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Are urban water tariff structures designed to meet local challenges and policy goals?

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Key issues and challenges

Water and wastewater tariff structures may not always be designed to meet local priorities

- Goals may be different for developed and developing cities, depending on local context
- **Developing** – Lower NRW, increase service coverage & reliability, ensure affordability of the poor, revenue sufficiency to meet O&M costs
- **Developed** – Address water conservation, shift towards cost recovery, ensure environmental sustainability, maintain financial health.



Water and wastewater tariff structures

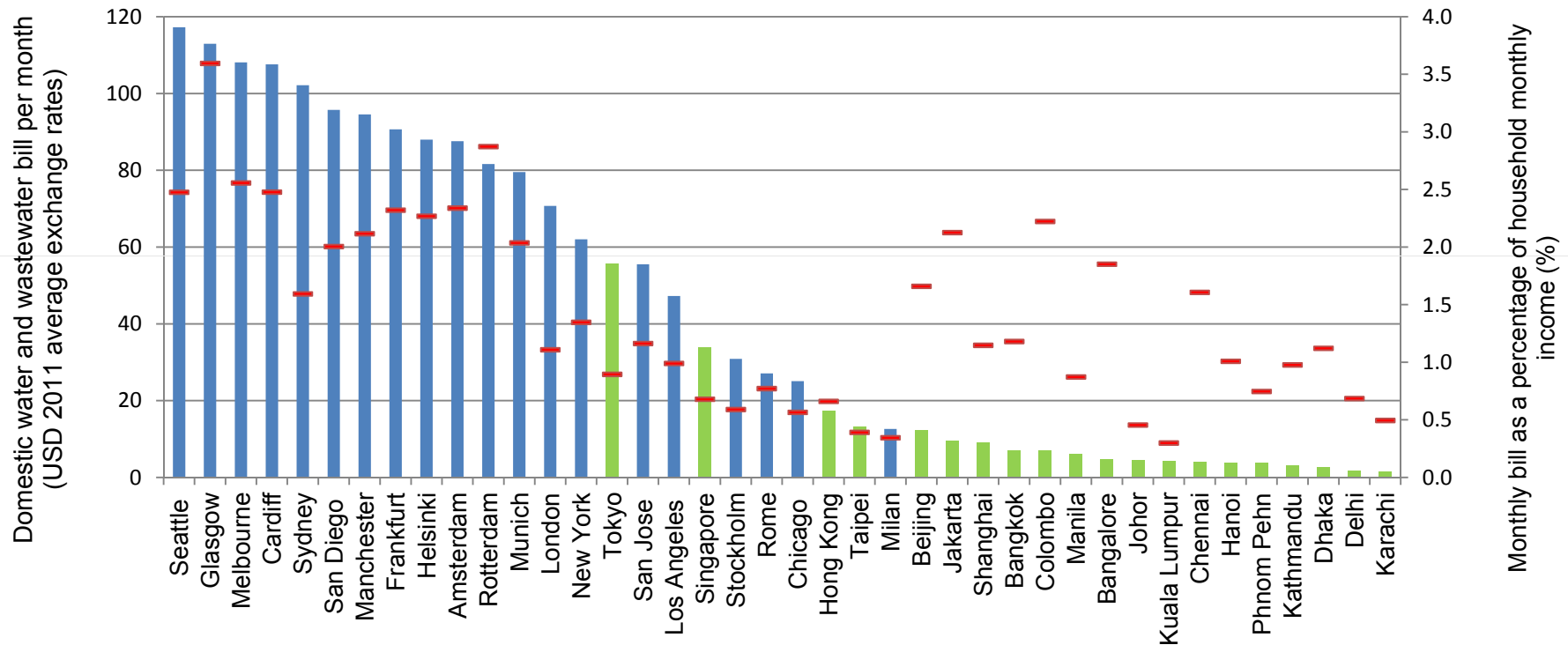
Components of water and wastewater tariff structures implemented in 40 selected cities in Asia, North America, Australia and Europe (Institute of Water Policy, 2012)

Cities		Singapore	Taipei	Phnom Penh	Bangkok	Manila	Jakarta	Hanoi	Johor	Kuala Lumpur	Hong Kong	Tokyo	Shanghai	Beijing	Dhaka	Karachi	Colombo	Delhi	Bangalore	Chennai	Kathmandu	Sydney	Melbourne	London	Manchester	Cardiff	Glasgow	Stockholm	Amsterdam	Rotterdam	Frankfurt	Munich	Rome	Milan	Helsinki	New York	Los Angeles	San Diego	Seattle	Chicago	San Jose	
Water tariff																																										
Basic Charge																																										
Volumetric	IBT																																									
	CUC																																									
Environmental Tax																																										
Wastewater tariff																																										
Basic Charge																																										
Volumetric	IBT																																									
	CUC																																									
	% of water bill																																									
Stormwater Charge																																										



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Domestic water and wastewater bills



Domestic water and wastewater bill based on a consumption of 20m³ per month (USD 2011 average exchange rates) compared with monthly household income (Asian cities are highlighted in green) (Source: Institute of Water Policy, 2012)



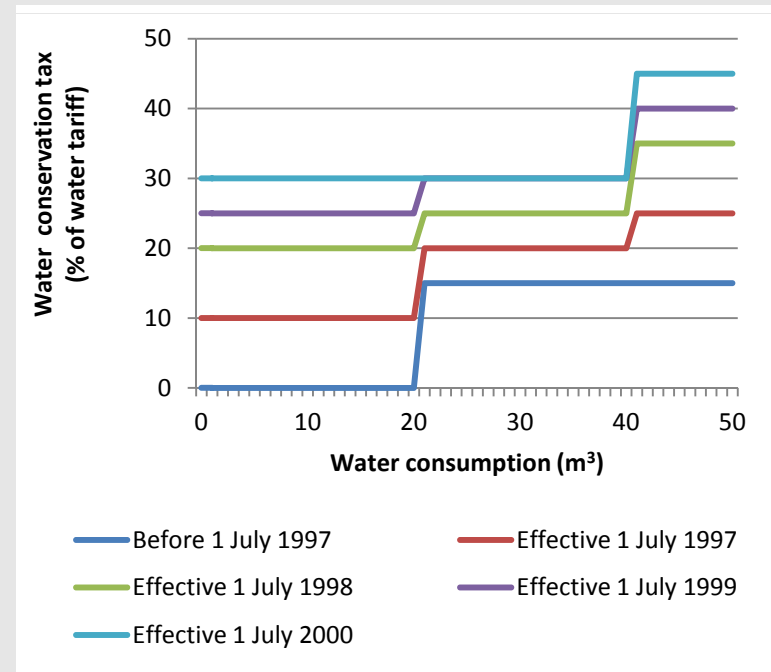
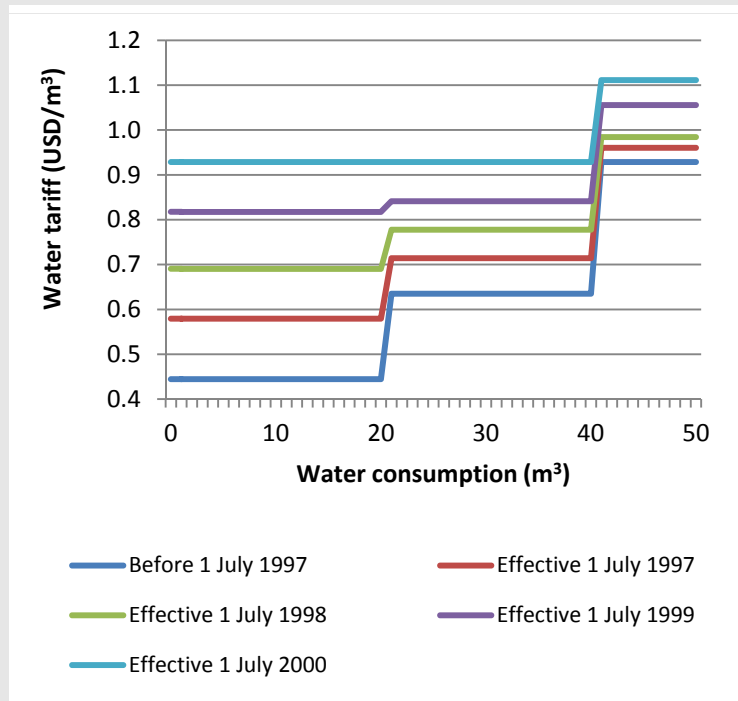
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Challenges and appropriate pricing: SINGAPORE

Challenge – Scarcity of local water resources

Policy Goal – Achieve self-sufficiency in water supply

Strategy – Emphasis on water conservation through pricing, awareness campaigns, and water saving devices; no cross-subsidization



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Challenges and appropriate pricing: SINGAPORE

Outcomes:

- Domestic water consumption declined from **165 lpcd (2002)** to **153 lpcd (2011)** (PUB, 2012).
- For the first time in last two decades, **PUB has incurred a net loss** (before government grant) in FY 2010 and 2011 (PUB, 2012).

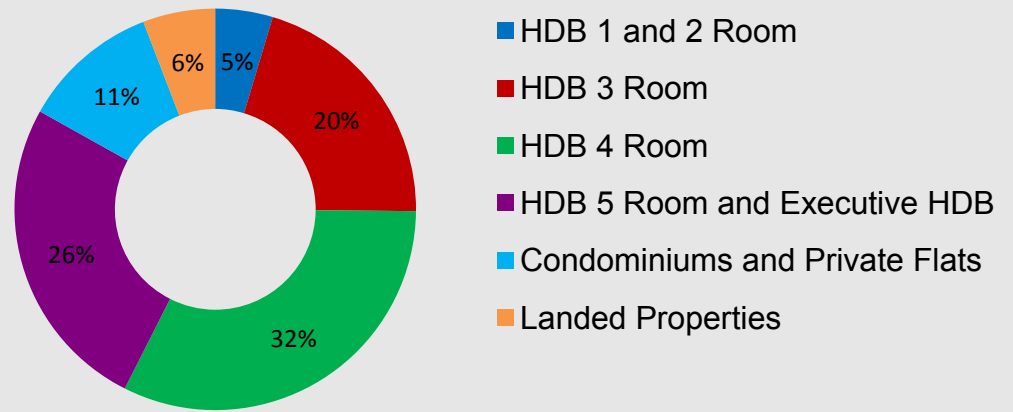
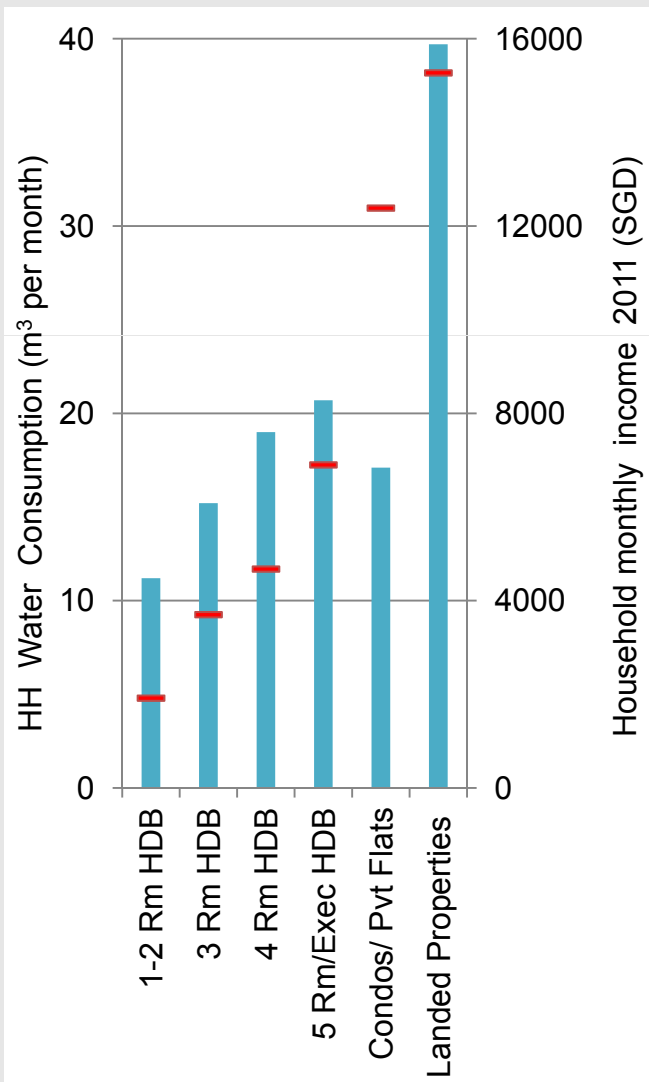
How to increase revenues and ensure conservation without affecting affordability of general population?

Three considerations:

1. Analyze the household water consumption disaggregated by dwelling type and income
2. Determine how to increase the effectiveness of price as a signal for conservation
3. Analyze the relative balance between the domestic and non-domestic sector



Challenges and appropriate pricing: SINGAPORE



- More than 80% households consume <20m³ per month
- HDB 1-2 room flats pay 2% of their incomes as water bills, while condominiums pay only 0.5%.
- Almost all domestic water use occur for indoor purposes which tend to be more inelastic

Recommendation: Boundary of first tier could be reduced to 20m³



Challenges and appropriate pricing: SINGAPORE



MR IMTIAZ AHMED
290G BT BATOK ST 24
#17-97
SINGAPORE 656290



742-039387-19594

October 2012 Bill Dated 22 Oct 2012

Account No : 8923563525
Type : Domestic
Deposit : \$200.00

This is your tax invoice for
290G BT BATOK ST 24 #17-97 SINGAPORE 656290

SUMMARY OF CHARGES 21 Sep 2012 to 21 Oct 2012	Amount (\$)	SP Services Ltd Orchard P.O. Box 341 Singapore 912312 Co. Registration No.: 199504470N GST Reg No. M2-8920920-4 General Enquiries: 1800 2222333 Credit Arrangement: 6671 7100 Fax: 6304 8229 www.spservices.com.sg spservices@singaporepower.com.sg
Balance B/F from Previous Bill	177.65	
Payment on 09-10-2012 - Thank You	-177.65	
Outstanding Balance	180.85	
Total Current Charges due on 05 Nov 2012 (Mon)		
Total Amount Payable	\$180.85	

Payment received on or after 21.10.2012 may not be included in this bill.

CURRENT MONTH CHARGES	Usage	Rate (\$)	Amount (\$)	Total (\$)
Electricity Services				
Electricity Estimated on 21-10-2012	129 kWh	0.2808	36.22	
Electricity	272 kWh	0.2727	74.17	110.39
Gas Services by City Gas Pte Ltd				
Gas Estimated on 21-10-2012	96 kWh	0.2154	20.68	20.68
Water Services by Public Utilities Board				
Water Estimated on 21-10-2012	14.8 Cu M	1.1700	17.32	
Water	14.8 Cu M	0.2803	4.15	
Waterborne Fee	2 Fittings	2.8037	5.61	27.08
Refuse Removal by Colex Holdings Ltd				
Refuse	1 Qty	5.68	5.68	5.68
Water Conservation Tax				
		\$17.32	30%	5.19
Goods & Services Tax				
	\$169.02	7%	11.83	11.83
Total Current Charges Inclusive of GST				\$180.85

For cheque payment:
Crossed cheque is to be made payable to
SP Services Ltd. Please detach and mail
this portion with your cheque to Orchard P.O.
Box 341, Singapore 912312.
(No receipt will be issued. Please do not send post-dated cheque.)

Payment Due On 05 Nov 2012	Account No 8923563525	Cheque No	Bank/Branch
Total Amount Payable		\$180.85	



8923563525

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October 2012 Bill Dated 22 Oct 2012

Account No : 8923563525
MR IMTIAZ AHMED

Our staff will be at your premises on 21.11.2012 to read your meters. You may call us at tel no. 1800 2222333 to verify the identity of our staff.

With effect from 1 Oct, electricity tariff is 27.27 cents/kWh.

Please make full payment by the due date to avoid \$0.50 Pink Notice fee and 1% Late Payment Charge.

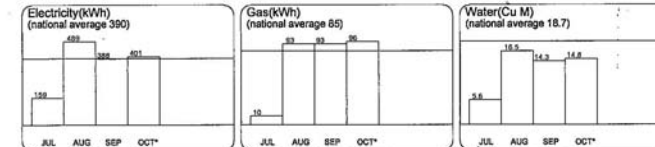
Please visit www.spservices.com.sg for more information on our service and conditions of service.

This bill serves as a tax invoice for the collection of electricity charges for SP Services Ltd and SP PowerAssets Ltd (200302108D), gas charges for City Gas Pte Ltd (200106090N), water charges, NEWater charges, water conservation tax, waterborne and sanitary appliance fees for the Public Utilities Board (MB-8105014-4), and refuse removal fees for SembWaste Pte Ltd (M2-8922032-1) or Veolia ES Singapore P L (19980467313) or Colex Holdings Ltd (M2-0012928-8) or 800 Super Waste Management Pte Ltd (M2-0073013-9).

The amount for GST shown on the bill is calculated based on the sum of the GST charged for each individual item.

Emergency Numbers - For Electricity: 6778 8888 (SP PowerGrid), Piped Gas: 6752 1800 (City Gas), Water: 1800-284 6600 (PUB).

Bar Graph for Past Consumption



*Consumption based on estimated reading

— National average consumption for your house type

Recommendation: Separate bills for water, so that consumers are more aware of changes in bill



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Challenges and appropriate pricing: SINGAPORE

- A large proportion of PUB's connections are **non – domestic (55% in 2010, projected to become 70% in 2060)** (PUB, 2012)
- Non-domestic consumers pay a uniform volumetric rate (SGD 1.17/m³), same as that of domestic.

Recommendation: In order to increase its revenue, Singapore may opt for a different higher tariff rate for its non-domestic consumers.

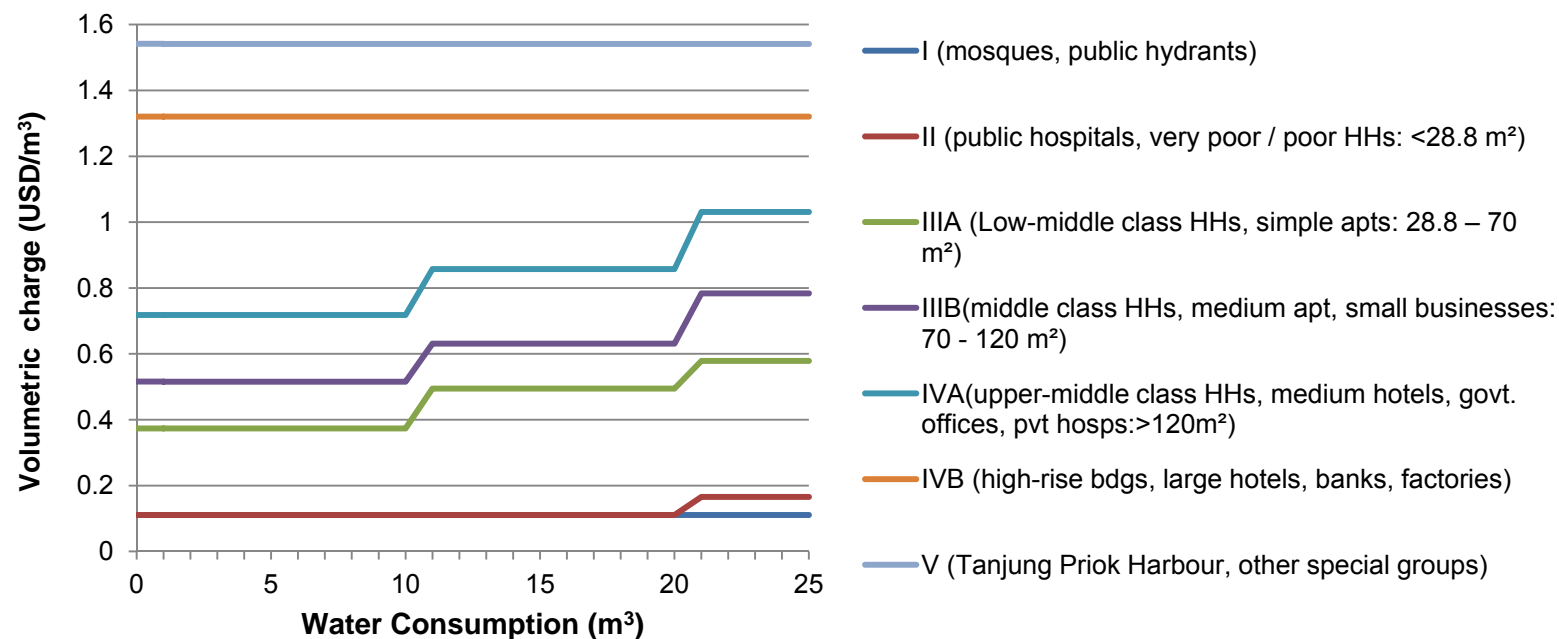


Challenges and appropriate pricing: JAKARTA

Challenge – High NRW, low service coverage, unreliable service

Policy Goal – Ensure revenue sufficiency, increase connections to poor, ensure affordability

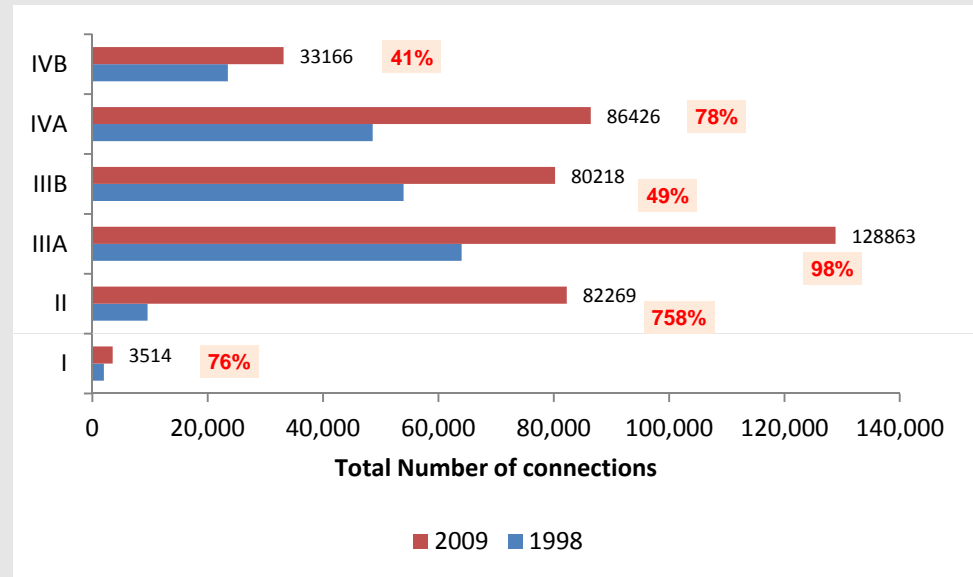
Strategy – Separate tariff structures according on consumer category, based on full cost recovery principle.



Challenges and appropriate pricing: JAKARTA

Outcomes:

- Majority of connections made to category IIIa, although most households belong to II (Bakker & Kooy, 2012) – PALYJA data contradicts
- Disincentive to connect the poor and increasing debt for PAM Jaya.



- Tariffs remained unchanged since 2007; however, many consumers were re-categorized - In 2009, 10,662 customers (i.e. 2.6%) were reclassified, 75% towards higher tariff category, 25% towards lower one.
- Highly subsidized as more than 71% of customers, consuming $\approx 51\%$ of the water is paying less than the cost of the service
- Cross-subsidization not effective as comparatively fewer high-tariff consumers to compensate for large proportion of low-tariff consumers.



Challenges and appropriate pricing: JAKARTA

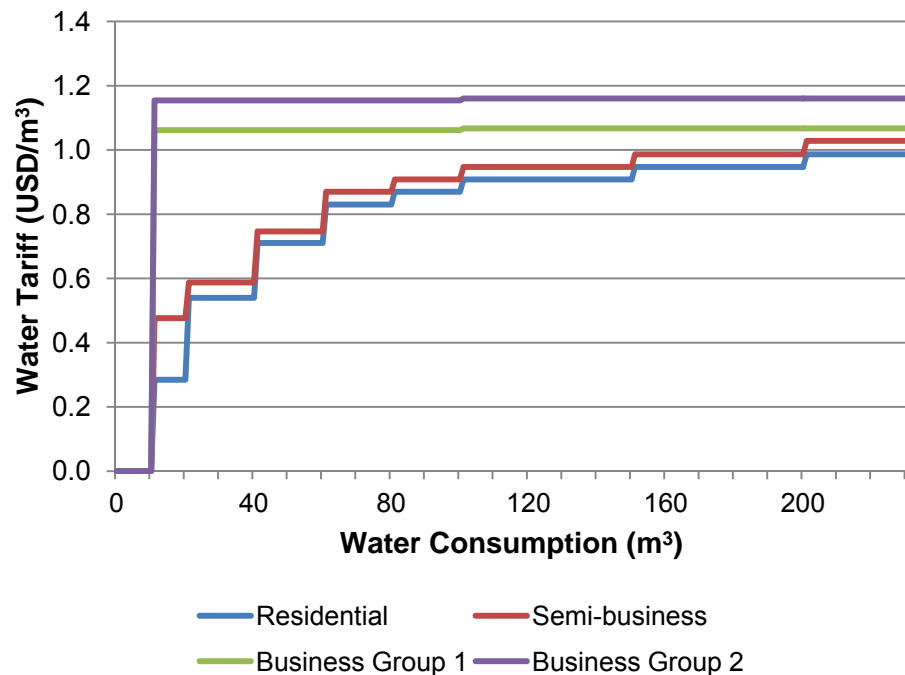
Recommendations

- Tariff structure based on floor area of house may not effectively represent the poor households
- Uniform tariff structure for all consumers, with greater targeted subsidies for the poor



Challenges and appropriate pricing: MANILA

- **Challenge** – Growing urban population, continue to stretch existing supplies
- **Policy Goal** – Ensure revenue sufficiency, increase connections to poor, ensure affordability
- **Strategy** – Connect the poor first to reduce NRW through pilferage and generate revenues; Special programs to reduce one-time connection fees for the poor.



Basic charge:

- **Residential:** PHP 101.01/ connection; PHP 60.61/ connection for low-income consumers using less than 10m³ (representing 8%)
- **Semi-business:** PHP 101.01/ connection
- **Business Group 1:** 459.06/ connection
- **Business Group 2:** 496.71/ connection



Challenges and appropriate pricing: MANILA

Changes in Environmental and Sewerage Charges (Rivera, 2009)

Year	2007	2008	2009	2010	2011	2012
Environmental Charge (all customers)	10%	12%	12%	16%	18%	20%
Residential Sewer Charge	50%	40%	40%	20%	10%	0%
Commercial Sewer Charge	50%	45%	45%	35%	30%	30%

Outcomes:

- Manila Water is known as one of the successful PPPs in the water sector; reduced its water loss, from 63% (1997) to 11.2% (2011) and improved its reliability, in terms of 24-hour availability, from 26% of customers (1997) to 99% (2011) (Manila Water, 2011).
- Sewerage service coverage is still very low; but growing [3% (1997) to 16% (2009)]
- Effective cross-subsidization may not be achieved as the proportion of non-domestic consumers are very low (90.66% residential, 4.7% semi-business, 4.33% business group 1 and 0.31% business group 2)



Challenges and appropriate pricing: MANILA

Manila Water
Manila Water Company, Inc.
MWSS concessionaire for the East Zone
489 Katipunan Road, Balara 1105
Quezon City, Philippines
TIN: 005-038-428-000 VAT

Nangangalaga sa Kinabukasan

Business Area : Marikina
MRU Sequence : 001280 / 0570

METER INFORMATION
Meter No. : 15253446
Brand : SCHLUMBERGER
Size : 4 13MM
Batch/Page No. : 0605-05305

Contract Account No. : 14860956
Business Partner No. : 000539132

Mahal naming KATUBIG,
Nais po naming ipaalan na ang inyong bayarin sa tubig para sa buwan ng Hunyo ay **P824.80**. Maaari po lamang na bayaran ito bago mag-Hunyo 13, 2009 upang maiwasang maputulan ng serbisyo ng tubig.
Maraming Salamat po!

Consumption: 45
Current Charges: P 824.80
Previous Unpaid Amount: P 0.00
Total Amount Due: P 824.80
Pay Before: 13JUN-09

UGALIING MAGHUGAS NG KAMAY
Sa paglalanap ng iba't-ibang uri ng sakit ngayon, kinakailangang panatilihin malinis ang kapaligiran lalong-lalo na ang ating mga katawan. Isang simple ngunit mabisang paraan upang makaiwas sa mga sakit at sa pagkalat nito ay ang tamang paghuhugas ng ating mga kamay. Ugaliing hugasan ang mga kamay gamit ang sabon at maraming tubig sa loob ng 15 segundo. Barilawan ng matubig at patuyuin. Sinisiguro ng Manila Water na sapat at malinis ang tubig upang mapanatili ang kalinisan at masiguro ang kalusugan ng aming mga katubig.

This statement will serve as an official receipt when machine validated.

Thank you for paying your bills on time.

Please return this portion with your payment. Thank you.

Manila Water
MWSS concessionaire for the East Zone
489 Katipunan Road, Balara 1105
Quezon City, Philippines
TIN: 005-038-428-000 VAT

Contract Account No. : 14860956
Business Partner No. : 000539132
Business Area : Marikina

Billing Period : 05MAY09 TO 04JUN09
Due Date : 13JUN09
Amount Due : P824.80

Reference No. : 3107960660

004799



Manila Water
Manila Water Company, Inc.
489 Katipunan Road, Balara 1105
Quezon City, Philippines
TIN: 005-038-428-000 VAT

SERVICE INFORMATION

Contract Account No. 12345678
Account Name Juan Dela Cruz
Service Address 123-D Amorsolo St., San Pedro Village
Concepcion 1, Marikina City
Rate Class Residential
Business Area Marikina

BILLING SUMMARY

Bill Date 14 May 2012
Billing Period 14 April 2012 to 14 May 2012
Consumption 13 cubic meters
Total Amount Due P 217.23
Due Date 19 May 2012

BILLING DETAILS

	P	217.41
CURRENT CHARGES		
Basic Charge	157.82	
FCDA	2.70	
Environmental Charge	32.10	
Sewer Charge	0.00	
Maintenance Service Charge	1.50	
Total Current Charge Before Tax	194.12	
Add VAT (12%)	23.29	
OTHER CHARGES		P 0.00
PREVIOUS UNPAID AMOUNT		P -0.18
TOTAL AMOUNT DUE		P 217.23

METER READING INFORMATION

	Prev Rdg	Pres Rdg	Cons
Meter No. 000015462490	715	728	13
Previous Months Consumption	April 12	Mar 13	Feb 10



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On-site bill printing system, launched since Sept. 2012, provides more information on previous water consumption and different billing components

Challenges and appropriate pricing: MANILA

Recommendations:

- The tariff structure can be simplified by reducing the number of tiers – currently, **9 tiers for domestic** and **33 tiers for non-domestic!**
- More focus can be given on **water conservation** by providing greater information to consumers in simplified form, promoting the use of water saving devices and raising awareness.

