expenditures (OPEX)• Depreciation of fixed and mobile assets• Customer tariff options	<ul style="list-style-type: none">• Utility Management & selected Staff• Technical Department	10	(+) Y 3	
	Training Resources: 1 Head Trainer (int) 15 days, 1 Assistant Trainer (nat) 10 days, Training Venue 3 days (LG), 12 Pax Meeting Packages, 2 Return Flights (Jkt-LG-Jkt)							

F. PUBLIC AWARENESS CAMPAIGNE								
Module	Objective	Days	Content	Participants ⁵⁵	When ^{56 *}	Budget (USD)		
16. Sanitation advocacy/socialization workshops for leaders	Socialization and commitment of decision makers and key local government stakeholders in city-wide sanitation	1/2	<ul style="list-style-type: none">• Review of LG plans and strategies related to sanitation; clearing the vision for environmental sanitation in the city• Budget allocation for sanitation programme including connection subsidies/pro-poor mechanism• Sanitation regulations and their enforcement	<ul style="list-style-type: none">• Mayor & DPRD• LG Secretary• Bappeda• Relevant SKDPs• Financiers, DPs	50	(+) Year 1 recurrent (annual)		
17. Social Marketing	Commitment of sanitation campaign implementation partners	1 1/2	<ul style="list-style-type: none">• City sanitation strategy and SSDP targets and implementation• Partners' roles and responsibilities, progress review and recognition of sanitation champions; updating action plans• BCC tools, promotion materials, triggering methods• Information needs, i.e. costs, finance options and tariff setting, design and construction, complaint mechanism, maintenance and use	<ul style="list-style-type: none">• Key SKDPs (Health, Environment, Public Works); WW operator• District and sub-district heads, local leaders• NGO & CBO representatives, PKK• Private sector, CSR and micro-finance	100	(+) Year 1 recurrent bi-annual ⁵⁷⁾		

⁵⁵ District and sub-district participants will change in accordance with sewerage network extension

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Module	Objective	Days	Content	Participants ⁵⁵	When ^{56 *}	Budget (USD)
			<ul style="list-style-type: none"> Sanitation advocacy by national & local sanitation champions, sharing success stories 			
18. Public Relations	Increase media visibility on sanitation issues	½	<ul style="list-style-type: none"> Status of environmental sanitation Objectives and implementation of SSDP Opportunities to engage with media 	<ul style="list-style-type: none"> Local journalists, media personnel 	20	(+) Year 1, recurrent annually
Training Resources: 3 Panelists/speakers, 50 Pax meeting package, 6 Return flights, 6 hotel room nights, 6 days car rental 6 Panelists/speakers, 100 Pax meeting package, 8 Return flights, 8 hotel room nights, 8 days car rental 1 Resource person, training venue package, 2 Return flights, 2 hotel room nights						
19. Community support for sanitation program	Establish 'Socialization Team & Training of Trainers' to Increase awareness of local leaders, public and health sanitation volunteers and other opinion influencers	3	<ul style="list-style-type: none"> Benefits of improved sanitation (health, environment, economic, modern lifestyle) Sewerage system concept and construction, technical and financial information, access to finance and subsidies, tariff setting Customers' rights and responsibilities, feedback mechanisms and complaint handling Methods to engage with opinion influencers and community members Action plans and targets 	<ul style="list-style-type: none"> RW and RT leaders RT Kader (health and environment volunteers) Posiyandu (female volunteers) CBO leaders/members Sanitarians 	Phase 1: 236 RTs x 3 = 708 Stage 2: 205 RTs x 3 = 615 Stage 3: 229 RTs x 3 = 687	(+) Year 2 In 3 stages
Training Resources: 7 training events during Stage 1; Training venue package for 100 persons, 3 Return flights, 15 hotel room nights, 5 days car rental						
20. Community engagement at construction and post-construction phases	Enhance delivery approach and quality of local contractors	4	<ul style="list-style-type: none"> HH site assessment Preparing design for pipes routing & structural requirements Prepare BoQ & cost estimate Reach agreement with Beneficiary 	Contractors, supervision engineers, LG inspectors	20	(+) Year 2
Training Resources: 1 Head Trainer (int) 20 days, 1 Assistant Trainer (nat) 15 days, Training Venue 4 days (LG), 22 Pax Meeting Packages, 2 Return Flights (Jkt-LG-Jkt)						