



# Results from the 2004 SEAWUN Benchmarking Program

An overview

(20 minutes)

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## Overview

- There are many, many different ways of reviewing data and presenting results
  - ~25,000 combinations
  - Have attempted to look at key issues
    - Refer to 'Data Book' for further details and/or Excel / Internet system
- Key aspects
  - A. Institutional Arrangements
  - B. Comparison of 'Base Data' Multiple choice questions
  - C. Comparison of Water Utility Performance
    - Individual performance measures
    - Overall Performance Indicator
- Lessons learnt from 1<sup>st</sup> year program

# A. Institutional Arrangements

## ■ Aspects considered

- Services provided by WU
- Type of Institution
- Private sector involvement
- Size of water utility

## ■ Conclusion

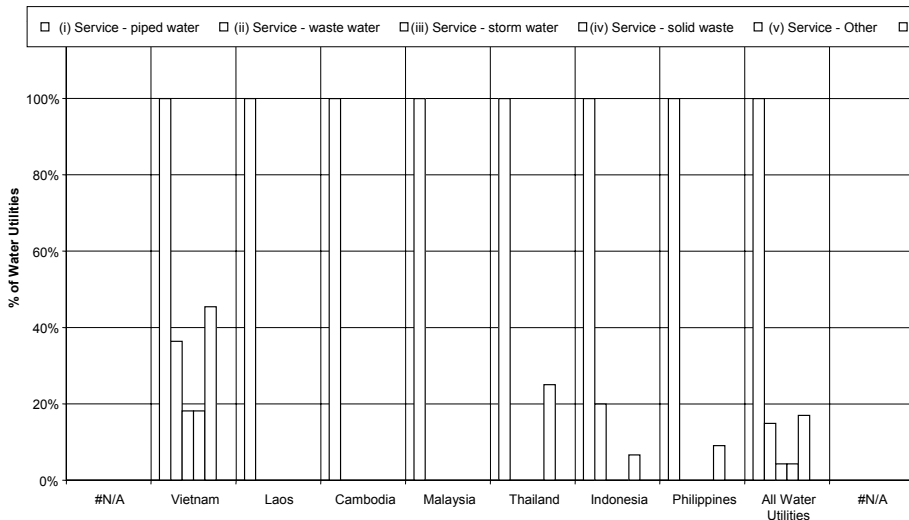
- Participating water utilities represent a broad cross section

Note:

- the following graphs and charts are presented without comments
- up to participants to draw their own conclusions
- presentation will make some observations along the way

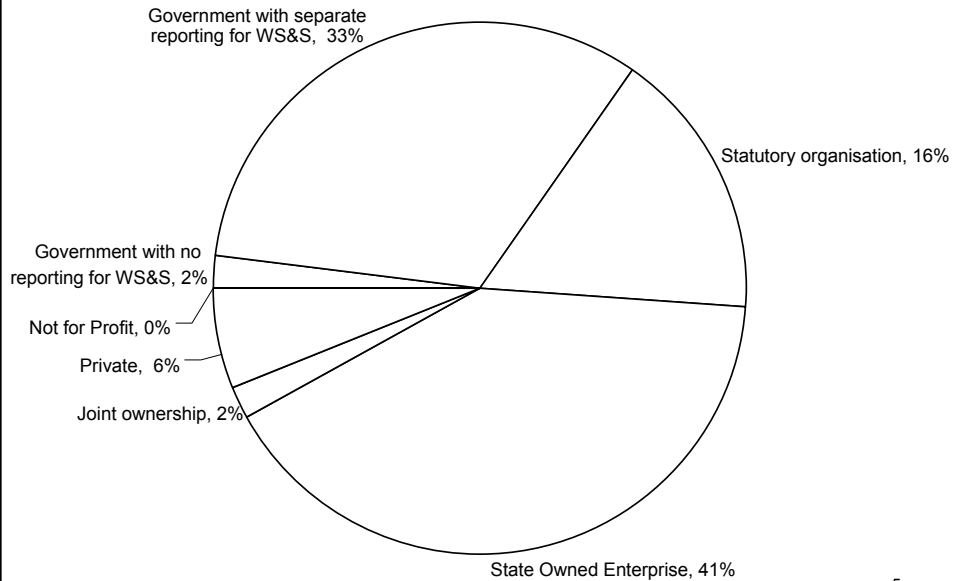
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2004 SEAWUN Benchmarking Program: Services provided by Water Utilities

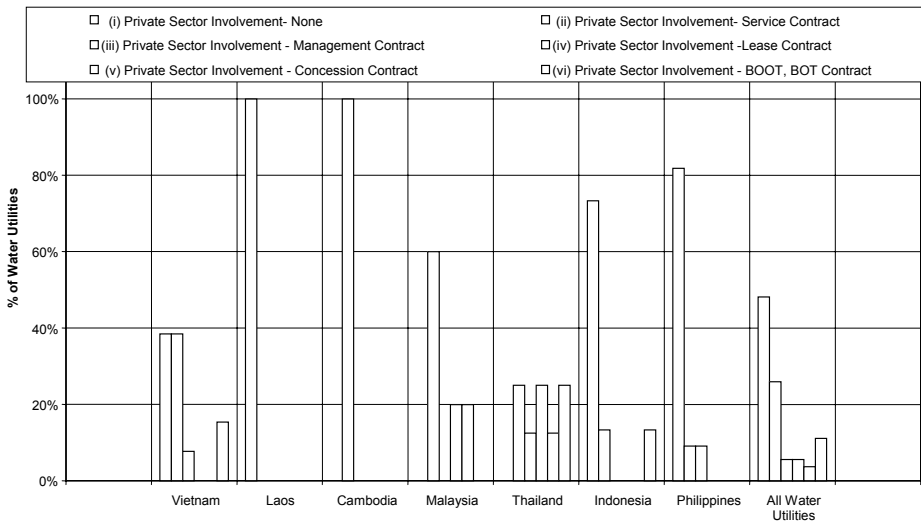


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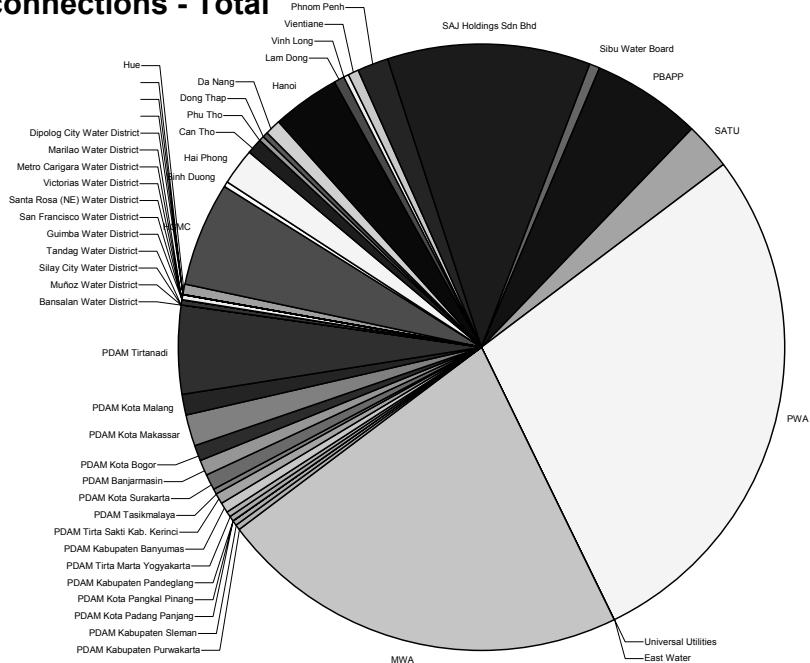
### All Water Utilities: Type of Utility



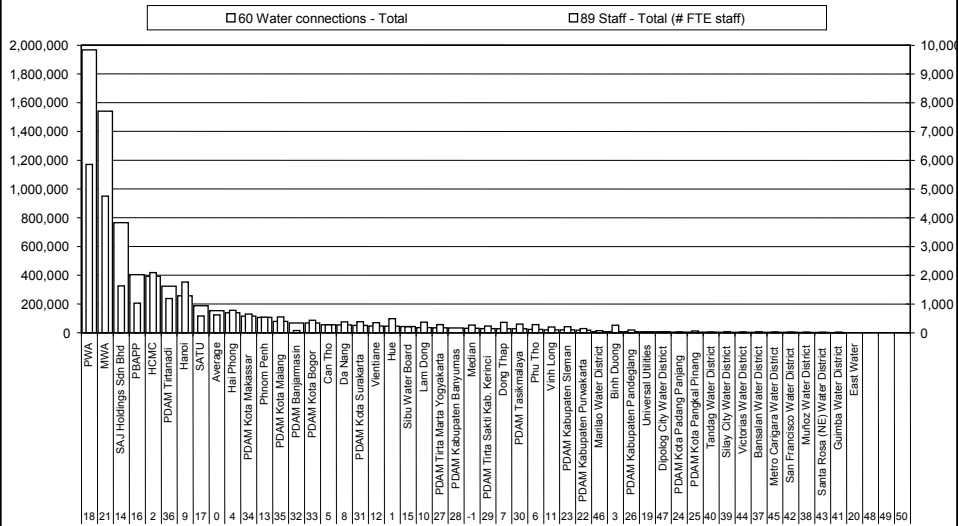
### 2004 SEAWUN Benchmarking Program: Private Sector Involvement



# Water connections - Total



# SEAWUN Benchmark Survey for 2003: Comparison of Water Connections & Staff

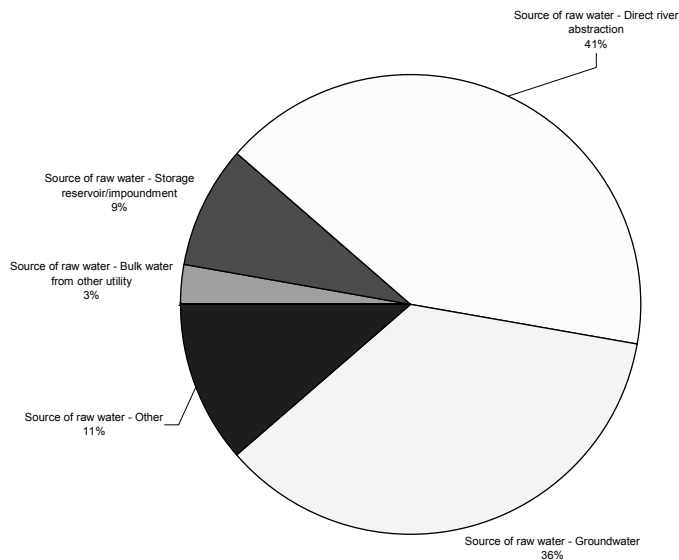


## B. Comparison of 'Base Data' multiple choice questions

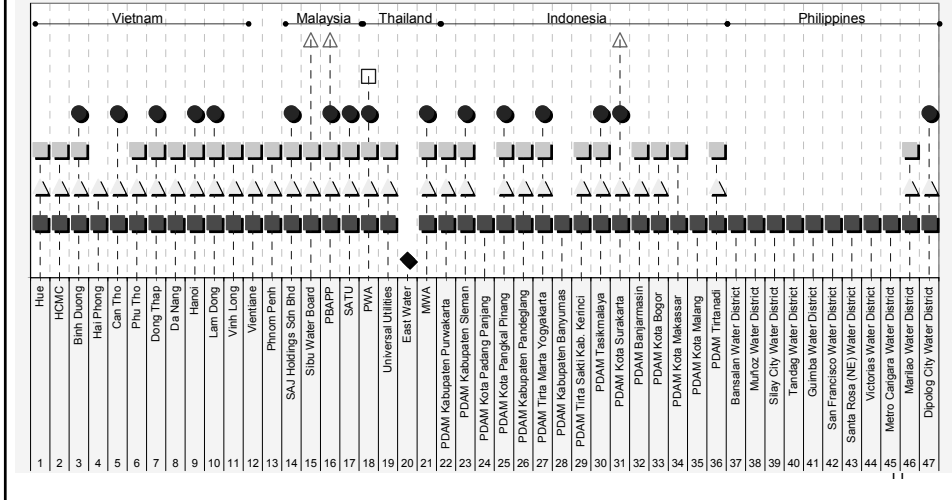
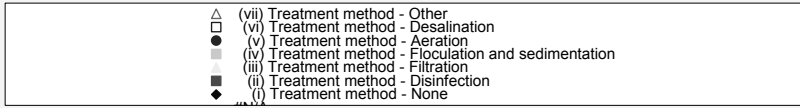
- Source of raw water;
- Method of treatment;
- Method of employing staff;
- How customers can lodge a complaint;
- How the water utility seeks to better understand its customers;
- Source of Investment funding.

**Overall Conclusion: is a 'mixed bag' – many different kinds of Water Utilities**

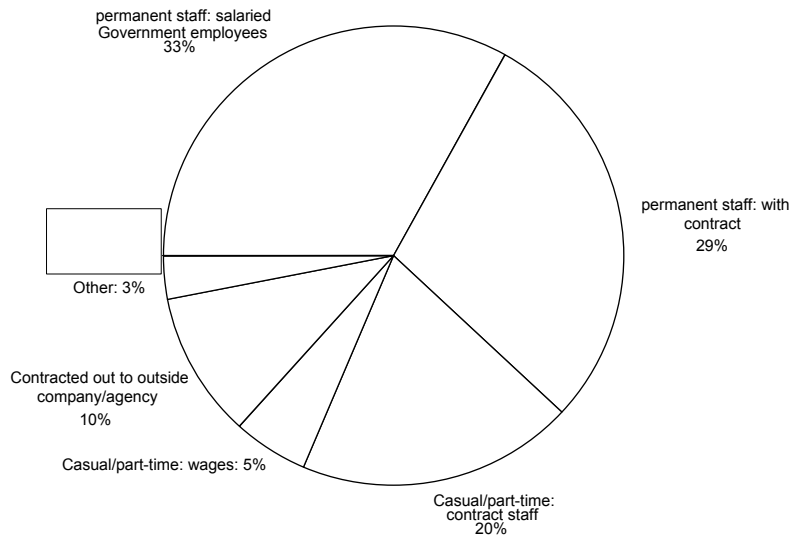
**All Water Utilities: Source of Raw Water**



### SEAWUN Benchmarking Program for 2003: Treatment Method

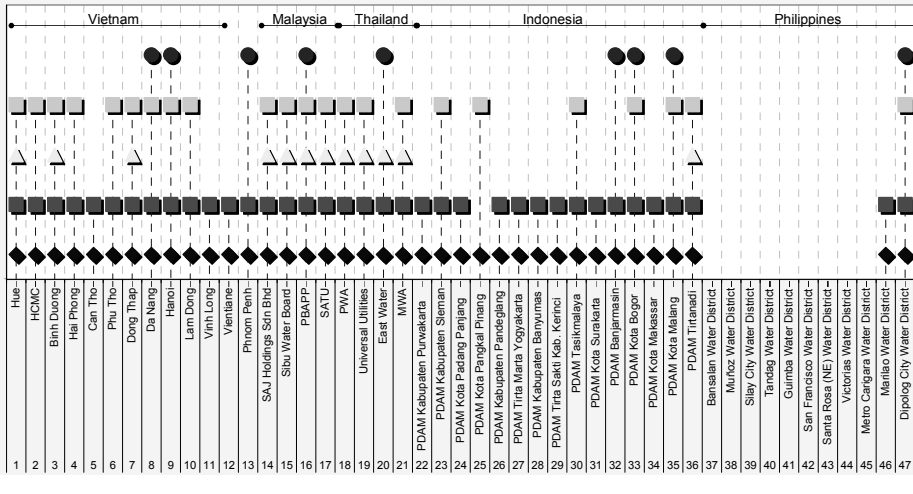


### All Water Utilities: Employment Method for Staff



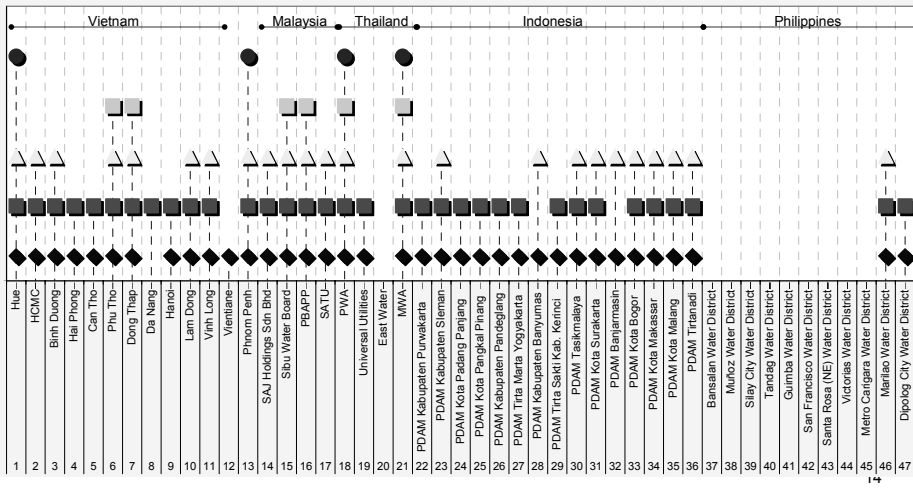
### SEAWUN Benchmarking Program for 2003: Mechanisms for Customer to Complain

- (v) Complaint methods - Other method
- (iv) Complaint methods - by letter
- (iii) Complaint methods - by email
- (ii) Complaint methods - by telephone
- ◆ (i) Complaint methods - In person

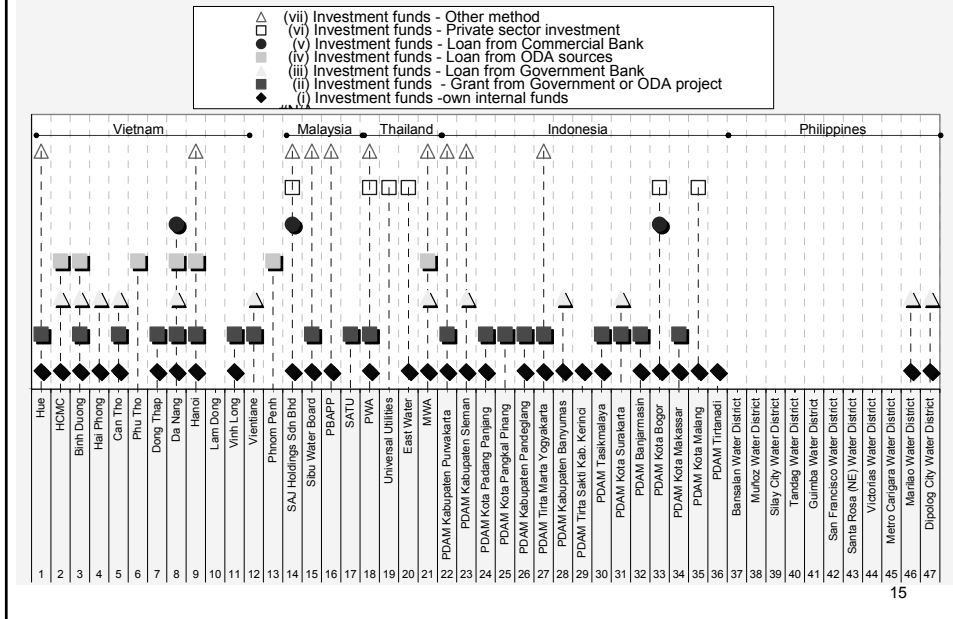


### SEAWUN Benchmarking Program for 2003: Mechanisms to understand Customers

- (v) Understanding customer by - Other method
- (iv) Understanding customer by - market research
- (iii) Understanding customer by - surveys, questionnaires...
- (ii) Understanding customer by - responding to complaints
- ◆ (i) Understanding customer by - Customer interactions



### SEAWUN Benchmarking Program for 2003: Source of Investment Funds

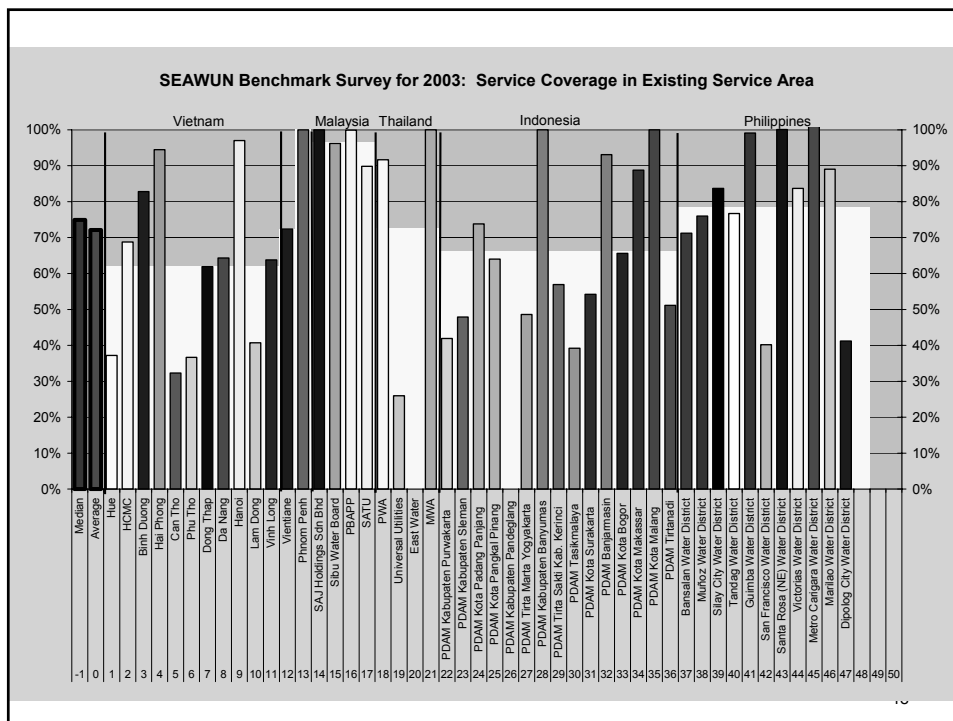


## C. Comparison of Water Utility Performance

- Again there are many different factors that could be examined – shall present under 4 headings:
  1. Customer
  2. Water supply system
  3. Human Resources
  4. Financial

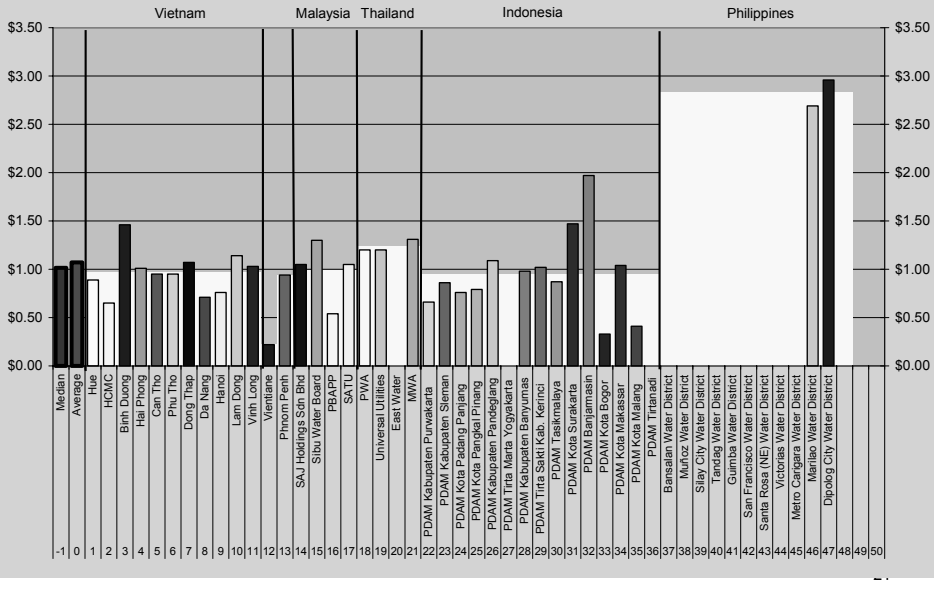
# 1. Customer Performance Measures

- Service Coverage
- Connection & consumption charges
- Consumption rates
- Customer Complaints

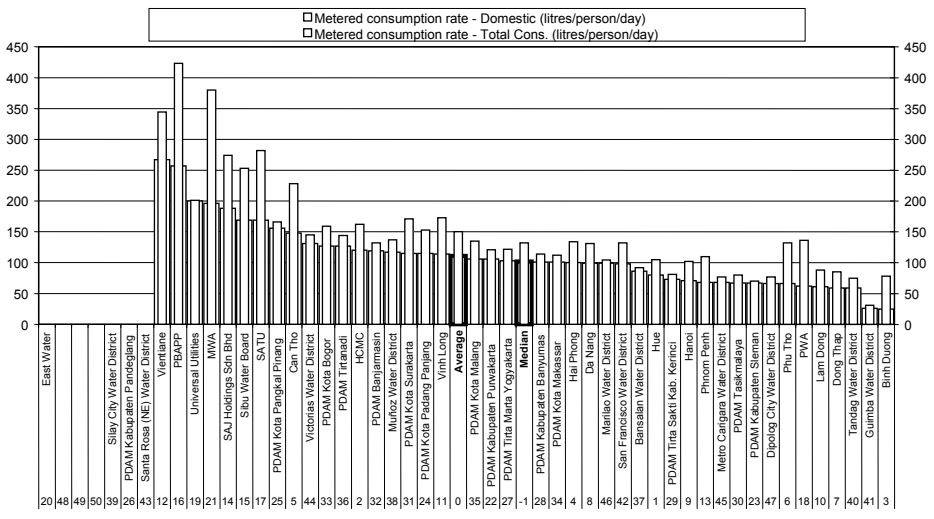


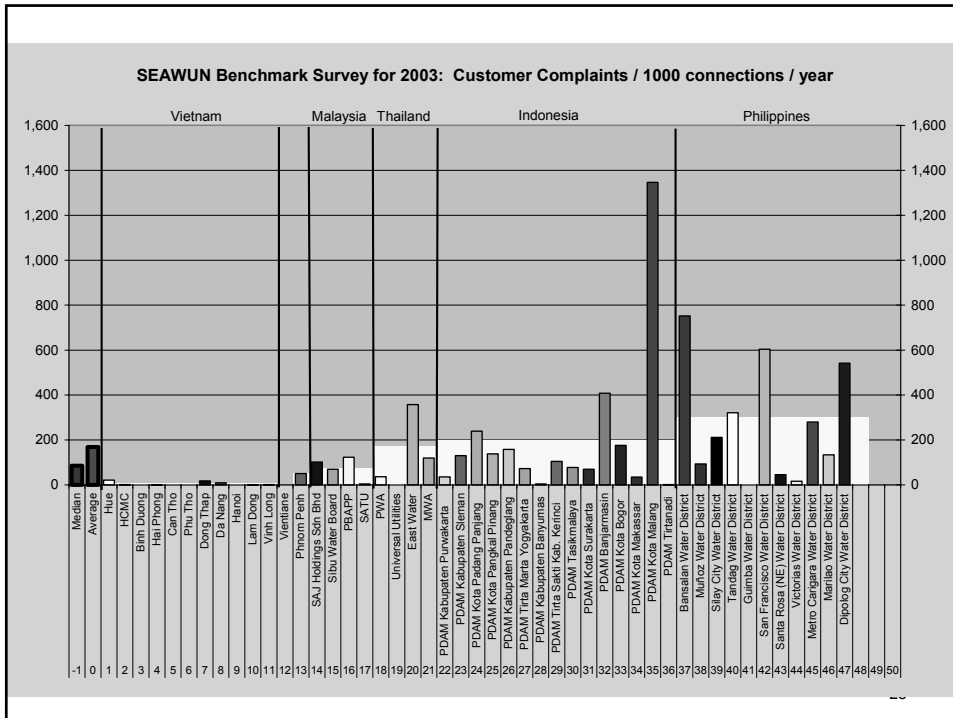


**SEAWUN Benchmark Survey for 2003: Water bill for household consuming 6 m3/month  
(US\$ / month)**



**SEAWUN Benchmark Survey for 2003: Metered Consumption Rate**

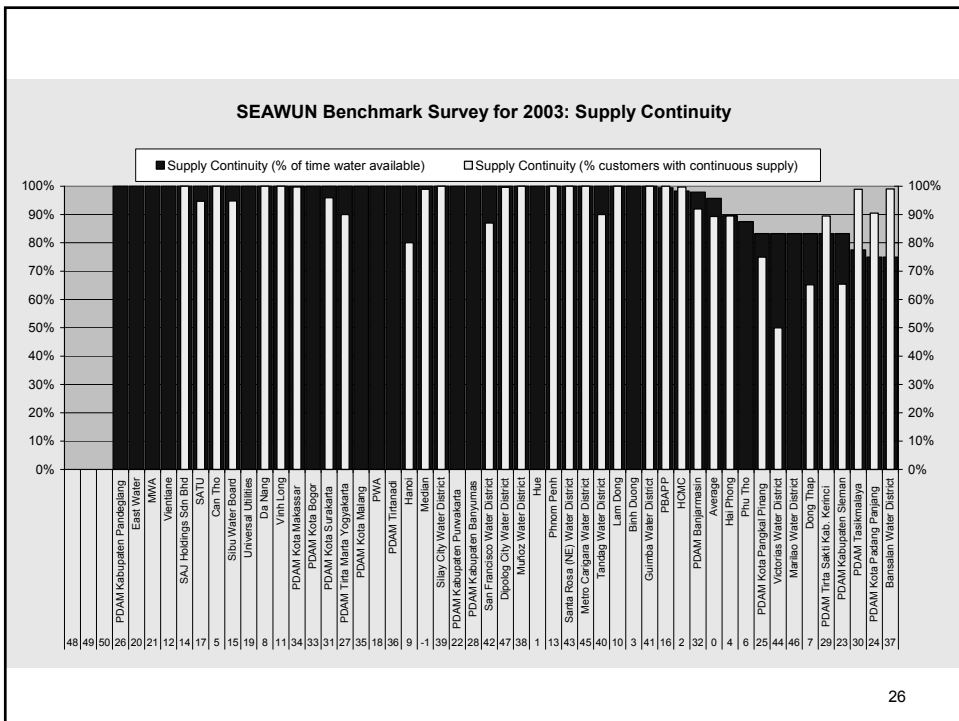
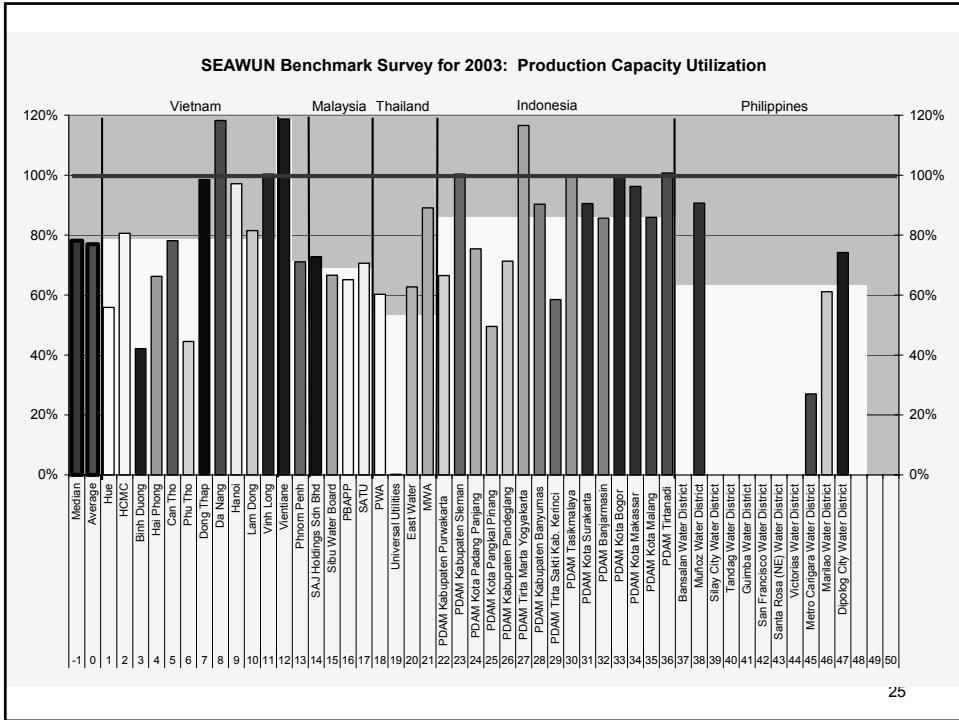




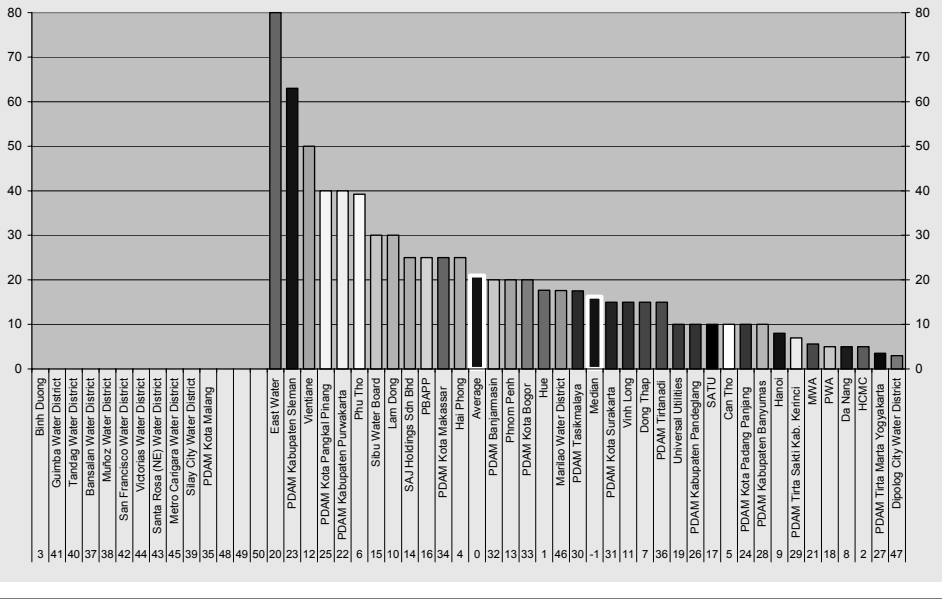
## 2. Water Supply System

### Performance Measures

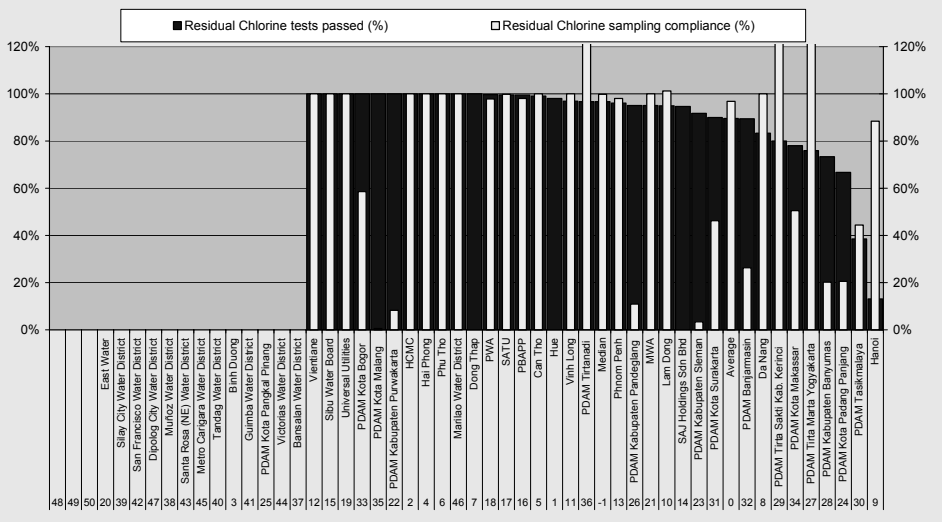
- Production capacity utilization
- Supply Continuity
- Water Pressure
- Residual Chlorine
- Non Revenue water
- Unmetered consumption
- Distribution System Condition

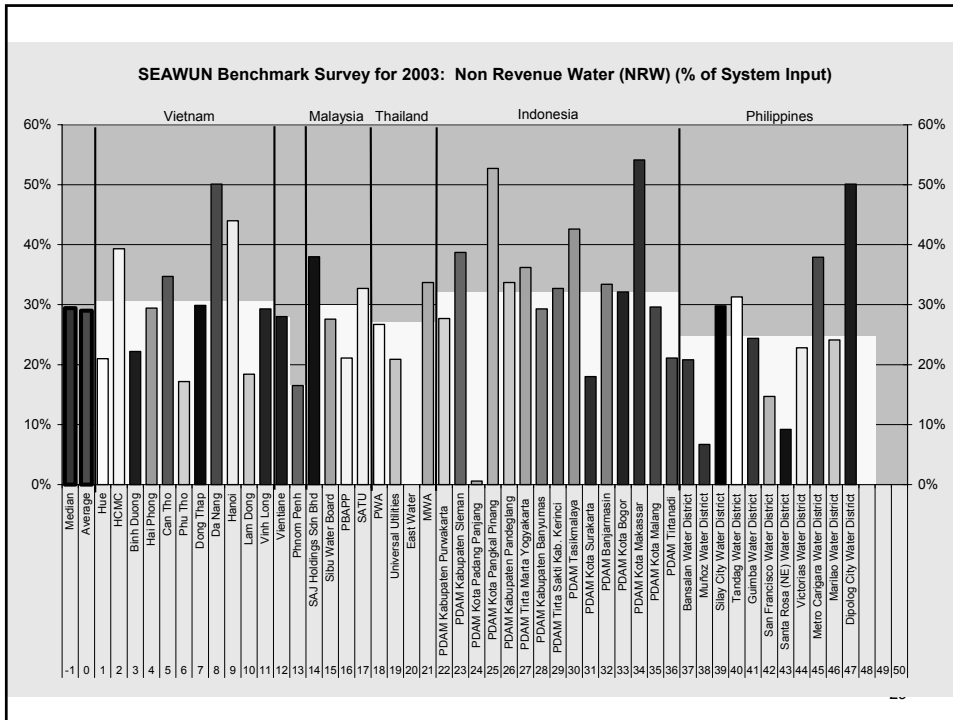


### Water pressure in mains - typical (metres)



### SEAWUN Benchmark Survey for 2003: Residual Chlorine Sampling and Testing



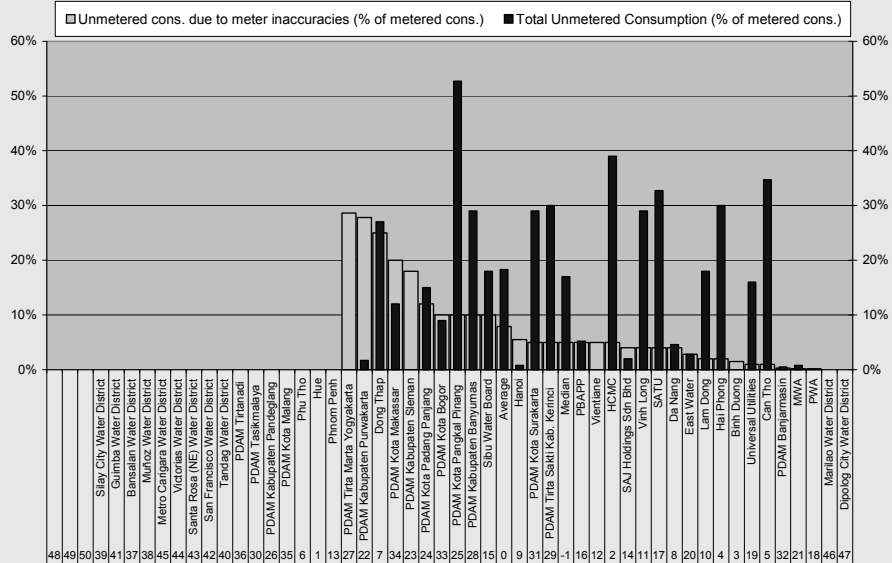


## UFW % is a 'biased' indicator

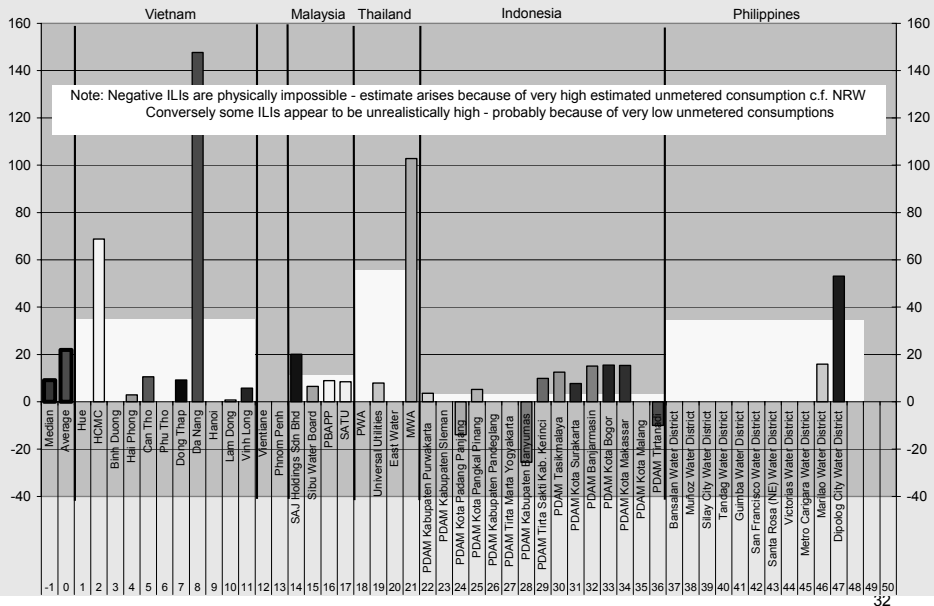
		Town A	Town B
No. of Connections	#	100,000	100,000
Household Size	Persons/HH	5	5
No. of persons	#	500,000	500,000
Consumption Rate	lcd	78	222
Total Consumption	m <sup>3</sup> /day	38,889	111,111
	% of Production	76%	90%
Metered Consumption	m <sup>3</sup> /day	35,000	100,000
	% of Total	90%	90%
Unmetered Consumption	m <sup>3</sup> /day	3,889	11,111
	% of UFW	24%	48%
	% of metered	11%	11%
	% of total cons.	10%	10%
	% of Production	8%	9%
Distribution Losses	m <sup>3</sup> /day	12,000	12,000
	% of UFW	76%	52%
	% of Production	24%	10%
Total UFW	m <sup>3</sup> /day	15,889	23,111
	% of Production	31%	19%
Production	m <sup>3</sup> /day	50,889	123,111

**Conclusion: need to look at factors that cause UFW / NRW**

### SEAWUN Benchmark Survey for 2003: NRW non physical losses due to Unmetered Consumption



### SEAWUN Benchmark Survey for 2003: Infrastructure Leakage Index (ILI)

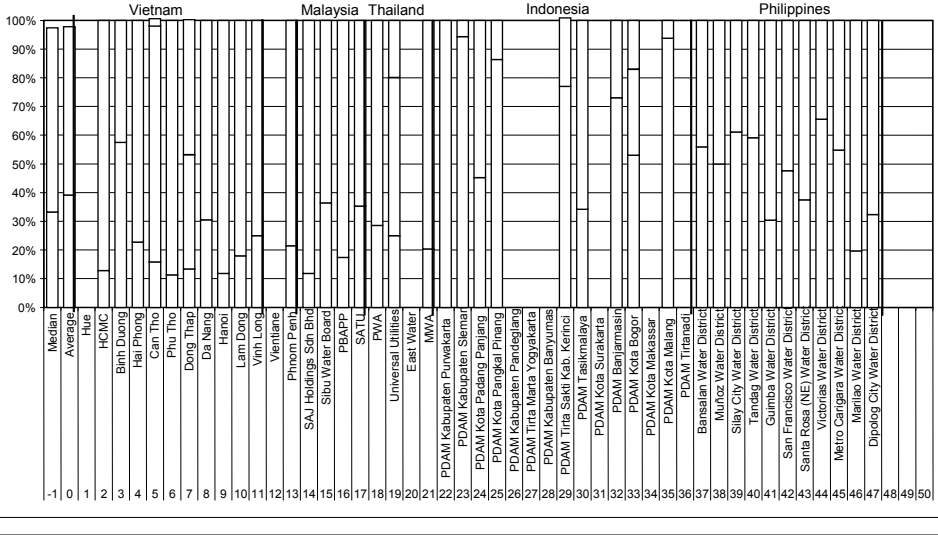




### SEAWUN Benchmarking Program for 2003: Staff Categories

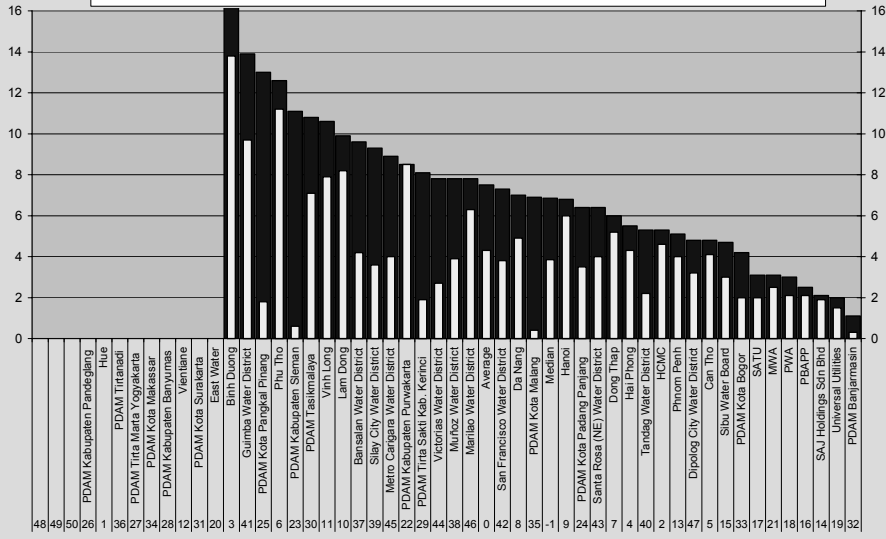
Note: Some of the % Overhead staff appear very high - suggests problem of definition of Overhead staff

- (iii) Other services staff ratio (% of total FTE staff)
- (ii) Water supply staff ratio (% of total FTE staff)
- (i) Overhead staff ratio (% of total FTE staff)

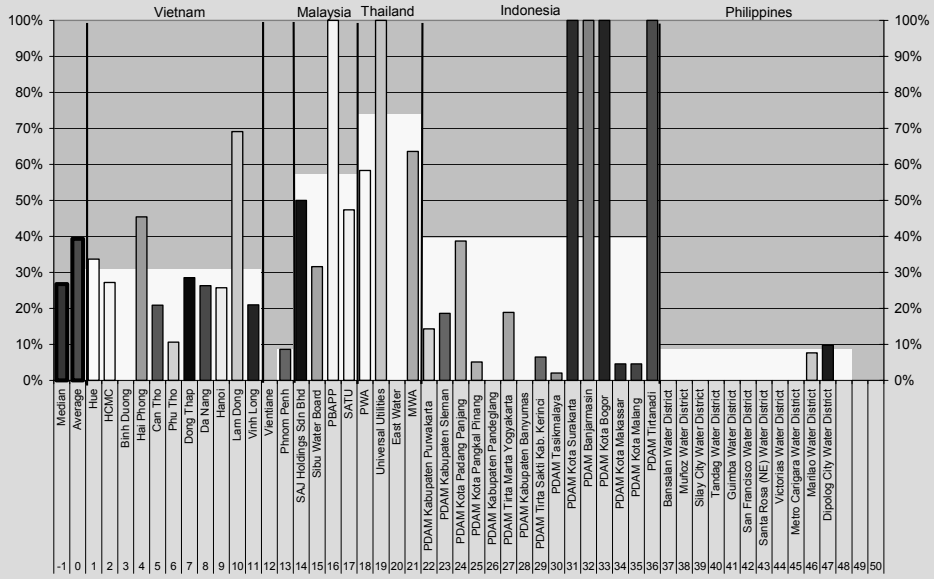


### SEAWUN Benchmark Survey for 2003: Staff c.f. no. of customers - Total & Direct

- Total water related staff / 1000 connections
- Direct water supply staff / 1000 connections

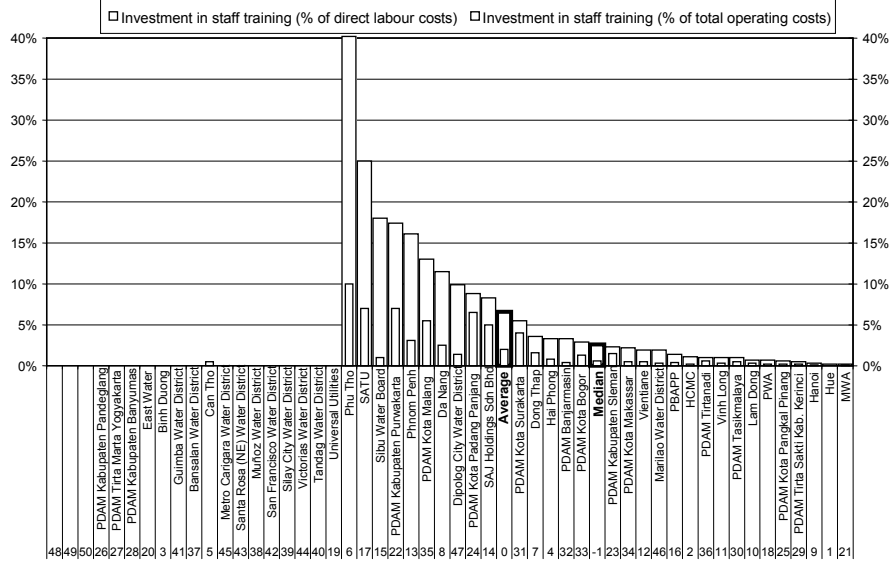


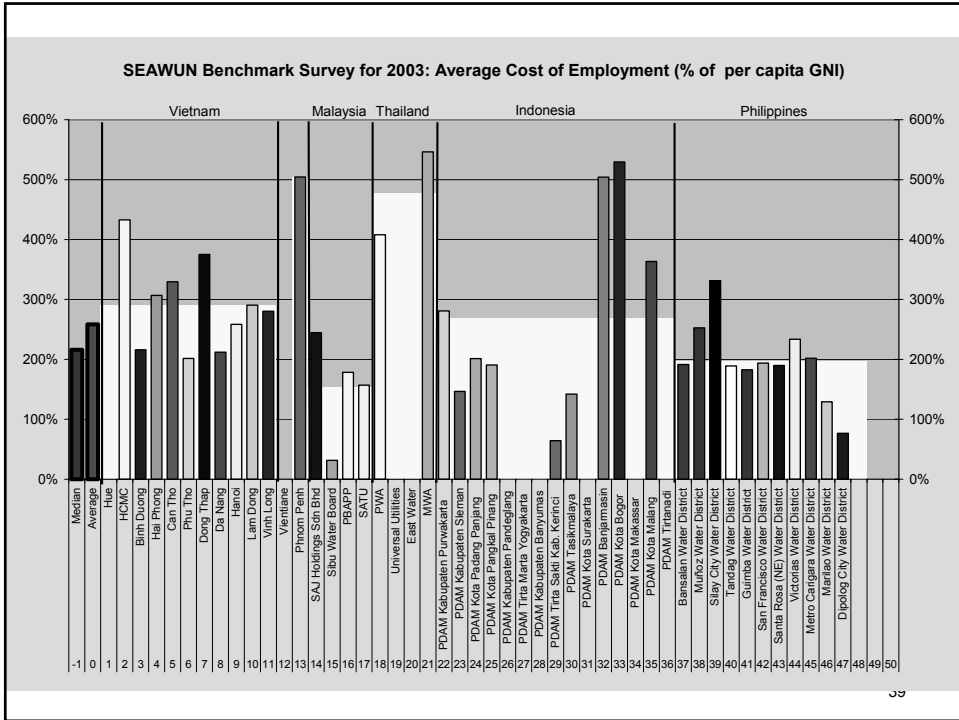
### SEAWUN Benchmark Survey for 2003: Staff Participation Training Rate (% staff trained / year)



### SEAWUN Benchmark Survey for 2003: Staff Training Costs

Note: There appears to be some unusual responses, some very low and other very high figures

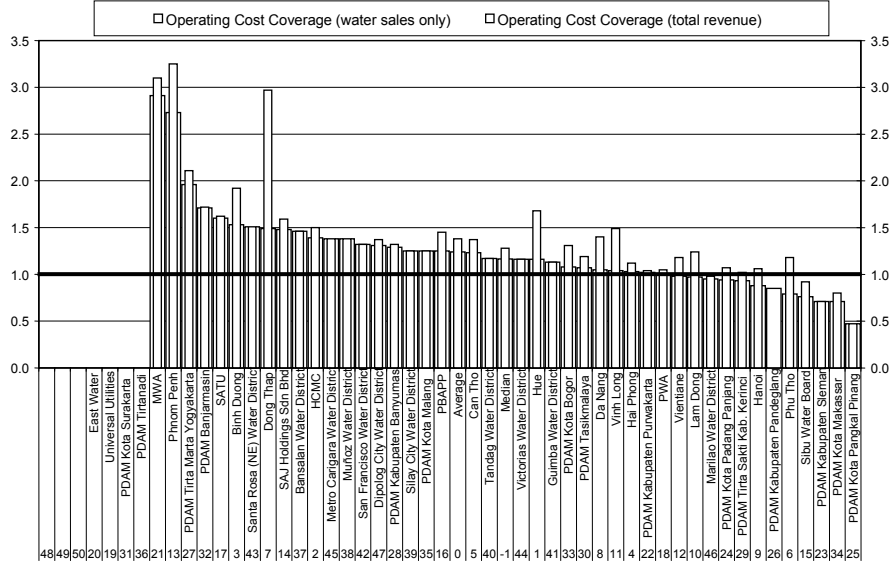




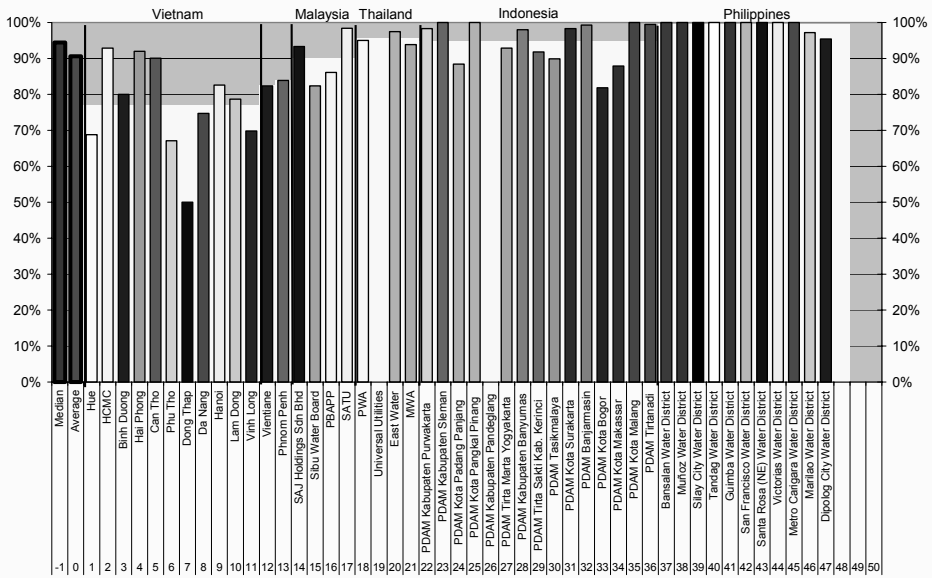
## 4. Financial Performance Measures

- Operating Cost Coverage
- Revenue
- Expenses
- Fixed Assets

### SEAWUN Benchmark Survey for 2003: Financial Operating Cost Coverage Ratios



### SEAWUN Benchmark Survey for 2003: Water sales revenue / Total revenue ratio

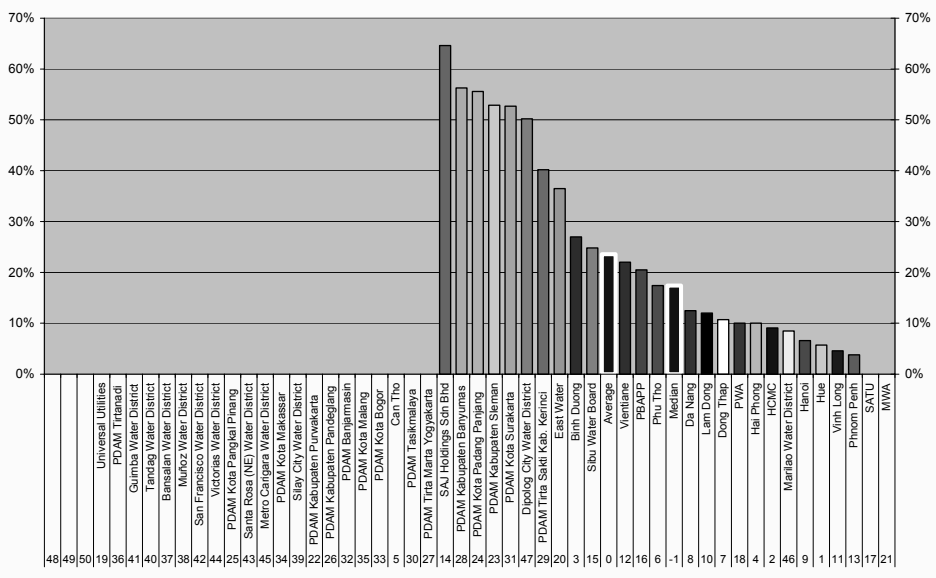


# Variation in Operating Costs

Operating Cost Ratio	Minimum	Maximum	Range	Average
<b>Segmentation of Total Operating Costs (% of Total operating expenses)</b>				
Overhead expenses	0%	65%	65%	24%
Water Supply Operating expenses	35%	100%	65%	79%
'Other services' Operating expenses	0%	52%	52%	3%
<b>Segmentation of Water Operating Costs (% of Water operating expenses)</b>				
Labour costs	6%	74%	68%	35%
Electricity costs	2%	58%	56%	23%
Chemical & other materials costs	0%	60%	60%	10%
Contracted out services costs	0%	99%	99%	28%
				43

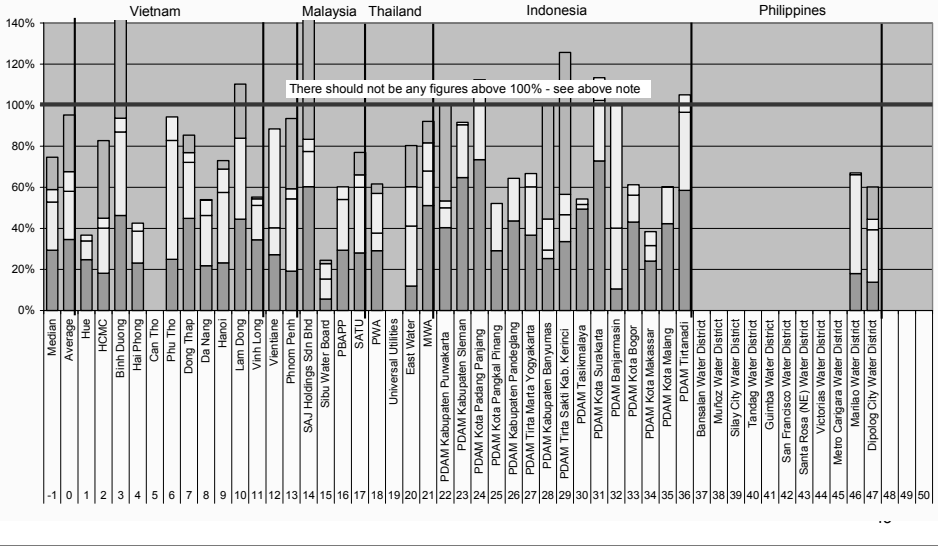
**Overhead expenses / Total Operating expenses ratio**

Note: Some of these overhead costs seem very high - need to validate

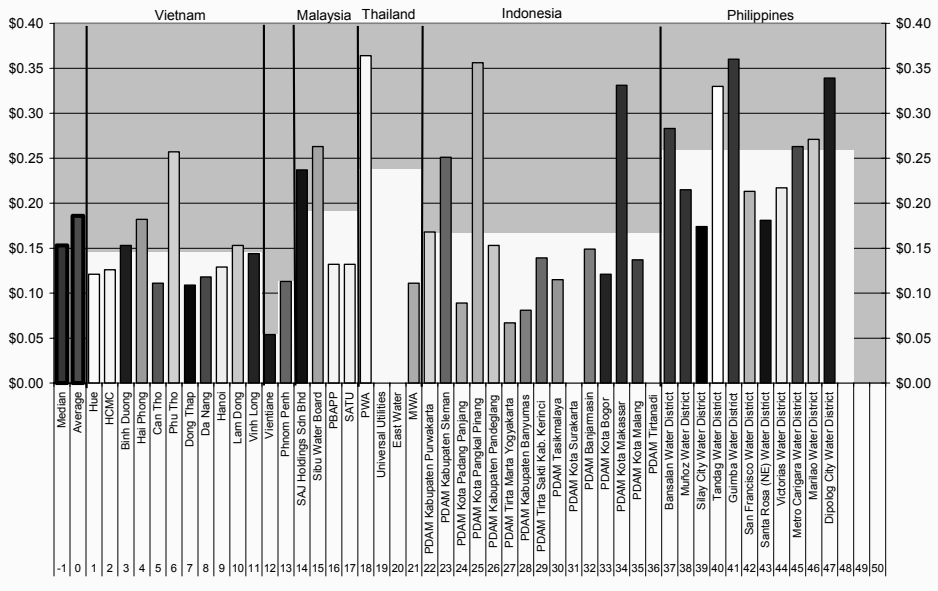


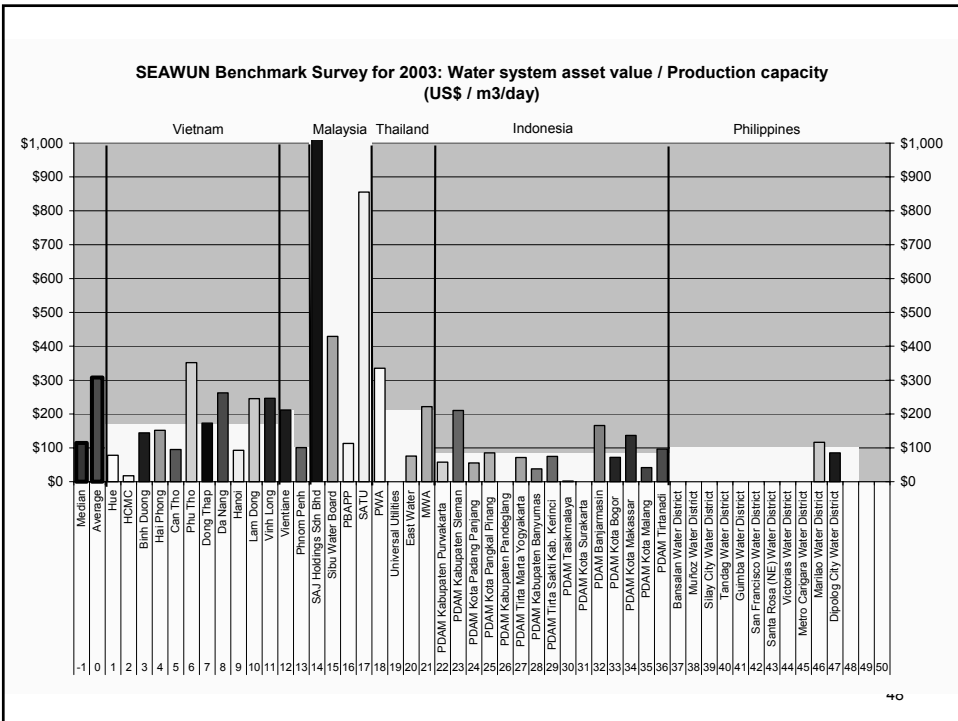
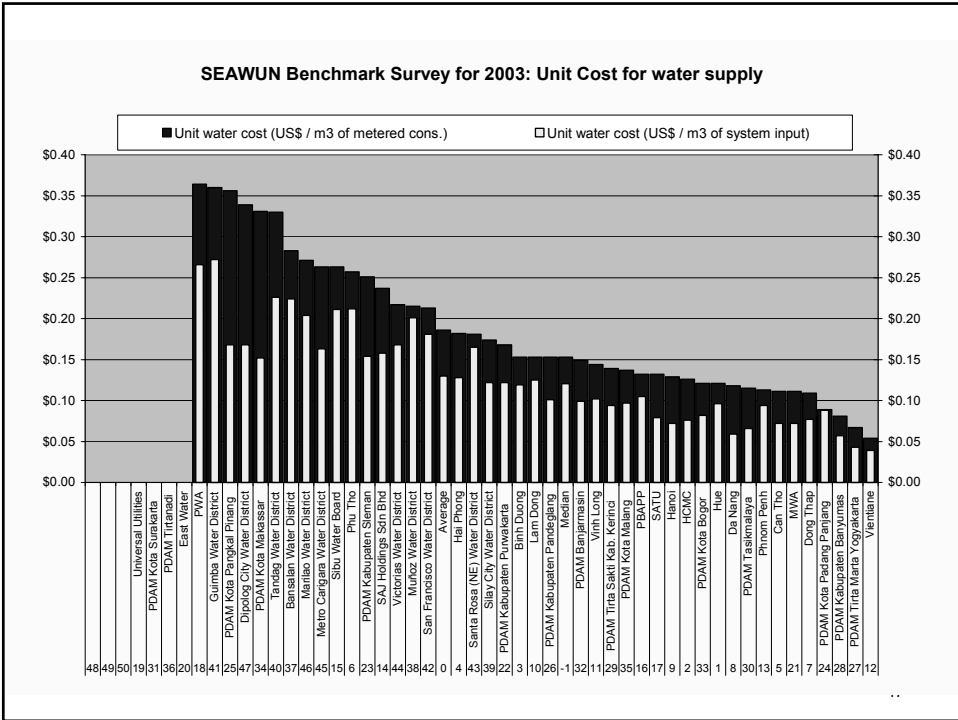
### SEAWUN Benchmarking Program for 2003: Cost breakup for Operating costs

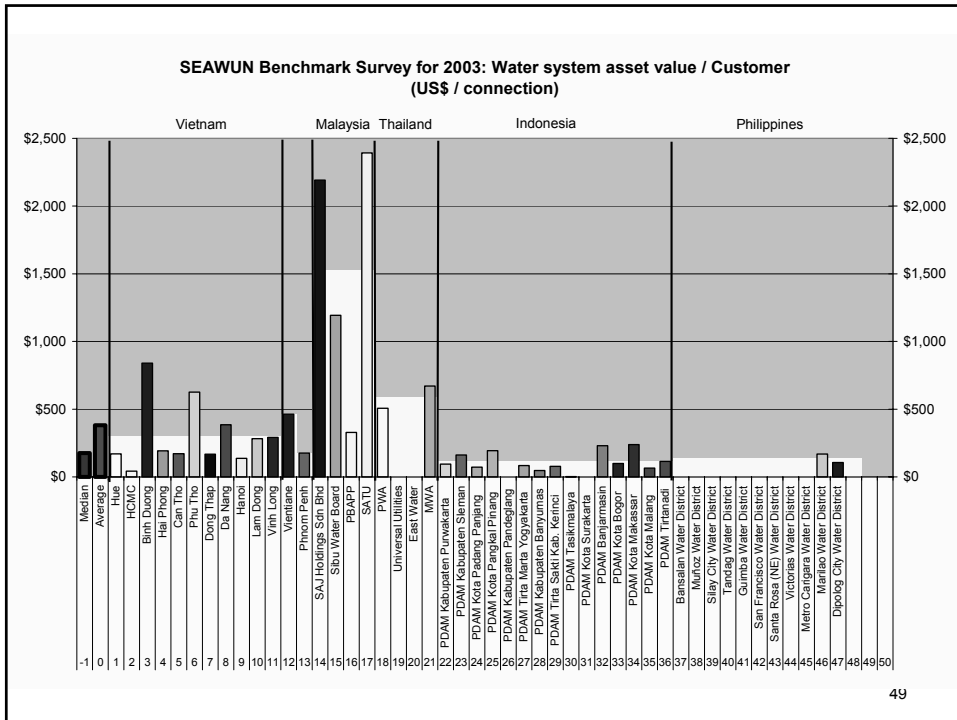
Note: This is based on information supplied which is known to be often incorrect - sum of components do not add up total operating costs



### SEAWUN Benchmark Survey for 2003: Unit water cost (US\$ / m3 of metered consumption)







## Overall Performance Indicator (OPI)

- Is an estimate of the overall ranking of a water utility compared to its peers
  - Includes all aspects of WU operations
    - 14 indicators – subsequently 12 due data availability
  - Conversion process
    - Convert to scale with high numbers = high performance
    - Standardise
    - Average all available performance indicators
  - NOTE: this is not a perfect methodology,
  - Is only an **INDICATION** of the relative strength of a WU

# Calculation of Overall Performance Indicator (OPI)

Customer Indicators	Value	Rank
Service Coverage in existing service area (%)	72.1%	(25 / 45)
Meter coverage (% with operating water meter)	99.6%	(44 / 46)
Customer complaints / 1000 connections	168.3	(27 / 41)

Water Supply Systems O&M	Value	Rank
Supply Continuity (% of time water available)	96.0%	(38 / 47)
Residual Chlorine tests passed (%)	89.5%	(26 / 34)
Total Unmetered Consumption (% of metered cons.)		
Infrastructure Leakage Index (ILI)	21.9	(7 / 26)

**Water Supply**

**Average of all Water Utilities**

**Overall Performance Indicator (OPI) = 0.0**

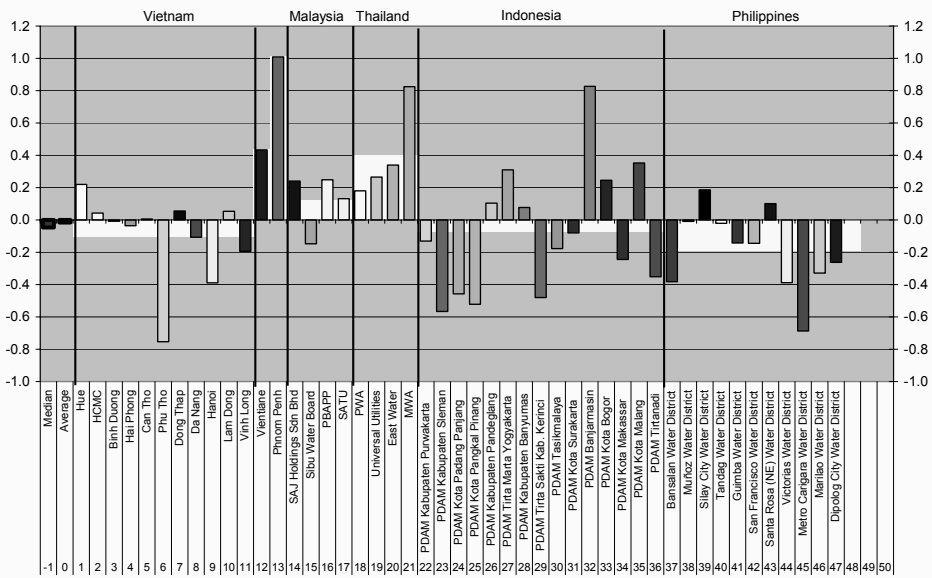
Number of Standardized Indicators available = 12

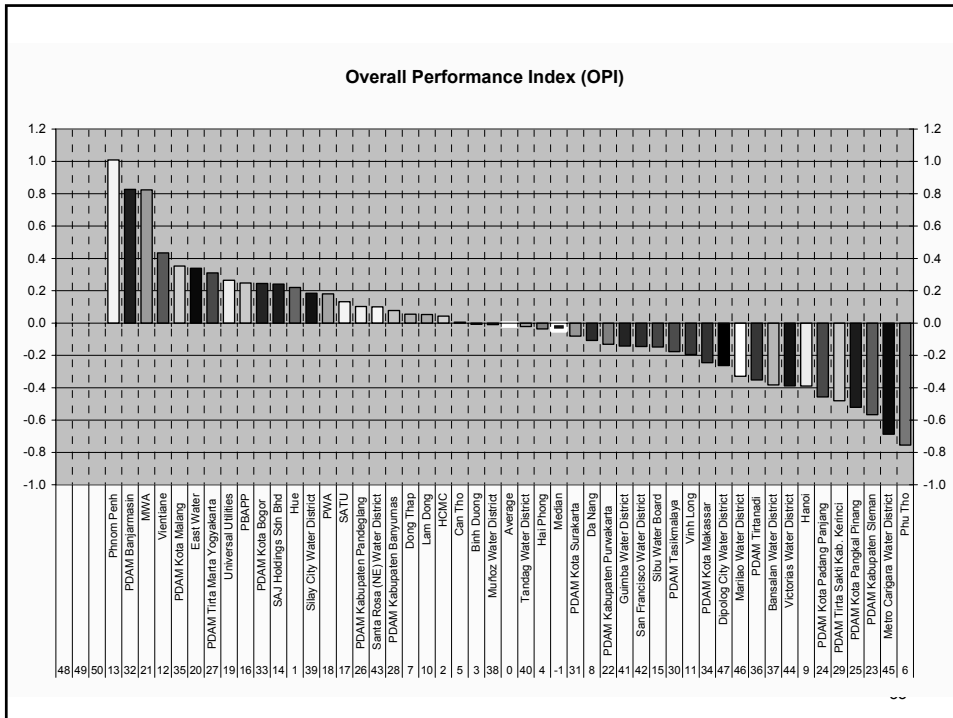
Overall Ranking = (25 / 47)

Human Resource Indicators	Value	Rank
Total water related staff / 1000 connections	7.5	(12 / 38)
Investment in staff training (days / staff)	1.8	(10 / 33)
Ave. cost of employment / staff (% of per capita GNP)	69%	(15 / 37)

Financial Indicators	Value	Rank
Working Ratio (water sales only)	1.24	(20 / 43)
Unit water cost (US\$ / of system input)	\$0.13	(21 / 43)
Water system asset value / Prodncapacity (US\$ / day)	\$308	(4 / 35)
Debt servicing ratio (% of total operating revenue)		

## SEAWUN Benchmark Survey for 2003: Overall Performance Indicator (OPI)



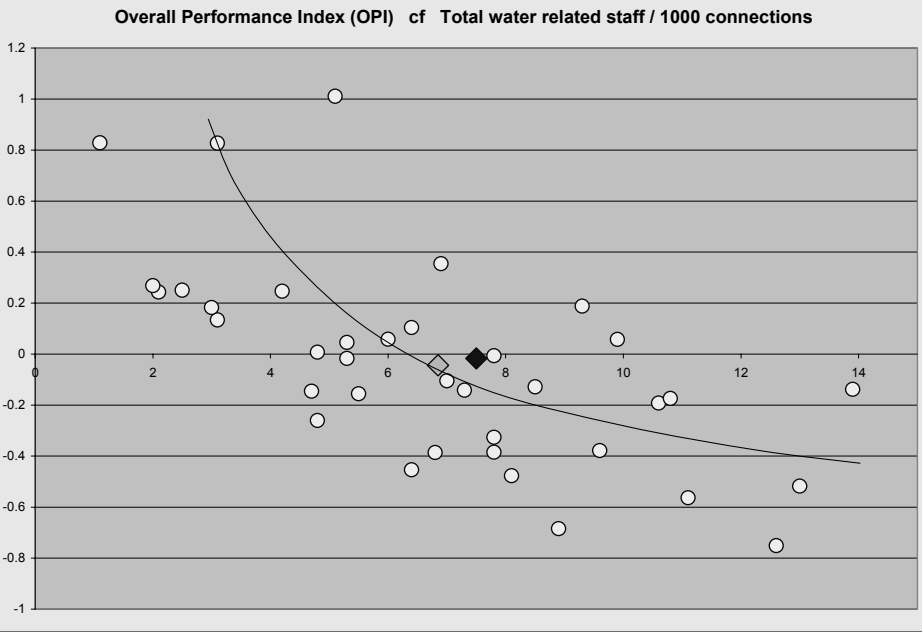


## Lessons learnt from 1<sup>st</sup> year program

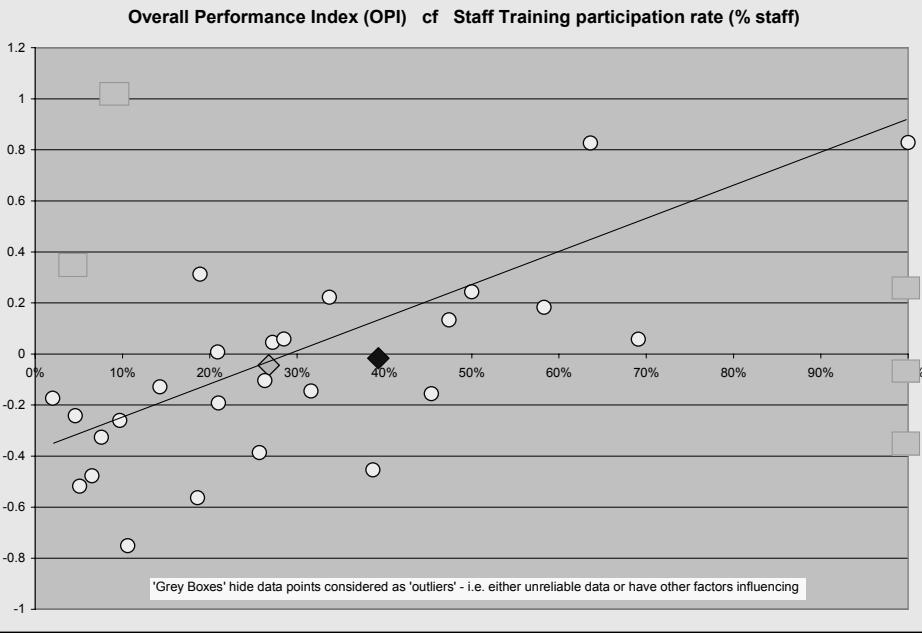
- In many water utilities, benchmarking is a relatively new
- Variety of understanding between water utilities
- Some areas of benchmarking currently not undertaken
- Focus in some countries on financial aspects, other - technical aspects
- Difficulties in some water utilities to collect basic information
- Takes time to make administrative arrangements for the collation of data for the survey
- Need to be realistic in data processing requirements and capabilities
- Need for 'education' of water utilities in benchmarking concepts

**Also some interesting apparent explanations for performance**

**Staff ratio: High performing companies tend to have lower staff ratios**



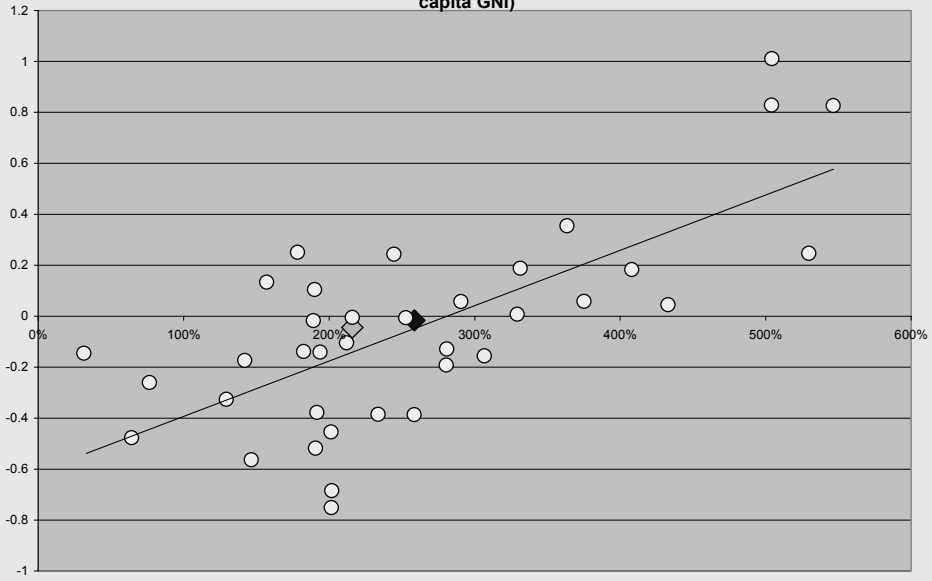
**Staff Training: May be one factor to explain higher productivity – as well as change in organisational culture**



### Cost of employment:

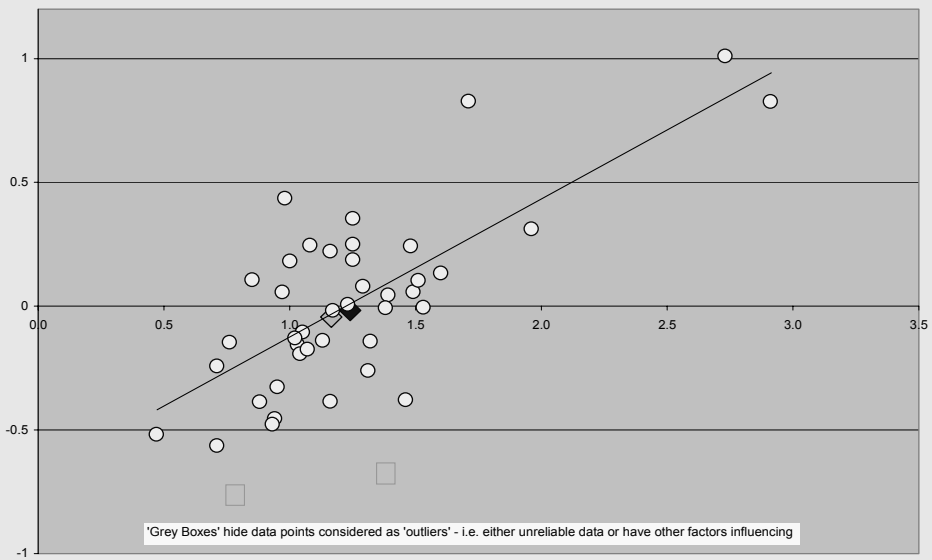
Appears high performing companies pay comparatively higher rates

Overall Performance Index (OPI) cf Average cost of employment per staff (% of per capita GNI)



### Working ratios: Better performing companies tend to be more financially viable

Overall Performance Index (OPI) cf Working Ratio (water sales only)



What do they do & how do they manage their companies to achieve financial success?

## Making Use of Benchmarking

1. Identify where data is not available
  2. Check consistency / reliability of data
  3. Ranking comparisons – identifying strengths & weaknesses
  4. Understanding the reasons for a performance level
- Refer to Convention paper for suggestions to undertake the above

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## Conclusion

- Many lessons learnt
- Some mistakes
- Some useful tools developed
- Many very interesting outcomes
  - Should only be considered preliminary
- 1<sup>st</sup> year program has 'set the stage'

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