



End-user behaviour in response to deficiencies in urban water consumption and sanitation

Dr Arun Kansal
Professor and Dean
TERI School of Advanced Studies

Background

- Water is the most critical resource provided by urban utilities to residents
- Responsible consumption of this resource is central to achieving key policy goals
- Underlying assumption is- state needs to supply at subsidised prices and consumers need to use it judiciously
- A number of factors influence people's behavior- price and risk perception are most effective.

Variability in water consumption and norms

- Urban planners assess city's demand using one simple statistic, water supply norms. Not revised for decades. 200, 135, 40, 150, 100-200 lpcd.
- Daily per capita water consumption varied with country and within country:

45-70 L in some African countries, 140-350 L in European countries and Australia, 322 L in Japan, 136-242 L in USA and 70 – 200 L in Asian cities.

Key questions

- How does per-capita consumption of water at home vary with socio-economic and demographic status of household?
- How do coping strategies for inadequate water supply and of doubtful quality influence household consumption?
- How does the demand for water change with the use modern water related appliances and lifestyle changes?

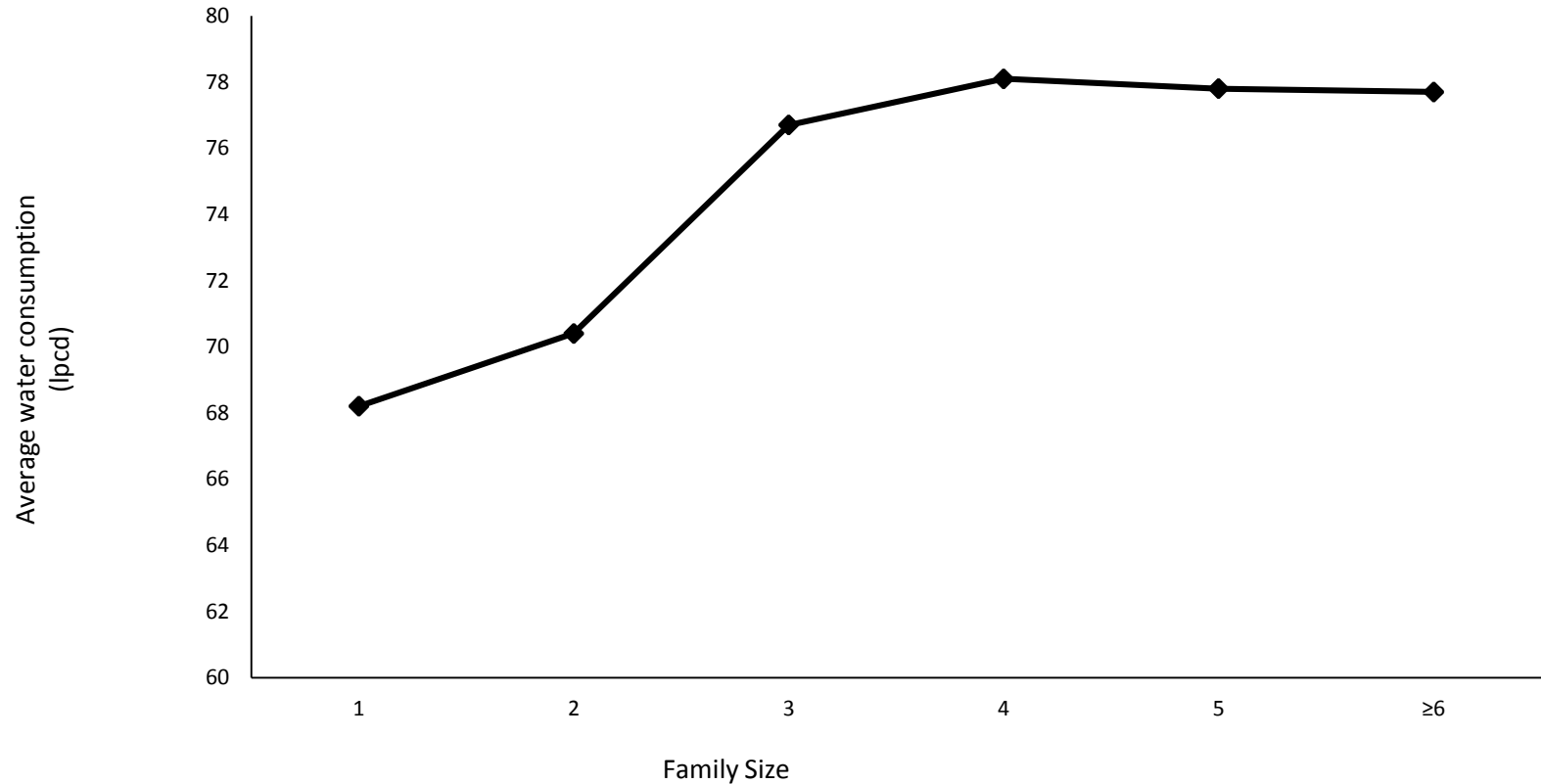
Impact of water consumption choices

Activity	Average water consumption (L)
Bathing	
Bucket and mug	24.6 (4.3)
Shower	29.3 (7.4)
Bath tub	38.7 (5.3)
Storing water for drinking and cooking	
Without treatment	28.3 (5.9)
With domestic treatment	
Filtration + UV	34.6 (4.9)
Filtration + RO	57.9 (8.4)
Washing dishes and pots and pans	
Washing and rinsing in standing water, using buckets	43.1 (5.4)
Running water (per minute)	3.3 (0.24)
Dish washer (one cycle)	45
Washing clothes	
Manually (per minute)	2.6 (0.13)
Semi-automatic machine (one load of clothes)	54.6 (11.2)
Fully automatic machine (one load of clothes)	48.3 (5.8)
Toilet flushing (per flush)	
Bucket	7.4 (1.2)
Flush toilets	5.5

Average daily per-capita water needs


Activity	Organized housing				Slum dwellers	Overall average
	HIG	MIG	LIG	Pooled data		
Bathing	28.1 (12.7)	24.2 (11.4)	23.6 (12.2)	24.9 (12.8)	14.3 (12.8)	19.6 (10.3)
Storing water for drinking and cooking	7.1 (3.6)	6.4 (3.4)	6.1 (3.4)	6.5 (3.3)	3.9 (2.9)	5.1 (3.8)
Washing dishes and pots and pans	10.1 (8.8)	11.3 (7.8)	11.9 (6.1)	11.4 (6.7)	6.7 (6.4)	10.1 (6.9)
Washing clothes	9.1 (6.9)	10.2 (5.9)	10.8 (6.8)	10.2 (6.4)	8.2 (7.6)	9.4 (6.7)
Toilet flushing	15.6 (9.4)	14.4 (8.3)	14.4 (8.4)	14.4 (8.6)	7.3 (6.7)	12.1 (7.4)
House cleaning	4.6 (3.2)	4.2 (3.1)	4.1 (3.2)	4.3 (3.9)	2.1 (1.9)	3.7 (1.9)
Others	4.1 (2.7)	4.2 (2.6)	4.2 (2.7)	4.2 (2.7)	2.7 (0.5)	3.9 (2.6)
Total	78.7 (21.7)	74.9 (18.2)	75.1 (19.9)	75.9 (14.7)	45.2 (26.1)	63.9 (14.1)

Family size and water consumption



Key issues

- Shift from domestic to commercial demand
- Increasing trend towards use of gadgets to save time.
- Outsourcing of water related activities
- Difference in water 'need' and 'demand'.
- Inequity and injustice
- Negative correlation between water and electricity saving and domestic level.

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- Lack of evidence leading to policy gaps
 - ‘Codes’ hurdles fast uptake of innovations
 - Infrastructure monitoring in terms of health outcomes
 - Guidelines for protection of groundwater quality-bacteriological and diffuse pollution

THANKS