

**Water Utility: Syarikat Air Terengganu SDN. Bhd (SATU)**

Kuala Terengganu, Kuala Terengganu, Malaysia

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**Services Provided:** Piped water, , , ,

**Utility Type:** , , , State Owned Enterprise, , ,

**Private Sector Involvement:** , Service Contract, , , , ,

**Source of Raw Water:** , , Direct river abstraction, Groundwater,

**Treatment Method:** , Disinfection, Filtration, Flocculation and sedimentation, Aeration, ,

**Water Supply System description:**

Production capacity = 523,000 m3/day		Distribution network = 4,283 km		Storage capacity = 369,000 m3	
Area of Responsibility		Present Service Area			
Area (sq km)	12,950	9,000			
Population	980,000	980,000			
No. of Towns = 8		Population served = 880,000			
<u>No. of connections:</u>		Domestic (Households) = 150,150		Non Domestic = 36,906	
Typical service connection length = 50 m		Total Connections = 187,056		Connections with operating meter = 187,056	
System input volumes:	Produced by W.U. = 134.7 million m3/year		Bulk water imported = zero		
Water consumption:	Metered cons. = 90.7 million m3/year		% Unmetered cons. = 33% of metered cons.		Ave. meter inaccuracy = 4% of metered cons.
Water Sales:	Domestic = 54.2 million m3/year		Non Domestic = 36.5 million m3/year		Bulk Water sales = zero
<u>System Performance:</u>	No. of connections with intermittent supply = 10,000		Typical duration of supply = 24.0 hours / day		
	No. of pipe breaks in distribution system = 150 / year		Typical water pressure in mains = 10 m.		
Chlorine Residuals:	Tests required = 9,000 / year		Tests carried out = 8,980 / year		Tests passed = 8,936 / year

**Human Resources (Staff)**

<u>Type of employment:</u>	, Permanent staff: with contract, Casual/part-time: contract staff, , ,				
<u>No. of staff (FTE):</u>	Corporate Services = 205	Water Supply = 375	Other = zero	Total = 580	
<u>Staff Training:</u>	No. Trained = 275 / year	Training days = 900 / year	Training costs = 7.00% of total operating budget		

**Customer information**

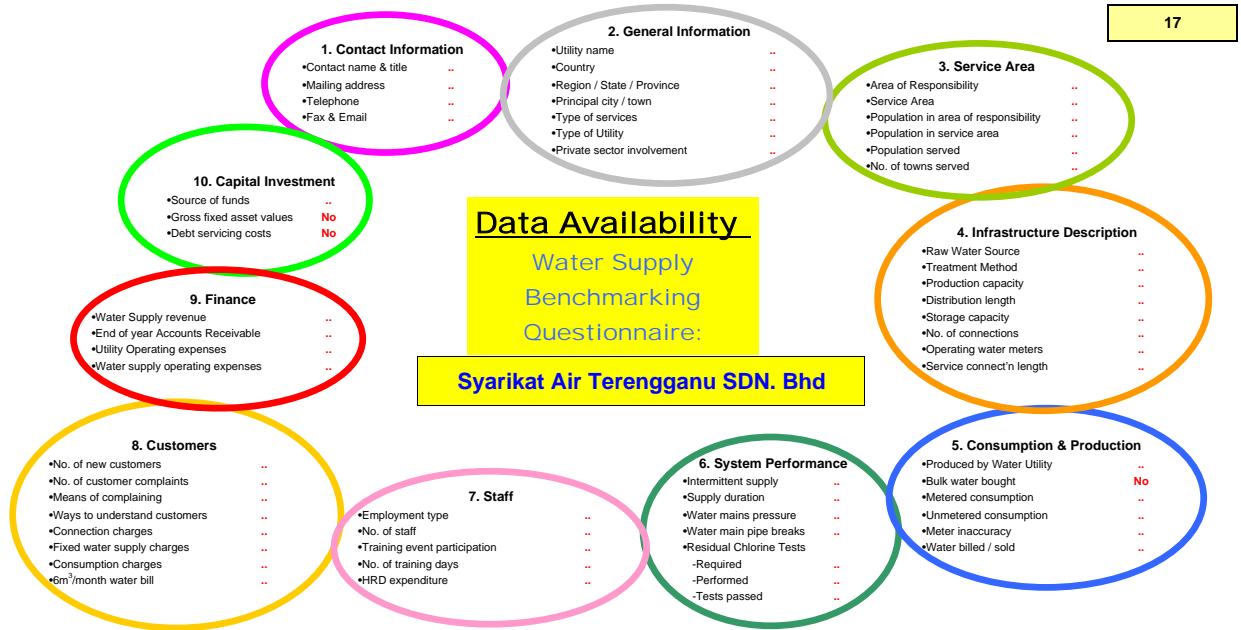
Customer interaction:	New connections = 4,500 / year		Customer complaints = 689 / year	
Complaint method:	In person, By telephone, By email, By letter,			
Understanding customers by:	Customer interactions, Responding to complaints, Surveys, questionnaires, etc., ,			

**Charges & Fees**

<u>Typical connection charge:</u>		Domestic = 100MYR / conn. (26 US\$ / conn.)		Non Domestic = 200MYR / conn. (53 US\$ / conn.)	
<u>Fixed water charge:</u> estic = 4MYR / month (1 US\$ / conn.)		Non Domestic = 15MYR / month (4 US\$ / conn.)		Bulk water sales = N/A	
<u>Water consumption tariff</u> (typical of all towns and in each category):		Tariff Block 1	Tariff Block 2	Tariff Block 3	Tariff Block 4
Domestic	From - To (m <sup>3</sup> )	0 - 20	20 - 40	40 - 60	>60
	Price (MYR / m <sup>3</sup> )	0	1	1	1
	(US\$ / m <sup>3</sup> )	\$0.11	\$0.17	\$0.24	\$0.26
Non Domestic	From - To (m <sup>3</sup> )	0 - 70	70		
	Price (MYR / m <sup>3</sup> )	1	1		
	(US\$ / m <sup>3</sup> )	\$0.25	\$0.30		
Bulk Water	From - To (m <sup>3</sup> )				
	Price (MYR / m <sup>3</sup> )				
	(US\$ / m <sup>3</sup> )				
Water bill for household consuming 6 m <sup>3</sup> /month =		4 MYR / month		(1.05 US\$ / month)	

**Finances**

<u>Revenue:</u>	Water Sales	Other water related	Subsidies & grants	Total	Year end Accounts Receivable	
	MYR / year	74,500,000	1,200,000	zero	75,700,000	800,000
	US\$ / year	\$19,609,650	\$315,860	zero	\$19,925,510	\$210,573
<u>Operating Expenses:</u>	Water supply	Other services	Company Overhead	Total		
	MYR / year	46,700,000	zero	zero	46,700,000	
	US\$ / year	\$12,292,223	zero	zero	\$12,292,223	
<u>Water Supply Operating breakup:</u>	Labor	Electricity	Chemicals & materials	Contracted out	Other expenses	
	MYR / year	13,076,000	14,944,000	2,802,000	5,137,000	10,741,000
	US\$ / year	\$3,441,823	\$3,933,511	\$737,533	\$1,352,145	\$2,827,211
<u>Investment funds source:</u> , Grant from Government or ODA project, , , , ,						
<u>Fixed Assets value:</u>	Water supply	Other services	Company Overhead	Total	Debt Servicing Costs	
	MYR	1,700,000,000	zero	zero	1,700,000,000	zero
	US\$	\$447,468,513	zero	zero	\$447,468,513	zero

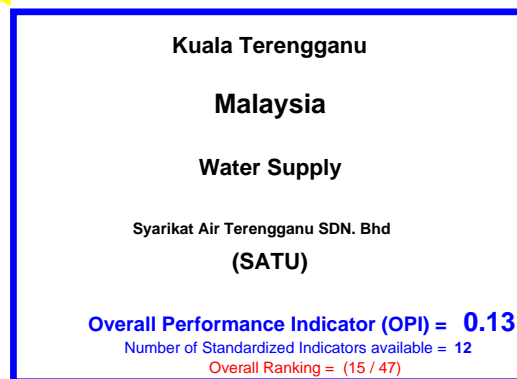


## Calculation of Overall Performance Indicator (OPI)

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Customer Indicators	Value	Rank
Service Coverage in existing service area (%)	89.8%	(15 / 45)
Meter coverage (% with operating water meter)	100.0%	(1 / 46)
Customer complaints / 1000 connections	3.7	(34 / 41)

Water Supply Systems O&M	Value	Rank
Supply Continuity (% of time water available)	100.0%	(1 / 47)
Residual Chlorine tests passed (%)	99.5%	(13 / 34)
Total Unmetered Consumption (% of metered cons.)		
Infrastructure Leakage Index [ILI]	8.5	(9 / 26)



Human Resource Indicators	Value	Rank
Total water related staff / 1000 connections	3.1	(6 / 38)
Investment in staff training (days / staff)	1.6	(10 / 33)
Ave. cost of employment / staff (% of per capita GNI)	157%	(31 / 37)

Financial Indicators	Value	Rank
Operating Cost Coverage (water sales only)	1.6	(5 / 43)
Unit water cost (US\$ / m <sup>3</sup> of system input)	\$0.08	(11 / 43)
Water system asset value / Prod'n capacity (US\$ / m <sup>3</sup> /day)	\$855	(34 / 35)
Debt servicing ratio (% of total operating revenue)		

**Financial Indicators: Annual expenses & revenue**

Operating Cost Coverage		Expenses	
Operating Cost Coverage (water sales only)	1.6	Overhead expenses / Total Operating expenses ratio	0.00
Operating Cost Coverage (total revenue)	1.62	Labour costs / Water operating expenses	0.28
		Electricity costs / Water operating expenses	0.32
		Chemical & other materials costs / Water operating expenses	0.06
		Contracted out services costs / Water operating expenses	0.11
Revenue			
Water sales revenue / Total revenue ratio	0.98	Unit water cost (US\$ / m <sup>3</sup> of metered cons.)	0.13
Subsidies & Grants / Total revenue ratio	0.00	(US\$ / m <sup>3</sup> of system input)	0.08
Revenue Collection period (months)	0.13	Debt servicing ratio (% of total operating revenue)	0.0%
Unit water price - ave. (US\$ / m <sup>3</sup> of metered cons.)	0.21		

**Fixed Assets**

Corporate Fixed Assets / Total Fixed Assets	0.00
Water system asset values	
Asset value / Total water related assets	1.00
Asset value / Prod'n capacity (US\$ / m <sup>3</sup> /day)	855
Asset value / pipe length (US\$ / m. pipe)	105
Asset value / Customer (US\$ / conn.)	2,392

**System Input**

Production capacity utilization (%)	71%
Bulk water imported (% of total system input)	0%
System Input Rate (litres/person/day)	419
(m <sup>3</sup> /connection/month)	60.0
System Input / Distribution ratio (m <sup>3</sup> /day per km pipe)	86.0
System Input / Storage ratio (m <sup>3</sup> /day per m <sup>3</sup> storage)	1.0
Supply Continuity (% customers with continuous supply)	95%
Supply Continuity (% of time water available)	100%

## Kuala Terengganu Malaysia Water Supply

Syarikat Air Terengganu SDN. Bhd

(SATU)

OPI Ranking = 15 / 47

**Human Resource Indicators**

Human Resource Utilisation		Human Resource Development	
Overhead staff ratio (% of total FTE staff)	35%	Staff Training participation rate (% staff)	47%
Water supply staff ratio (% of total FTE staff)	65%	Staff Training duration rate (days / staff)	1.6
Total water related staff / 1000 connections	3.10	Investment in staff training (% of direct labour costs)	25.00%
Direct water supply staff		Investment in staff training (% of total operating costs)	7.00%
Staff / 1000 connections	2.00	Human Resources Costs	
Staff / 1000 m <sup>3</sup> /day system input	1.00	Ave. cost of employment / staff (% of per capita GNI)	1.57
Staff / 100 km of pipework	8.80	Contracting out services / in-house Labour costs ratio	0.40

**Distribution**

Distribution / customer (m. pipe per connection)	22.9
Storage / customer (m <sup>3</sup> per connection)	2.00
Residual Chlorine	
Sampling compliance (%)	100%
Tests passed (%)	100%
Non Revenue Water (UFW)	
% of System Input	33%
m <sup>3</sup> / km / day	28.1
m <sup>3</sup> / connection / day	0.64
NRW adjusted for continuous supply (% of System Input)	33%
Unbilled Authorized & Unauthorized Cons. (% of metered cons.)	29%
Unmetered cons. due to meter inaccuracies (% of metered cons.)	4%
Total Unmetered Consumption (% of metered cons.)	33%
Infrastructure Leakage Index [ILI]	8.50
Mains failures ratio (breaks / km pipe / year)	0.00

**Water consumption**

Bulk water exported (% of total metered cons.)	0%
Average domestic water charges (% of per capita GNI)	1%
Metered consumption rate	
- Domestic (litres/person/day)	169
- Total Cons. (litres/person/day)	282
(m <sup>3</sup> /conn/month)	40
Total consumption - metered & unmetered	
(litres/person/day)	375.00
(m <sup>3</sup> /conn/month)	54.00
Domestic share of total metered consumption (%)	60%
Non Domestic share of total metered consumption (%)	40%

**Demography**

Average town / city size (persons / town)	122,500
Population density in area of responsibility (persons/sq.km)	76
Population density in existing service area (persons/sq.km)	109
Average Household size (persons / domestic connection)	6

**Customer Interactions**

Customer complaints / 1000 connections	4
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**Connections**

Service Coverage in area of responsibility (%)	90%
Service Coverage in existing service area (%)	90%
Domestic / Non-Domestic connections ratio	4.1
Domestic / Non-Domestic consumption rate ratio	1.5
New connection growth rate (% / year)	2%
New domestic connection cost (US\$ / connection)	26
New domestic connections (% of per capita GNI)	0%
Meter coverage (% with operating water meter)	100%
Billed unmetered consumption (% of metered cons.)	0%

# Water Sales & Production Information

Syarikat Air Terengganu SDN. Bhd

