



**SYARIKAT BEKALAN AIR SELANGOR SDN BHD
(SYABAS)**

ECONOMY AND STAKEHOLDERS OF WATER DEMAND MANAGEMENT

***By
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- 1. NEED FOR WATER DEMAND MANAGEMENT**
- 2. ECONOMIC IMPACT OF WATER DEMAND MANAGEMENT**
- 3. STAKEHOLDERS ROLE IN WATER DEMAND MANAGEMENT**
- 4. CONCLUSION**



1.0 NEED FOR WATER DEMAND MANAGEMENT

- WATER IS ESSENTIAL FOR ALL FORMS OF LIFE ON EARTH.
- FRESH WATER SOURCES ARE NOT INFINITE.
- CANNOT STOP DEVELOPMENT AND CONSEQUENTIAL WATER DEMAND GROWTH.
- BITTER LESSONS OF PAST WATER CRISES:
 - MALACCA WATER CRISIS IN 1990/1991
 - SELANGOR WATER CRISIS IN 1998



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1.0 NEED FOR WATER DEMAND MANAGEMENT

(cont'd)

Malacca Water Crisis in 1990/1991



Durian Tunggal Dam Dried Up



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1.0 NEED FOR WATER DEMAND MANAGEMENT *(cont'd)*

Selangor Water Crisis in 1998



**Consumers collecting water
from static tank**



**Water tanker
distributing water**



**Sungai Langat Dam
at
critical water level**



**Water rationing
exercise**

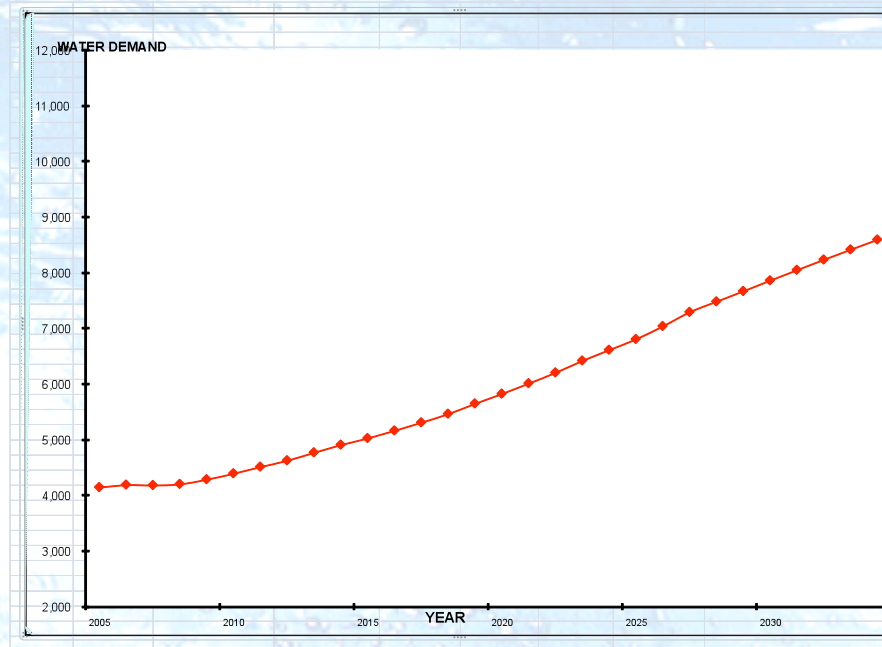


**Ultrasource Water Treatment
Units to supply relief water**



1.0 NEED FOR WATER DEMAND MANAGEMENT (cont'd)

- WATER DEMAND GROWTH PROJECTION IN SELANGOR, KUALA LUMPUR AND PUTRAJAYA



- WATER DEMAND IN SELANGOR, KUALA LUMPUR AND PUTRAJAYA IS EXPECTED TO INCREASE TO 7800 MLD IN 2034 FROM THE PRESENT DEMAND OF 3900 MLD, I.E. DOUBLE WITHIN 25 YEARS.
- HENCE NEED TO MANAGE DEMAND INSTEAD OF JUST PROVIDING MORE SUPPLY.



1.0 NEED FOR WATER DEMAND MANAGEMENT *(cont'd)*

- "SAVE WATER CAMPAIGNS" — FAILED TO YIELD SIGNIFICANT RESULTS AS INDICATED FROM PER CAPITA DOMESTIC CONSUMPTION COMPARED WITH OTHER COUNTRIES.

FOREIGN COUNTRY	PER CAPITA DOMESTIC CONSUMPTION (L/C/D)	STATES IN MALAYSIA (MWIG 2007)	PER CAPITA DOMESTIC CONSUMPTION (L/C/D)
BELGIUM	112	PERLIS	226
DENMARK	159	PULAU PINANG	274
GERMANY	130	PERAK	216
UK	153	JOHOR	204
AUSTRIA	153	TERENGGANU	187
FRANCE	139	KEDAH	234
FINLAND	213	SELANGOR	216
SINGAPORE	156	NATIONAL AVERAGE IN MALAYSIA (SPAN 2008 REPORT)	183

- HENCE, NEED FOR CONCERTED EFFORT TO REDUCE OUR WATER CONSUMPTION IN MORE HOLISTIC MANNER.

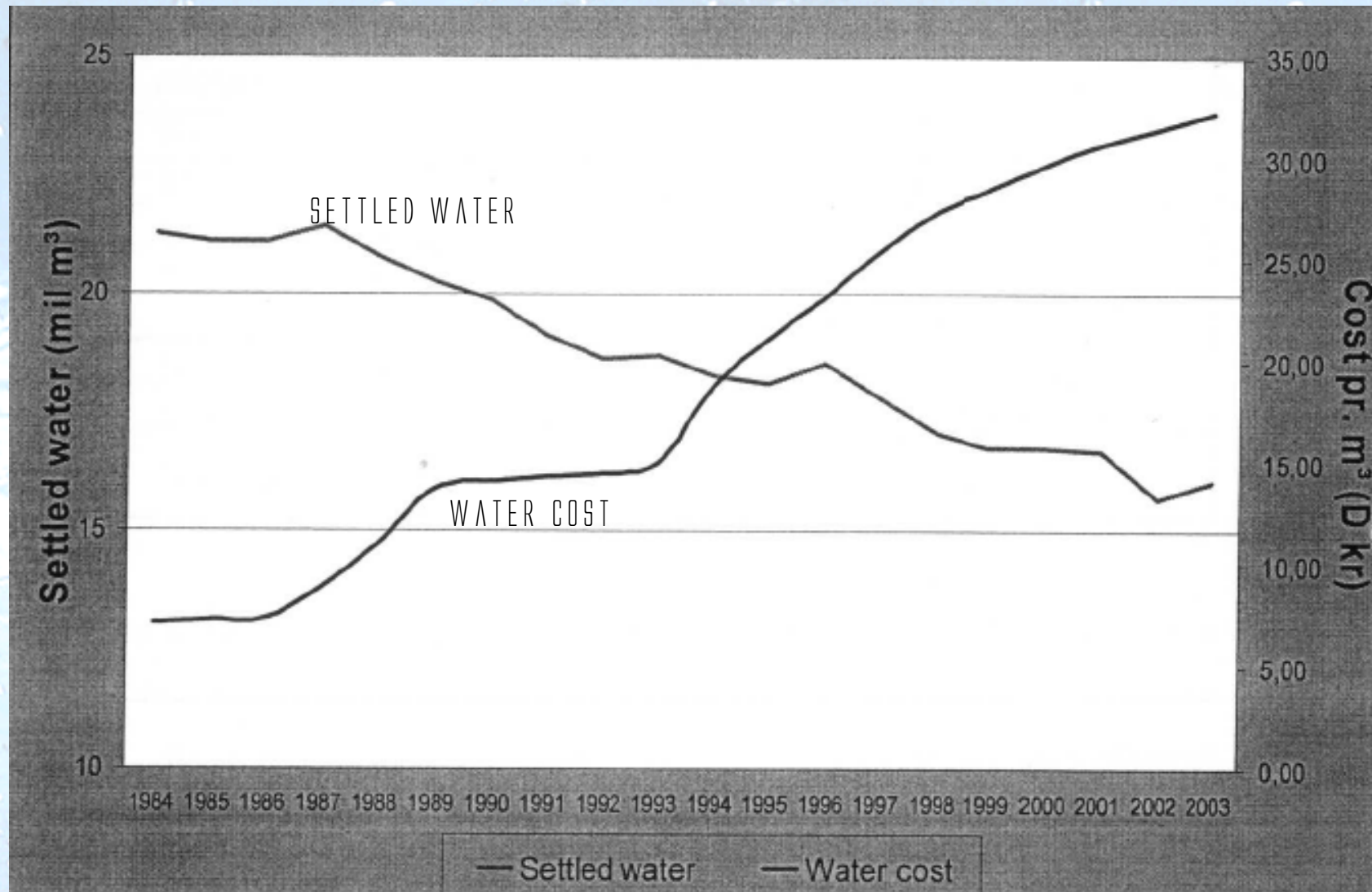


2.0 ECONOMIC IMPACT OF WATER DEMAND MANAGEMENT

(A) Consumers' Utility Bills

INCREASE WATER BILLS TO REDUCE CONSUMPTION

- BASIC ECONOMICS SHOWS THE RELATIONSHIP BETWEEN PRICE AND DEMAND. HENCE, THE USE OF WATER TARIFF AS A MECHANISM FOR CONTROLLING DEMAND CAN AND SHOULD BE ADOPTED.
- INFORMATION FROM AKV VAND, DENMARK INDICATED THAT THE WATER CONSUMPTION REDUCES AS THE WATER TARIFF INCREASES. THE 20 YEARS RECORD (1984 — 2003) HAS DEMONSTRATED THIS FACT AS SHOWN BY THE GRAPH.





2.0 ECONOMIC IMPACT OF WATER DEMAND MANAGEMENT

(A) Consumers' Utility Bills

(cont'd)

- CONSUMER TO BENEFIT FROM REDUCED CONSUMPTION THROUGH LOWER MONTHLY WATER BILLS.
- SELANGOR: ASSUMING PER CAPITA DOMESTIC CONSUMPTION OF 216 L/C/D IS REDUCED TO 151 L/C/D; ABOUT 30% REDUCTION IN DOMESTIC CONSUMPTION

IMPACT TO HOUSEHOLD

A 30M³ PER MONTH DOMESTIC/HOUSEHOLD CONSUMPTION IS REDUCED TO 20M³/MONTH (30% REDUCTION)

Consumption (m ³ /month)	Bill (RM/month)
30M ³	21.70
20M ³	11.40
SAVING 10M ³ /MONTH	RM10.30/MONTH

PER YEAR SAVING: RM10.30 X 12 = RM 123.60

CONSUMPTION M³/D (DOMESTIC) 1234 MLD

REDUCED BY 30% SAVINGS 370 MLD

SAVINGS OF 370 MLD PROVIDE ADDITIONAL SUPPLIES TO 2.5 MILLION PEOPLE WITHOUT NEED TO INVEST ON CAPEX.



2.0 ECONOMIC IMPACT OF WATER DEMAND MANAGEMENT

(A) Consumers' Utility Bills

(cont'd)

IMPACT TO COMMERCIAL CONSUMERS

ASSUMING ONE OF THE LARGEST COMMERCIAL PREMISE CONSUMPTION OF 499,333M³/MONTH IS REDUCED TO 424,433M³/MONTH (A 15 REDUCTION) THROUGH RECYCLE, REUSE REDUCE STRATEGIES.

Consumption (m ³ /month)	Average Bill (RM/month)
499,333	958,716
424,433	766,979
SAVING 74,900M ³ /MONTH	RM 191,743/MONTH

SAVING ON SEWERAGE BILLS : RM 33,675/MONTH

IMPACT TO INDUSTRY

ASSUMING ONE OF THE LARGE INDUSTRIAL CONSUMER CONSUMPTION IS REDUCED BY 15 ;

Consumption (m ³ /month)	Average Bill (RM/month)
122,034	278,230
103,729	236,496
SAVING 18,305M ³ /MONTH	RM 41,734/MONTH



2.0 ECONOMIC IMPACT OF WATER DEMAND MANAGEMENT

(B) Government

(cont'd)

(I) REDUCE SUBSIDY FROM GOVERNMENT AND EMPHASIS ON "USER-PAY " PRICING POLICIES

WATER TARIFF IS CHEAP AS COMPARED BELOW

1M³ 1000 LITRES
AVERAGE COST 1M³ RM0.12

1M³ (1000 LITRES) 667 MINERAL WATER BOTTLES
(1.5 LITRES)
1.5 LITRE BOTTLE RM2.00
TOTAL COST 1M³ RM1,334
I.E. 1850 TIMES MORE EXPENSIVE

ACTION:

GOVERNMENT REDUCE SUBSIDY WITH TARIFF INCREASES USING
TARIFF BANDING WHERE HIGH CONSUMPTION USERS SUBSIDIZE
FOR THE LOW TO MEDIUM CONSUMPTION USERS



LOWER CONSUMPTION BY CONSUMERS IN HIGH CONSUMPTION
BAND



LOWER BILL / MONTH



PROMOTE WILLINGNESS-TO-PAY BY CONSUMERS



2.0 ECONOMIC IMPACT OF WATER DEMAND MANAGEMENT

(B) Government

(cont'd)

(II) GAINS IN FINANCIAL CHARGES DUE TO DEFERMENT OF CAPITAL WORKS BY VIRTUE OF NRW REDUCTION FUNDED BY GOVERNMENT, WASTAGE IN LEAKAGE AND OVERFLOWS RESULTED IN PHYSICAL LOSS SAVINGS TOTALING 469 MLD (FOR EXAMPLE). THIS SAVINGS LEADS TO DEFERMENT OF SOURCE WORK FOR THE PRODUCTION OF SAME QUANTITY OF WATER WHICH WILL BE NEEDED TO SUPPORT THE DEMAND ANYWAY.

RM (Mill)

- COST OF SOURCE WORK (DAMS, WATER TREATMENT PLANTS TRANSMISSION MAINS) DEVELOPMENT
(469 MLD X RM 3.0MILL/MLD)
- COST FOR DISTRIBUTION UPGRADING
(469 MLD X RM 1.0MILL/MLD)

1407

469

TOTAL

1876



2.0 ECONOMIC IMPACT OF WATER DEMAND MANAGEMENT

(B) Government

(cont'd)

ASSUMING OPPORTUNITY COST OF 8 P.A., SAVINGS IN FINANCIAL CHARGES:-

RM 1,876 MILL X 0.08 = RM 150 MILL/YEAR

ASSUMING DEMAND GROWTH OF 3 P.A.

3 X 3900 MLD = 11700 MLD

THE DURATION OF DEFERMENT IN CAPITAL WORK = $469/117$ = 3.6 YEARS

TAKING A DEFERMENT OF 3.6 YEARS, TOTAL SAVINGS IN FINANCIAL CHARGES:-

RM 150 MILL X 3.6 = RM 540 MILL

THIS IMPLIES GOVERNMENT HAS TO OTHERWISE SPEND RM 540 MILL TO DEVELOP CAPITAL WORKS IN ORDER TO CATER FOR THE SUPPLY OF AN

NATIONAL COLLOQUIUM ON WATER DEMAND MANAGEMENT HAD IT BEEN NO NRW₄ REDUCTIONS AT ALL.



2.0 ECONOMIC IMPACT OF WATER DEMAND MANAGEMENT

(C) Water Treatment Plant Operators (cont'd)

- TO REDUCE IN-PLANT USE OF WATER FROM 5 TO 4 .

TOTAL WTP PRODUCTION (ALL STATES) 11,466 MLD (SPAN 2008 REPORT) ASSUMING 5 IN-PLANT USE.

IF IN-PLANT USE IS REDUCED BY ANOTHER 1 , GENERATE SAVINGS OF 1112 MLD. THIS SAVING WILL PROVIDE ADDITIONAL SUPPLIES TO 6 MILLION PEOPLE ASSUMING PER CAPITA DOMESTIC CONSUMPTION OF 183 L/C/D



2.0 ECONOMIC IMPACT OF WATER DEMAND MANAGEMENT

(D)

(cont'd)

Water

Supply

Operators

- WHY SELL LESS WATER?
- DEFERMENT OF CAPITAL WORKS IN UPGRADING OF DISTRIBUTION NETWORK.
- EASIER TO MANAGE CONSUMERS WITH LOWER WATER BILLS.
- ENSURE SUSTAINABILITY OF THE BUSINESS.
- REVENUE WILL SUFFER DUE TO WATER SHORTAGES.
- ADDITIONAL EXPENDITURE TO SEND RELIEF WATER WHICH IS NOT RECOVERABLE (E.G. RM 60 MILLION INCURRED DURING THE 1998 WATER CRISIS IN SELANGOR).



3.0 STAKEHOLDERS ROLE IN WATER DEMAND MANAGEMENT

3.1 Domestic Consumers / Commercial Consumers

- CULTIVATE HABIT OF SAVING WATER.
- INVEST ON WATER SAVING FITTINGS.
- RE-USE OF USED WATER AND RAIN WATER COLLECTION FOR NON-POTABLE PURPOSES.
- REPORT PIPE BURSTS, LEAKING PIPES, RESERVOIR OVERFLOWS AND WATER THEFT.



3.0 STAKEHOLDERS ROLE IN WATER DEMAND MANAGEMENT

(cont'd)

3.2 Industrial Consumers

- ADOPT STRATEGIES TO REDUCE CONSUMPTION AND RE-USE OF USED WATER.
- RECYCLE USED WATER.
- RAINWATER COLLECTION FOR NON-POTABLE PURPOSES.



3.0 STAKEHOLDERS ROLE IN WATER DEMAND MANAGEMENT

(cont'd)

3.3 Water Treatment Plant Operators

- REDUCE IN-PLANT USE OF WATER



3.0 STAKEHOLDERS ROLE IN WATER DEMAND MANAGEMENT

(cont'd)

3.4 Water Supply Operators

- REDUCE NRW LOSSES ESPECIALLY CUTTING WATER WASTAGE BY:-
 - QUICK REPAIR OF BURST PIPES AND LEAKING PIPES.
 - REPLACEMENT OF AGED AND LEAKING PIPES AND COMMUNICATION PIPES.
 - ACTIVE LEAKAGE DETECTION.
 - ENSURE NO RESERVOIR OVERFLOWS.
 - ENSURE ACCURATE METER READINGS.
 - SYABAS REDUCED NRW LOSSES FROM 42.78 TO 31.94 , I.E. A REDUCTION OF 10.84 SINCE 2005.



3.0 STAKEHOLDERS ROLE IN WATER DEMAND MANAGEMENT

(cont'd)

3.4 Water Supply Operators

- ESTABLISH EFFICIENT CALL CENTRE TO ENCOURAGE REPORTING BY PUBLIC (PUSPEL HANDLES 1600 CALLS PER DAY OF WHICH 60 ARE REPORTS OF PIPE BURSTS AND PIPE LEAKS; APPRECIATION LETTER TO ALL CALLERS REPORTING PIPE BURSTS AND PIPE LEAKS; 5 LUCKY DRAW PRIZES EVERY MONTH TO SUCCESSFUL CALLERS REPORTING PIPE BURSTS AND PIPE LEAKS.
- ENSURE STRICT SUPERVISION AND QUALITY MATERIALS.
- DESIGN GUIDELINES TO PROVIDE FOR DIFFERENT HYDRAULIC ZONES FOR HILLY DEVELOPMENT AND LIMITING RESIDUAL PRESSURE TO 30 METRES.
- PROMOTE WATER SAVING/WATER CONSERVATION THROUGH STAKEHOLDERS ENGAGEMENT PROGRAMME AND EDUCATIONAL OUTREACH PROGRAMME.



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3.0 STAKEHOLDERS ROLE IN WATER DEMAND MANAGEMENT

(cont'd)



Prize Giving - Lucky Draw



**Malaysia Water Award for
Excellence in Customer Service
Management 2007 – awarded
by the Malaysian Water
Association**



3.0 STAKEHOLDERS ROLE IN WATER DEMAND MANAGEMENT

(cont'd)



Pipe Burst



Pipe Leak



Case of Water Theft



3.0 STAKEHOLDERS ROLE IN WATER DEMAND MANAGEMENT

(cont'd)

3.5 Consultants / Developers

- INSTALL WATER SAVING DEVICES AND FITTINGS IN NEW HOUSES.
- INCORPORATE RAIN WATER HARVESTING IN NEW HOUSES AND BUILDINGS.
- STRICT SUPERVISION AND QUALITY MATERIALS.



3.0 STAKEHOLDERS ROLE IN WATER DEMAND MANAGEMENT

(cont'd)

3.6 Government

- APPROPRIATE TARIFF SETTING.
- PUBLIC EDUCATION TO PROMOTE WATER SAVING AND IMPACT OF WATER DEMAND MANAGEMENT.
- STEP UP ENFORCEMENT ESPECIALLY ON WATER THEFT.
- BENCHMARKING.



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3.0 STAKEHOLDERS ROLE IN WATER DEMAND MANAGEMENT

(cont'd)



Save Water Campaign



4.0 CONCLUSION

- ECONOMIC IMPACT OF WATER DEMAND MANAGEMENT IS VERY SUBSTANTIAL.
- EVERYONE, NO MATTER HOW SMALL HAS A ROLE TO PLAY IN WATER DEMAND MANAGEMENT – **every drop of water counts.**
- EMPHASIS ON BENEFITS OF WATER DEMAND MANAGEMENT AND MANAGING WATER DEMAND BECOMES AN INTEGRAL PART OF OUR THINKING PROCESS IN FUTURE.
- PUBLIC EDUCATION / PUBLIC AWARENESS IS KEY TO PROMOTING WATER DEMAND MANAGEMENT.



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THANK YOU
