

# SEAWUN Benchmarking Survey for 2003 - Base Data

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## Water Utility: Binh Duong Water & Drainage Company (CTCTNBD)

Binh Duong, Binh Duong, Vietnam

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Services Provided: Piped water, Wastewater, , Solid waste, Other: Management & Exploitation of irrigational works

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 = 46,800 m3/day		Distribution network = 239 km		Storage capacity = 10,500 m3	
Area (sq km)		Area of Responsibility		Present Service Area	
30,000		410,000		30,000	
Population		410,000		251,550	
No. of Towns = 7		Population served = 208,162			
No. of connections:		Domestic (Households) = 7,627		Non Domestic = 418	
Typical service connection length = 10 m		Total Connections = 8,045		Connections with operating meter = 8,045	
System input volumes:	Produced by W.U. = 7.2 million m3/year	Bulk water imported = zero			
Water consumption:	Metered cons. = 5.6 million m3/year	% Unmetered cons. = N/A		Ave. meter inaccuracy = 2% of metered cons.	
Water Sales:	Domestic = 1.9 million m3/year	Non Domestic = 4.0 million m3/year		Bulk Water sales = zero	
System Performance:	No. of connections with intermittent supply = N/A		Typical duration of supply = 24.0 hours / day		
	No. of pipe breaks in distribution system = 80 / year		Typical water pressure in mains = N/A		
Chlorine Residuals:	Tests required = N/A	Tests carried out = N/A		Tests passed = N/A	

### Human Resources (Staff)

Type of employment:	Permanent staff: salaried Government employees, Permanent staff: with contract, , , Contracted out to outside company/agency,				
No. of staff (FTE):	Corporate Services = 150	Water Supply = 111	Other = zero	Total = 261	
Staff Training:	No. Trained = N/A	Training days = N/A	Training costs = N/A		

### Customer information

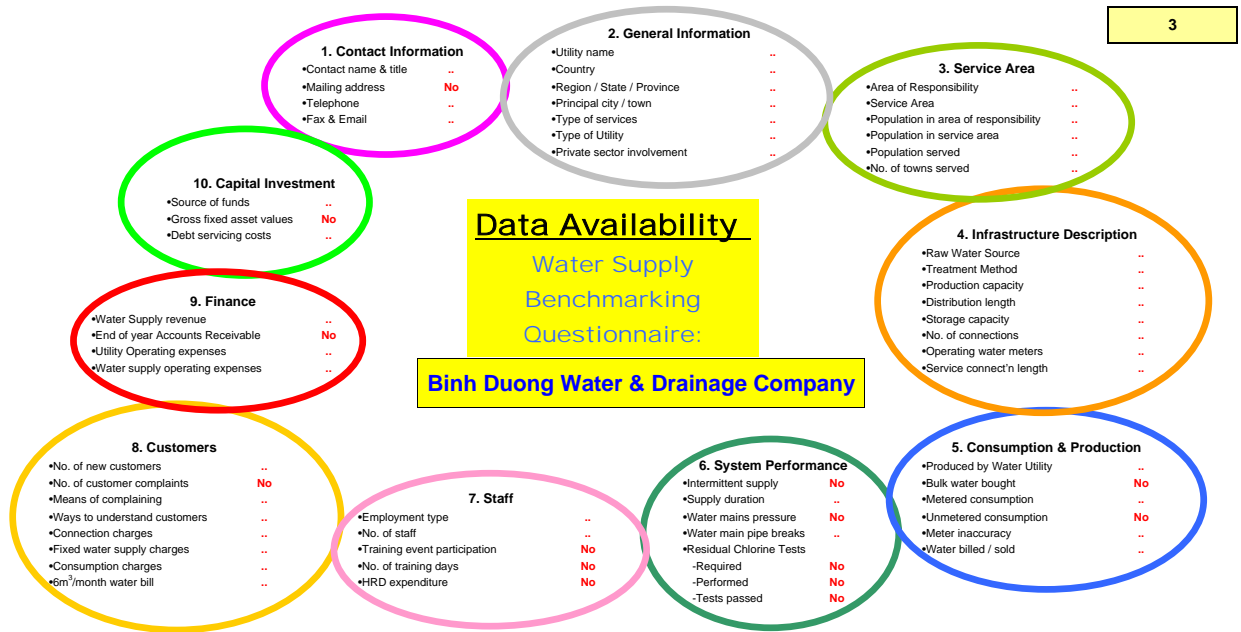
Customer interaction:	New connections = 1,453 / year	Customer complaints = N/A
Complaint method:	In person, By telephone, By email, By letter,	
Understanding customers by:	Customer interactions, Responding to complaints, Surveys, questionnaires, etc., ,	

### Charges & Fees

Typical connection charge:		Domestic = 680,000VND / conn. (43 US\$ / conn.)		Non Domestic = N/A N/A	
Fixed water charge:		Domestic = 7,000VND / month (0 US\$ / conn.)		Non Domestic = 7,000VND / month (0 US\$ / conn.)	
Bulk water sales = N/A		Bulk water sales = N/A			
Water consumption tariff (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> )				
	Price (VND / m3)	2,400			
	(US\$ / m <sup>3</sup> )	\$0.15			
Non Domestic	From - To (m <sup>3</sup> )				
	Price (VND / m3)	3,850			
	(US\$ / m <sup>3</sup> )	\$0.24			
Bulk Water	From - To (m <sup>3</sup> )				
	Price (VND / m3)				
	(US\$ / m <sup>3</sup> )				
Water bill for household consuming 6 m <sup>3</sup> /month =		23,000 VND / month		(1.46 US\$ / month)	

### Finances

Revenue:	Water Sales	Other water related	Subsidies & grants	Total	Year end Accounts Receivable	
	VND / year	20,630,492,430	5,164,889,483	zero	25,795,381,913	
	US\$ / year	\$1,308,294	\$327,534	zero	\$1,635,829	zero
Operating Expenses:	Water supply	Other services	Company Overhead	Total		
	VND / year	9,205,073,831	2,327,801,981	4,264,626,801	15,797,502,613	
	US\$ / year	\$583,745	\$147,619	\$270,444	\$1,001,808	
Water Supply Operating breakup:	Labor	Electricity	Chemicals & materials	Contracted out	Other expenses	
	VND / year	4,264,626,801	3,740,227,926	620,982,192	7,171,665,691	zero
	US\$ / year	\$270,444	\$237,189	\$39,380	\$454,795	zero
Investment funds source: Own internal funds, Grant from Government or ODA project, Loan from Government Bank, Loan from ODA sources, , ,						
Fixed Assets value:	Water supply	Other services	Company Overhead	Total	Debt Servicing Costs	
	VND	106,635,848,173	zero	zero	106,635,848,173	840,592,547
	US\$	\$6,762,372	zero	zero	\$6,762,372	\$53,307



## Calculation of Overall Performance Indicator (OPI)

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Customer Indicators	Value	Rank
Service Coverage in existing service area (%)	82.8%	(20 / 45)
Meter coverage (% with operating water meter)	100.0%	(1 / 46)
Customer complaints / 1000 connections	#N/A	

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



Human Resource Indicators	Value	Rank
Total water related staff / 1000 connections	32.4	(38 / 38)
Investment in staff training (days / staff)	#N/A	
Ave. cost of employment / staff (% of per capita GNI)	216%	(19 / 37)

Financial Indicators	Value	Rank
Operating Cost Coverage (water sales only)	1.53	(6 / 43)
Unit water cost (US\$ / m <sup>3</sup> of system input)	\$0.12	(22 / 43)
Water system asset value / Prod'n capacity (US\$ / m <sup>3</sup> /day)	\$145	(21 / 35)
Debt servicing ratio (% of total operating revenue)		

**Financial Indicators: Annual expenses & revenue**

Operating Cost Coverage		Expenses	
Operating Cost Coverage (water sales only)	1.53	Overhead expenses / Total Operating expenses ratio	0.27
Operating Cost Coverage (total revenue)	1.92	Labour costs / Water operating expenses	0.46
		Electricity costs / Water operating expenses	0.41
		Chemical & other materials costs / Water operating expenses	0.07
		Contracted out services costs / Water operating expenses	0.78
Revenue			
Water sales revenue / Total revenue ratio	0.80	Unit water cost (US\$ / m <sup>3</sup> of metered cons.)	0.15
Subsidies & Grants / Total revenue ratio	0.00	(US\$ / m <sup>3</sup> of system input)	0.12
Revenue Collection period (months)	#N/A	Debt servicing ratio (% of total operating revenue)	3.3%
Unit water price - ave. (US\$ / m <sup>3</sup> of metered cons.)	0.23		

**Fixed Assets**

Corporate Fixed Assets / Total Fixed Assets	#N/A
Water system asset values	
Asset value / Total water related assets	#N/A
Asset value / Prod'n capacity (US\$ / m <sup>3</sup> /day)	145
Asset value / pipe length (US\$ / m. pipe)	28
Asset value / Customer (US\$ / conn.)	841

**System Input**

Production capacity utilization (%)	42%
Bulk water imported (% of total system input)	0%
System Input Rate (litres/person/day)	95
(m <sup>3</sup> /connection/month)	75.0
System Input / Distribution ratio (m <sup>3</sup> /day per km pipe)	83.0
System Input / Storage ratio (m <sup>3</sup> /day per m <sup>3</sup> storage)	1.9
Supply Continuity (% customers with continuous supply)	#N/A
Supply Continuity (% of time water available)	100%

## Binh Duong Vietnam Water Supply

### Binh Duong Water & Drainage Company (CTCTNBD)

OPI Ranking = 23 / 47

**Human Resource Indicators**

Human Resource Utilisation		Human Resource Development	
Overhead staff ratio (% of total FTE staff)	58%	Staff Training participation rate (% staff)	#N/A
Water supply staff ratio (% of total FTE staff)	43%	Staff Training duration rate (days / staff)	#N/A
		Investment in staff training (% of direct labour costs)	#N/A
		Investment in staff training (% of total operating costs)	#N/A
Total water related staff / 1000 connections	32.40	Human Resources Costs	
Direct water supply staff		Ave. cost of employment / staff (% of per capita GNI)	2.16
Staff / 1000 connections	13.80	Contracting out services / in-house Labour costs ratio	1.70
Staff / 1000 m <sup>3</sup> /day system input	5.60		
Staff / 100 km of pipework	46.40		

**Distribution**

Distribution / customer (m. pipe per connection)	29.7
Storage / customer (m <sup>3</sup> per connection)	1.30
Residual Chlorine	
Sampling compliance (%)	#N/A
Tests passed (%)	#N/A
Non Revenue Water (UFW)	
% of System Input	22%
m <sup>3</sup> / km / day	18.3
m <sup>3</sup> / connection / day	0.54
NRW adjusted for continuous supply (% of System Input)	#N/A
Unbilled Authorized & Unauthorized Cons. (% of metered cons.)	#N/A
Unmetered cons. due to meter inaccuracies (% of metered cons.)	2%
Total Unmetered Consumption (% of metered cons.)	#N/A
Infrastructure Leakage Index [ILI]	#N/A
Mains failures ratio (breaks / km pipe / year)	0.30

**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)	25
- Total Cons. (litres/person/day)	78
	(m <sup>3</sup> /conn/month)
	61
Total consumption - metered & unmetered	
	(litres/person/day)
	#N/A
	(m <sup>3</sup> /conn/month)
	#N/A
Domestic share of total metered consumption (%)	34%
Non Domestic share of total metered consumption (%)	71%

**Demography**

Average town / city size (persons / town)	58,571
Population density in area of responsibility (persons/sq.km)	14
Population density in existing service area (persons/sq.km)	8
Average Household size (persons / domestic connection)	27

**Customer Interactions**

Customer complaints / 1000 connections	#N/A
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**Connections**

Service Coverage in area of responsibility (%)	51%
Service Coverage in existing service area (%)	83%
Domestic / Non-Domestic connections ratio	18.2
Domestic / Non-Domestic consumption rate ratio	0.5
New connection growth rate (% / year)	18%
New domestic connection cost (US\$ / connection)	43
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

## Binh Duong Water & Drainage Company

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**Water Production**  
7,200,000 m3/year  
100% of Water Input

**Bulk Water Import**  
0 m3/year  
0% of Water Input

**Total Water Input**  
7,200,000 m3/year  
600,000 m3/mth

**Unaccounted for Water (UFW)**  
22% of Water Input

**Adjusted UFW for 24/7 supply**  
#N/A

**Metered Water Consumption**  
466,667 m3/mth

**Domestic**  
158,333 m3/mth

**Non Domestic**  
333,333 m3/mth

**Bulk Water Sales**  
0 m3/mth

Water Connections = 7,627  
X  
20.8 m3/mth/conn

Water Connections = 418  
X  
797.4 m3/mth/conn

**Unmetered Consumption**  
#N/A  
#N/A

**Unbilled Authorised & Unauthorized Consumption**  
#N/A

**Meter inaccuracy**  
2% of metered consumption

**Total Unmetered =**  
#N/A

**Distribution System water losses (Current Annual Real Losses (CARL))**  
#N/A  
#N/A  
#N/A

**Hours / month offline**  
0.0 hours/month  
(Adjusted by)

**CARL for 24/7 (continuous) supply**  
#N/A

**Unavoidable Annual Real Losses (UARL)**  
#N/A  
X

**Infrastructure Leakage Index (ILI)**  
#N/A

**Length of distribution mains**  
239 km

**Water Connections**  
8,045 x 10m.  
= 80 km

**Average Pressure**  
#N/A