

Water Utility: Metropolitan Waterworks Authority (MWA)

Bangkok, Bangkok, Thailand

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Services Provided: Piped water, , , ,
Utility Type: , Government with separate reporting for WS&S, , , ,

Private Sector Involvement: , Service Contract, , , ,

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

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

Water Supply System description:

Production capacity = 4,660,000 m3/day		Distribution network = 22,176 km		Storage capacity = 678,000 m3	
Area of Responsibility		Present Service Area			
Area (sq km)	3,192	1,515			
Population	7,808,000	6,931,000			
No. of Towns = 3		Population served = 6,931,000			
<u>No. of connections:</u>		Domestic (Households) = 1,156,594		Non Domestic = 383,609	
Typical service connection length = 20 m		Total Connections = 1,540,203		Connections with operating meter = 1,540,203	
System input volumes: Produced by W.U. = 1,516.0 million m3/year		Bulk water imported = zero			
Water consumption: Metered cons. = 1,006.0 million m3/year		% Unmetered cons. = 1% of metered cons.		Ave. meter inaccuracy = 0% of metered cons.	
Water Sales: Domestic = 495.8 million m3/year		Non Domestic = 466.5 million m3/year		Bulk Water sales = 43.4 million m3/year	
<u>System Performance:</u>		No. of connections with intermittent supply = N/A		Typical duration of supply = 24.0 hours / day	
Chlorine Residuals: Tests required = 30,000 / year		Tests carried out = 30,000 / year		Tests passed = 28,500 / year	

Human Resources (Staff)

<u>Type of employment:</u> Permanent staff: salaried Government employees, Permanent staff: with contract, , , Contracted out to outside company/agency,			
<u>No. of staff (FTE):</u>	Corporate Services = 969	Water Supply = 3,784	Other = zero
<u>Staff Training:</u>	No. Trained = 3,025 / year	Training days = 17,649 / year	Training costs = 0.12% of total operating budget
Total = 4,753			

Customer information

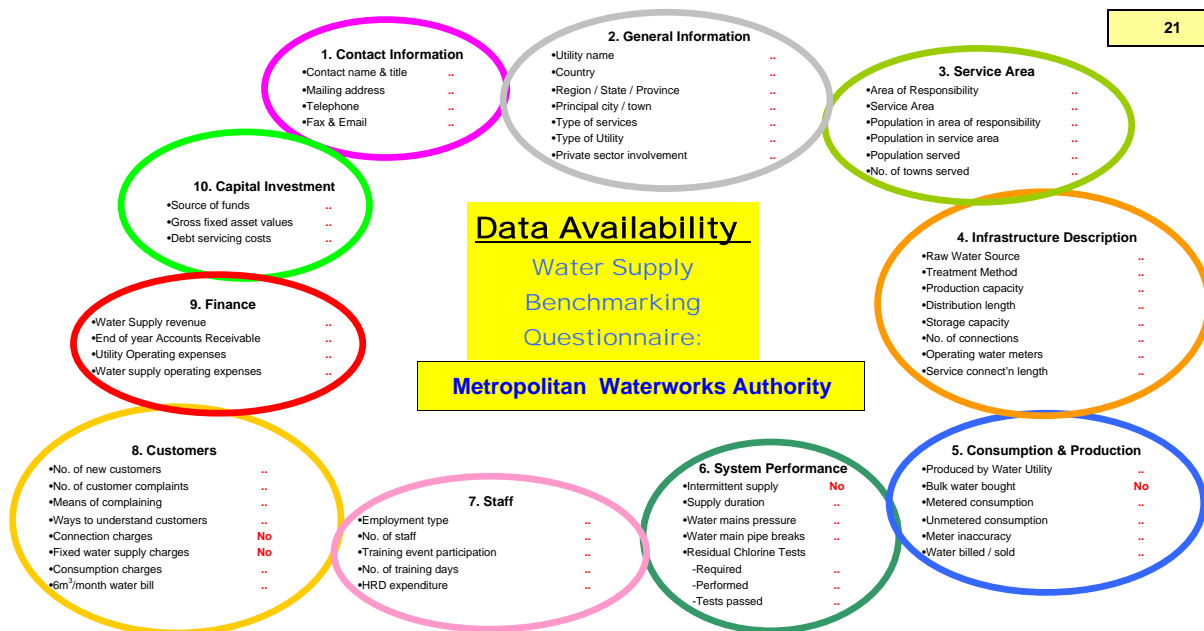
Customer interaction:	New connections = 65,521 / year	Customer complaints = 183,846 / year
Complaint method: In person, By telephone, By email, By letter,		
Understanding customers by: Customer interactions, Responding to complaints, Surveys, questionnaires, etc., Market research, Other method: Occasional customer Visits		

Charges & Fees

<u>Typical connection charge:</u>		Domestic = N/A		Non Domestic = N/A	
<u>Fixed water charge:</u>		Domestic = N/A		Non Domestic = N/A	
<u>Water consumption tariff</u> (typical of all towns and in each category):		N/A		N/A	
		Tariff Block 1	Tariff Block 2	Tariff Block 3	Tariff Block 4
Domestic	From - To (m ³)	0 - 30	30 - 40	40 - 50	>50
	Price (THB / m ³)	9	10	10	13
	(US\$ / m ³)	\$0.22	\$0.26	\$0.27	\$0.32
Non Domestic	From - To (m ³)	0 - 10	10 - 20	20 - 30	>30
	Price (THB / m ³)	10	11	11	13
	(US\$ / m ³)	\$0.25	\$0.28	\$0.28	\$0.33
Bulk Water	From - To (m ³)				
	Price (THB / m ³)				
	(US\$ / m ³)				
Water bill for household consuming 6 m ³ /month =				51 THB / month	(1.31 US\$ / month)

Finances

<u>Revenue:</u>	Water Sales	Other water related	Subsidies & grants	Total	Year end Accounts Receivable	
	THB / year	12,569,900,000	822,000,000	zero	13,391,900,000	
	US\$ / year	\$324,100,980	\$21,194,362	zero	\$345,295,342	\$34,078,574
<u>Operating Expenses:</u>	Water supply	Other services	Company Overhead	Total		
	THB / year	4,316,900,000	zero	zero	4,316,900,000	
	US\$ / year	\$111,306,496	zero	zero	\$111,306,496	
<u>Water Supply Operating breakup:</u>	Labor	Electricity	Chemicals & materials	Contracted out	Other expenses	
	THB / year	2,206,100,000	725,300,000	596,600,000	450,100,000	338,800,000
	US\$ / year	\$56,881,850	\$18,701,059	\$15,382,672	\$11,605,331	\$8,735,584
<u>Investment funds source:</u> Own internal funds, , Loan from Government Bank, Loan from ODA sources, , , Other method: Bond						
<u>Fixed Assets value:</u>	Water supply	Other services	Company Overhead	Total	Debt Servicing Costs	
	THB	40,093,600,000	zero	6,131,900,000	46,225,500,000	4,262,100,000
	US\$	\$1,033,769,167	zero	\$158,104,265	\$1,191,873,432	\$109,893,538



Calculation of Overall Performance Indicator (OPI)

Customer Indicators	Value	Rank
Service Coverage in existing service area (%)	100.0%	(3 / 45)
Meter coverage (% with operating water meter)	100.0%	(1 / 46)
Customer complaints / 1000 connections	119.4	(17 / 41)

Water Supply Systems O&M	Value	Rank
Supply Continuity (% of time water available)	100.0%	(1 / 47)
Residual Chlorine tests passed (%)	95.0%	(20 / 34)
Total Unmetered Consumption (% of metered cons.)		
Infrastructure Leakage Index [ILI]	102.8	(22 / 26)

Bangkok
Thailand
Water Supply
Metropolitan Waterworks Authority
(MWA)

Overall Performance Indicator (OPI) = 0.82
Number of Standardized Indicators available = 12
Overall Ranking = (3 / 47)

Human Resource Indicators	Value	Rank
Total water related staff / 1000 connections	3.1	(6 / 38)
Investment in staff training (days / staff)	3.7	(6 / 33)
Ave. cost of employment / staff (% of per capita GNI)	547%	(1 / 37)

Financial Indicators	Value	Rank
Operating Cost Coverage (water sales only)	2.91	(1 / 43)
Unit water cost (US\$ / m ³ of system input)	\$0.07	(6 / 43)
Water system asset value / Prod'n capacity (US\$ / m ³ /day)	\$222	(27 / 35)
Debt servicing ratio (% of total operating revenue)		

Financial Indicators: Annual expenses & revenue

Operating Cost Coverage		Expenses	
Operating Cost Coverage (water sales only)	2.91	Overhead expenses / Total Operating expenses ratio	0.00
Operating Cost Coverage (total revenue)	3.1	Labour costs / Water operating expenses	0.51
		Electricity costs / Water operating expenses	0.17
		Chemical & other materials costs / Water operating expenses	0.14
		Contracted out services costs / Water operating expenses	0.10
Revenue		Unit water cost	(US\$ / m ³ of metered cons.) 0.11
Water sales revenue / Total revenue ratio	0.94		(US\$ / m ³ of system input) 0.07
Subsidies & Grants / Total revenue ratio	0.00	Debt servicing ratio (% of total operating revenue)	31.8%
Revenue Collection period (months)	1.26		
Unit water price - ave. (US\$ / m ³ of metered cons.)	0.32		

Fixed Assets

Corporate Fixed Assets / Total Fixed Assets	0.13
Water system asset values	
Asset value / Total water related assets	0.87
Asset value / Prod'n capacity (US\$ / m ³ /day)	222
Asset value / pipe length (US\$ / m. pipe)	47
Asset value / Customer (US\$ / conn.)	671

System Input

Production capacity utilization (%)	89%
Bulk water imported (% of total system input)	0%
System Input Rate (litres/person/day)	582
(m ³ /connection/month)	80.0
System Input / Distribution ratio (m ³ /day per km pipe)	187.0
System Input / Storage ratio (m ³ /day per m ³ storage)	6.1
Supply Continuity (% customers with continuous supply)	#N/A
Supply Continuity (% of time water available)	100%

Bangkok Thailand Water Supply

Metropolitan Waterworks Authority

(MWA)

OPI Ranking = 3 / 47

Human Resource Indicators

Human Resource Utilisation		Human Resource Development	
Overhead staff ratio (% of total FTE staff)	20%	Staff Training participation rate (% staff)	64%
Water supply staff ratio (% of total FTE staff)	80%	Staff Training duration rate (days / staff)	3.7
Total water related staff / 1000 connections	3.10	Investment in staff training (% of direct labour costs)	0.23%
Direct water supply staff		Investment in staff training (% of total operating costs)	0.12%
Staff / 1000 connections	2.50		
Staff / 1000 m ³ /day system input	0.90	Human Resources Costs	
Staff / 100 km of pipework	17.10	Ave. cost of employment / staff (% of per capita GNI)	5.47
		Contracting out services / in-house Labour costs ratio	0.20

Distribution

Distribution / customer (m. pipe per connection)	14.4
Storage / customer (m ³ per connection)	0.40
Residual Chlorine	
Sampling compliance (%)	100%
Tests passed (%)	95%
Non Revenue Water (UFW)	
% of System Input	34%
m ³ / km / day	63.0
m ³ / connection / day	0.91
NRW adjusted for continuous supply (% of System Input)	34%
Unbilled Authorized & Unauthorized Cons. (% of metered cons.)	1%
Unmetered cons. due to meter inaccuracies (% of metered cons.)	0%
Total Unmetered Consumption (% of metered cons.)	1%
Infrastructure Leakage Index [ILI]	102.80
Mains failures ratio (breaks / km pipe / year)	6.30

Water consumption

Bulk water exported (% of total metered cons.)	4%
Average domestic water charges (% of per capita GNI)	2%
Metered consumption rate	
- Domestic (litres/person/day)	196
- Total Cons. (litres/person/day)	380
	(m ³ /conn/month)
	52
Total consumption - metered & unmetered	
	(litres/person/day)
	383.00
	(m ³ /conn/month)
	52.00
Domestic share of total metered consumption (%)	49%
Non Domestic share of total metered consumption (%)	46%

Demography

Average town / city size (persons / town)	2,602,667
Population density in area of responsibility (persons/sq.km)	2,446
Population density in existing service area (persons/sq.km)	4,575
Average Household size (persons / domestic connection)	6
Customer Interactions	
Customer complaints / 1000 connections	119

Connections

Service Coverage in area of responsibility (%)	89%
Service Coverage in existing service area (%)	100%
Domestic / Non-Domestic connections ratio	3.0
Domestic / Non-Domestic consumption rate ratio	1.0
New connection growth rate (% / year)	4%
New domestic connection cost (US\$ / connection)	#N/A
New domestic connections (% of per capita GNI)	#N/A
Meter coverage (% with operating water meter)	100%
Billed unmetered consumption (% of metered cons.)	0%

Water Sales & Production Information

Metropolitan Waterworks Authority

