

Sector: Solid Waste
Sub-Sector / Technically Autonomous Unit (Network, basin, ..): North

0.000365

Sector	Sub-Sector	Geographic area	Component	Present Situation	Target Situation	Projects		Technical Constraints							Characteristics			Impact	Uncertainty	Priority
								Description	Min. delay to start (Year)	Min. constr. period (Year)	Investment Million US\$	Land value / expro (Million US\$) (a) ⁽²⁾	Yearly maintenance cost (b) ⁽²⁾ %	Major rehab/replac. cost (c) %	Span for rehab/replc (d) (years)	Yearly operation cost (e) %	Uncertainty			
Physical Stock			Components		Capacity (t/d of MSW)		Components		Capacity (t/d of SWM)											
Solid Waste		North	Waste Minimization	none	10-20 % Reduction															
Solid Waste		North	Source Separation	none	100%															
Solid Waste		North	Reuse/Recycle ⁽³⁾	none	20%															
Solid Waste		North	Pre Collection			Akkar plant	37.23													
Solid Waste		North		Batroun plant	6.79															
Solid Waste		North		Bcharreh plant	3.13															
Solid Waste		North		Koura plant	7.1															
Solid Waste		North		Minieh-Danieh plant	17.47															
Solid Waste		North		Tripoli plant	38.99															
Solid Waste		North		Zgharta	8.11															
Solid Waste		North	Collection	-Fleet of Collection trucks	-Expansion to cover full area	Akkar collection system	186.13	1.66	98.00	905.49	15.00	49.20					M	1		
Solid Waste		North				Batroun collection system	33.94	0.30	98.00	4,965.80	15.00	49.20						M	1	
Solid Waste		North				Bcharreh collection system	15.63	0.14	98.00	10,783.00	15.00	49.20						M	1	
Solid Waste		North				Koura plant collection system	35.48	0.32	98.00	4,750.30	15.00	49.20						M	1	
Solid Waste		North				Minieh-Danieh collection system	87.34	0.78	98.00	1,929.70	15.00	49.20						M	1	
Solid Waste		North				Tripoli Collection System	194.94	1.73	98.00	864.57	15.00	49.20						M	1	
Solid Waste		North																		
Solid Waste		North	Pre Treatment	Mechmouch plant	10.53	Construction of sorting plants	Akkar plant	186.13	1.08	98.00			75.20				M	1		
Solid Waste		North					Batroun plant	34	0.20	98.00			75.20						M	1
Solid Waste		North					Bcharreh plant	15.63	0.09	98.00			75.20						M	1
Solid Waste		North					Koura plant	35.48	0.21	98.00			75.20						M	1
Solid Waste		North					Minieh-Danieh plant	87.34	0.51	98.00			75.20						M	1
Solid Waste		North					Tripoli plant	194.94	1.14	98.00			75.20						M	1
Solid Waste		North																		
Solid Waste		North	Material Recovery	inefficient	100-150	Full Utilization														
Solid Waste		North	Treatment	Mechmouch plant	6.3	-New operational site	Akkar plant	69.8	0.21	98.00			304.20				M	2		
Solid Waste		North					Batroun plant	12.73	0.04	98.00			304.20						M	2
Solid Waste		North					Bcharreh plant	5.86	0.02	98.00			304.20						M	2
Solid Waste		North					Koura plant	13.31	0.04	98.00			304.20						M	2
Solid Waste		North					Minieh-Danieh plant	47.97	0.14	98.00			304.20						M	2
Solid Waste		North					Tripoli plant	73.1	0.22	98.00			304.20						M	2
Solid Waste		North																		
Solid Waste		North	Anaerobic Digestion	none		None														
Solid Waste		North	Open Burning	utilized		Utilized and Fully rehabilitated														
Solid Waste		North	Sanitary Incineration	none		Closed and fully rehabilitated														
Solid Waste		North	Landfills Dumps	utilized		None														
Solid Waste		North	Environment (illegal dumps)	utilized		None										L	1			
Solid Waste		North	Disposal ⁽⁴⁾	Tripoli Landfill	249	Full Utilization	Akkar landfill	118.81	0.87	98.00							M	1		
Solid Waste		North					Zgharta landfill	118.81	0.87	98.00									M	1
Solid Waste		North					Akkar landfill bulky	7.43	0.04	98.00									M	1
Solid Waste		North					Zgharta landfill bulky	7.43	0.04	98.00									M	1
Solid Waste		North		Mechmouch landfill	4.2											M	1			
Solid Waste		North	W.T.E	None		Partial/Full utilization														
Solid Waste		North	Institutional Setup:						1.00											
Solid Waste		North	Private sector		Full Responsibility															
Solid Waste		North	NGOs		Little Involvement															
Solid Waste		North	Funding agencies		Big Involvement															
Solid Waste		North	MoE		establish&develop WMP															
Solid Waste		North			Public Society Recycling Guidance															
Solid Waste		North	OMSAR		Michmich															
Solid Waste		North			Minieh															
Solid Waste		North	USAID		AKkar															
Solid Waste		North	Economic values:																	
Solid Waste		North	Investment (a) million US\$	5	12															
Solid Waste		North	Land value / expropriation (a') million	2.00	2.00															
Solid Waste		North	Yearly maintenance cost (b) %	2%	2%															
Solid Waste		North	Major rehab/replac. cost (c) %	80%	80%															
Solid Waste		North	Span for rehab/replc (d)	5	15															
Solid Waste		North	Yearly operation cost (e) %	85%	59%															
Solid Waste		North	Performance Indicators:																	
Solid Waste		North	Results																	
Solid Waste		North	Means																	

** : OMSAR Projects, the cost is considered with the Sorting plant
 * : closure as soon as new set of disposal plants starts operation
 S: Sorting

C: Composting
 L: Landfill
 LB: Landfill Bulky
 H:high (1)
 M:medium (0)
 L:low (0)

(2): 2% of investment cost
 (3): Cost enters with the sorting plants
 (4): Landfill includes operation, investment and maintenance cost
 land value expropriation
 (Million US \$)⁽²⁾

Tripoli
 Other regions

0.0001
 0.00002

Sector: Solid Waste
Sub-Sector / Technically Autonomous Unit (Network, basin, ...): Bekaa

0.000365

Sector	Sub-Sector	Geographic area	Component	Present Situation		Target Situation	Projects		Characteristics							Impact	Uncertainty	Priority		
				Sp	Capacity (t/d of MSW)		AS	Capacity (t/d of SWM)	Description	Technical Constraints		Cost			Span for rehab/replc (d) (years)				Yearly operation cost (e) (%)	Uncertainty
										Min. delay to start (Year)	Min. constr. period (Year)	Investment Million cost US\$	Land value / expro (Million US\$)(a)²	Yearly maintenance cost (b)³ (%)						
Solid Waste	Bekaa		Physical Stock																	
Solid Waste	Bekaa		Waste Minimization	none		10-20 % Reduction														
Solid Waste	Bekaa		Source Separation	none		100%														
Solid Waste	Bekaa		Pre Collection																	
Solid Waste	Bekaa		Reuse/Recycle⁽³⁾	none		20%														
Solid Waste	Bekaa						Baalbeck plant	30.74												
Solid Waste	Bekaa						Hermel plant	4.86												
Solid Waste	Bekaa						Rachaya plant	4.47												
Solid Waste	Bekaa						West Bekaa plant	8.84												
Solid Waste	Bekaa						Zahle plant	23.90												
Solid Waste	Bekaa		Collection	Zahle			Baalbeck collection system	153.72		1.37		98%		15	49.2%		M			
Solid Waste	Bekaa			-El Marj Trucks			Hermel collection system	24.30		0.22		98%		15	49.2%		M			
Solid Waste	Bekaa						Rachaya collection system	22.37		0.20		98%		15	49.2%		M			
Solid Waste	Bekaa						West Bekaa collection system	44.22		0.39		98%		15	49.2%		M			
Solid Waste	Bekaa						Zahle collection system	119.48		1.06		98%		15	49.2%		M			
Solid Waste	Bekaa		Pre Treatment																	
Solid Waste	Bekaa		Sorting & Processing	Expansion of Zahle facility	75		Baalbeck plant	153.72		0.90		98%			62.7%		M			
Solid Waste	Bekaa						Hermel plant	24.30		0.14		98%			62.7%		M			
Solid Waste	Bekaa						Rachaya plant	22.37		0.13		98%			62.7%		M			
Solid Waste	Bekaa						West Bekaa plant	44.22		0.26		98%			62.7%		M			
Solid Waste	Bekaa						Zahle plant	119.48		0.70		98%			62.7%		M			
Solid Waste	Bekaa		Material Recovery	inefficient		Full utilization														
Solid Waste	Bekaa		Treatment																	
Solid Waste	Bekaa		Composting	None		-New operational site	Baalbeck plant	57.64		0.17		98%			304.2%		M			
Solid Waste	Bekaa						Hermel plant	9.11		0.03		98%			304.2%		M			
Solid Waste	Bekaa						Rachaya plant	8.39		0.03		98%			304.2%		M			
Solid Waste	Bekaa						West Bekaa plant	16.58		0.05		98%			304.2%		M			
Solid Waste	Bekaa						Zahle plant	44.81		0.13		98%			304.2%		M			
Solid Waste	Bekaa		Anaerobic Digestion	none																
Solid Waste	Bekaa		Open Burning	utilized		Utilized and fully rehabilitated														
Solid Waste	Bekaa		Sanitary Incineration	none																
Solid Waste	Bekaa		Sanitary Landfills	Zahle Landfill (under Rehabilitation)	200	-Provide accomodation for more than 22 year horizon	Zahle landfill	72.82		0.53		98%					M			
Solid Waste	Bekaa						Baalbek landfill	72.82		0.53		98%					M			
Solid Waste	Bekaa						Zahle landfill bulky	4.55		0.02		98%					M			
Solid Waste	Bekaa						Baalbek landfill bulky	4.55		0.02		98%					M			
Solid Waste	Bekaa		Environment (illegal dumps)	utilized		none														
Solid Waste	Bekaa		Landfills Dumps	none		Closed and fully rehabilitated														
Solid Waste	Bekaa		W.T.E	none		Partial/Full utilization														
Solid Waste	Bekaa		Institutional Setup:						1.00											
Solid Waste	Bekaa		Private sector		Full Responsibility															
Solid Waste	Bekaa		NGOs		Little Involvement															
Solid Waste	Bekaa		Funding agencies		Big Involvement															
Solid Waste	Bekaa		MoE		establish&develop WMP															
Solid Waste	Bekaa		OMSAR		Public Society Recycling Guidance															
Solid Waste	Bekaa		USAID		Baalbeck															
Solid Waste	Bekaa				El Marj															
Solid Waste	Bekaa				Anjar															
Solid Waste	Bekaa				West Bekaa															
Solid Waste	Bekaa				Rachaiaya															
Solid Waste	Bekaa		Economic values:																	
Solid Waste	Bekaa		Investment (a) million US\$	5	8															
Solid Waste	Bekaa		Land value / expropriation (a') million	0	1															
Solid Waste	Bekaa		Yearly maintenance cost (b) %	2%	2%															
Solid Waste	Bekaa		Major rehab/replac. cost (c) %	80%	80%															
Solid Waste	Bekaa		Span for rehab/replc (d)	5	15															
Solid Waste	Bekaa		Yearly operation cost (e) %	50%	53%															
Solid Waste	Bekaa		Performance Indicators:																	
Solid Waste	Bekaa		Results																	
Solid Waste	Bekaa		Means																	

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 land value expropriation
 (Million US \$)⁽⁵⁾ 0.00002