

Water supply and sanitation for all

- closer look at urban areas..



PLANNING SUSTAINABLE WATER AND SANITATION SERVICES -
WITH THE USERS

by Svein Stoveland

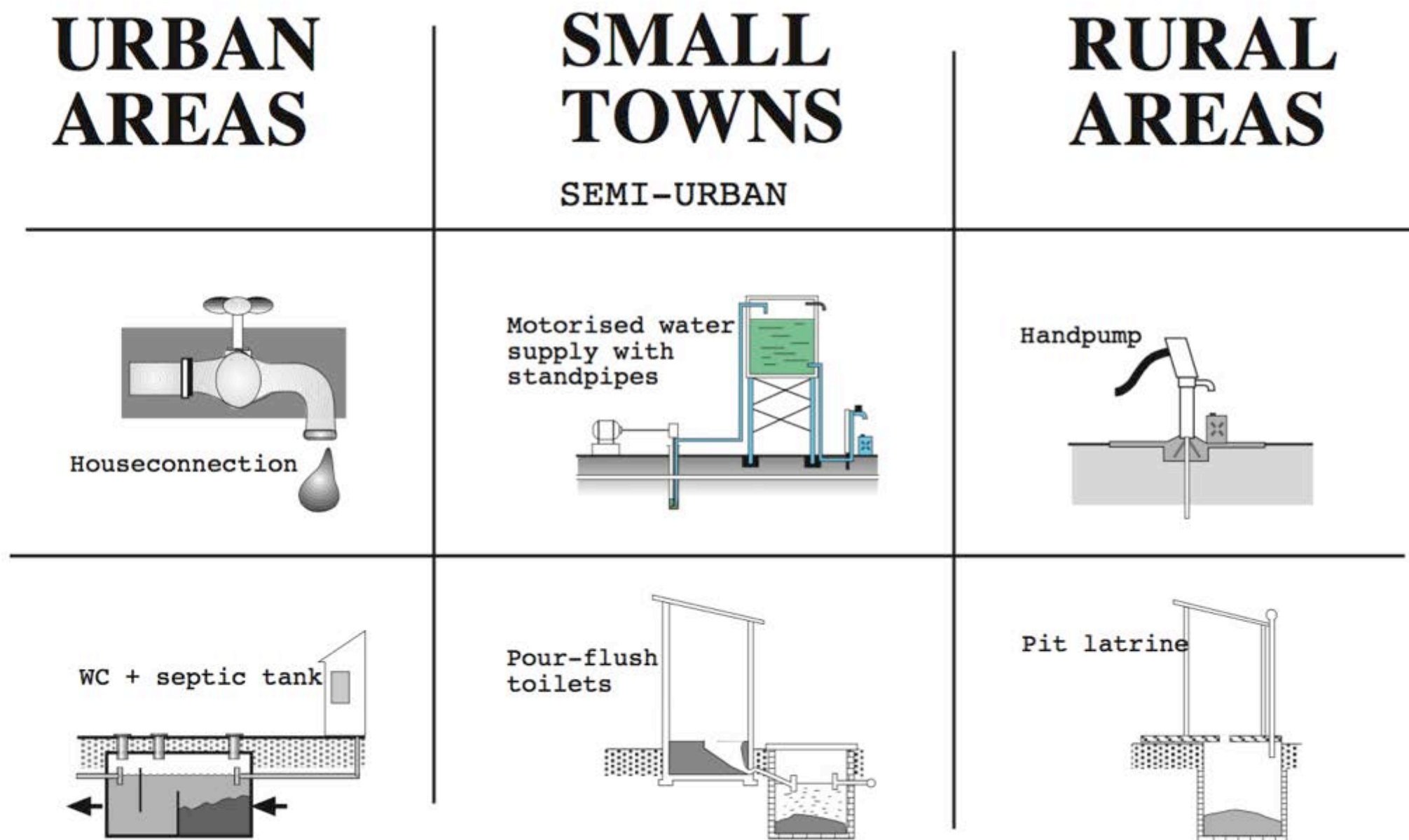
NORPLAN 

CONTENT

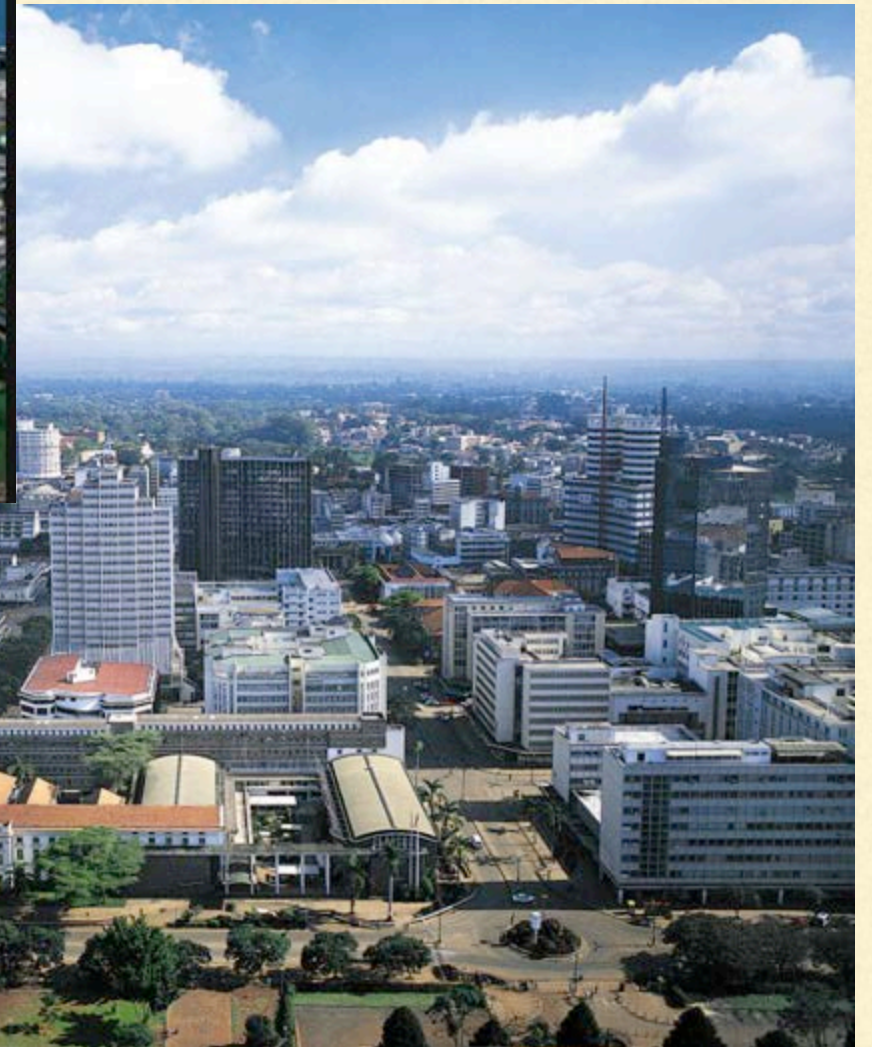
- Survey tools used in Lagos and other cities -
- Lessons learnt and application for Kabul and urban areas in Afghanistan?

SETTLEMENT CLASSIFICATION?

- NOT SO SIMPLE - OFTEN MIXED



BACK TO LAGOS AND SURVEY TOOLS:





REALITY!



TALK TO USERS AND PEOPLE- THEIR PREFERENCES

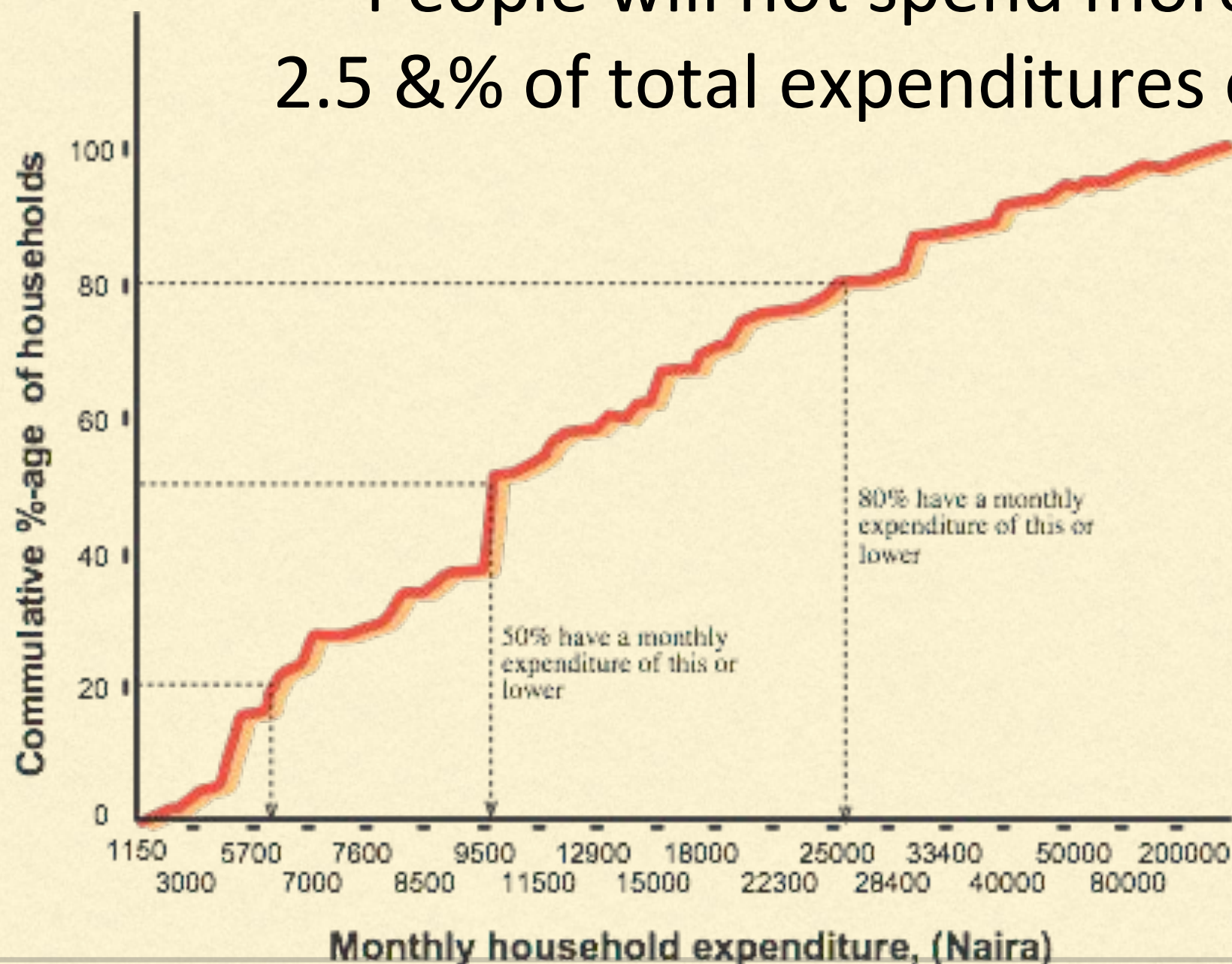


ALSO POORER PEOPLE KNOW WHAT THEY WANT AND WHAT THEY CAN AFFORD.



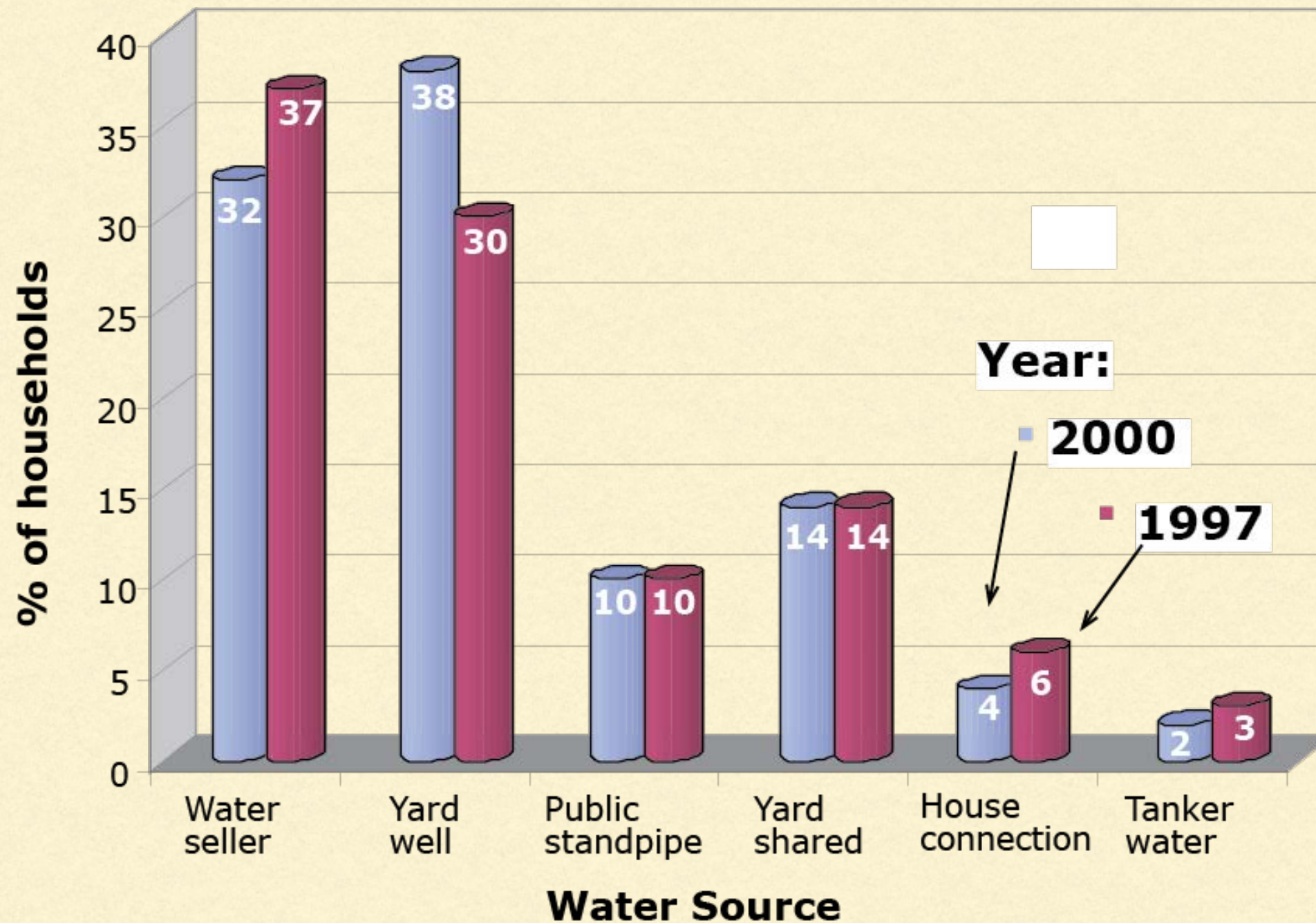
AFFORDABILITY AND WILLINGNESS TO PAY?

People will not spend more than 2.5 % of total expenditures on water

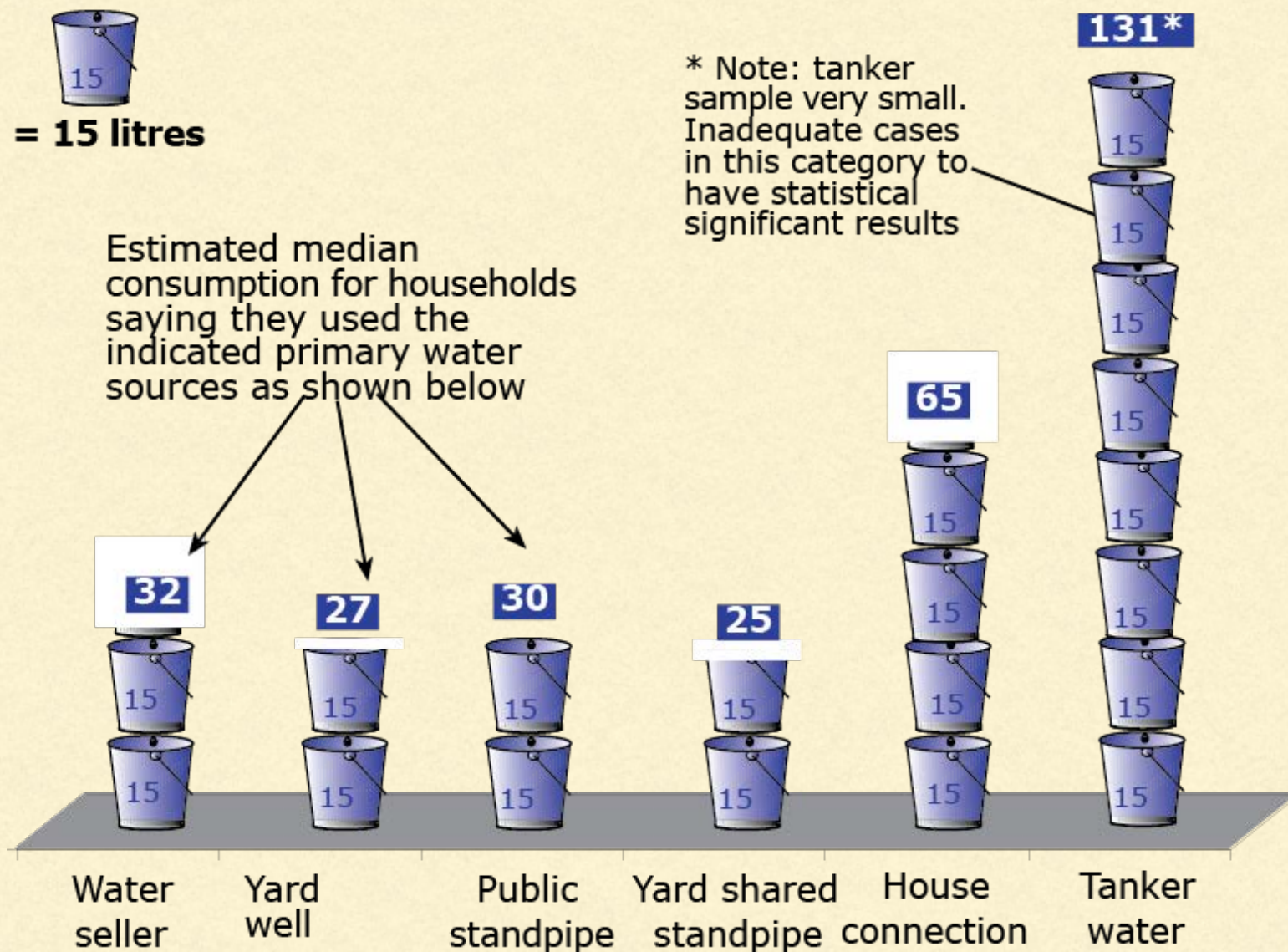


Financial affordability
can be assessed
and need for subsidy
evaluated

IS REALITY SIMILAR IN KABUL?



ENGINEERS DEMAND? 100L/ PERSON/DAY?



HIGER INCOME AREAS -

High Income,
low density



High Income,
high density



Middle Income,
high density



LOWER INCOME HOUSING

Lower Income,
high density



Low Income,
high density

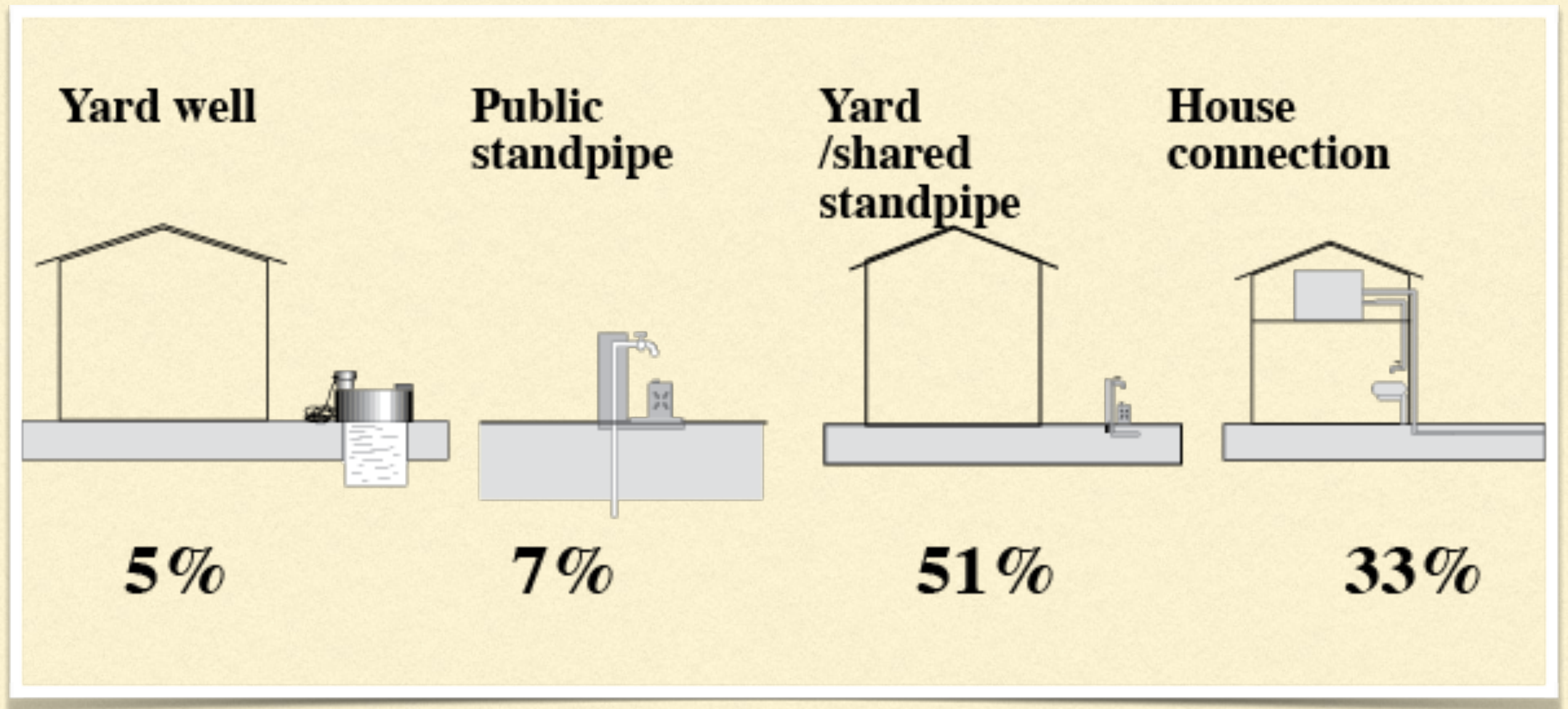


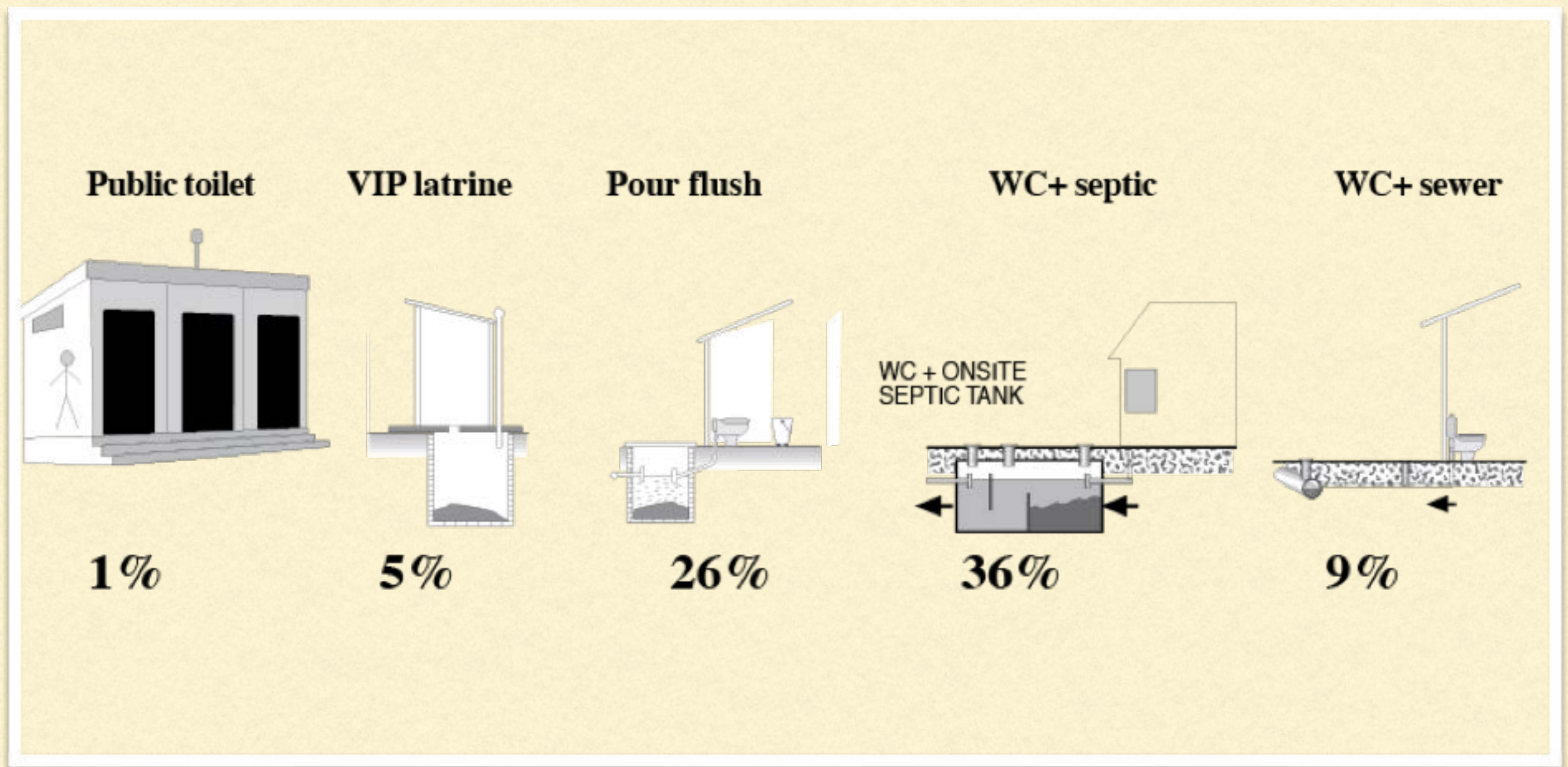
No house connections, - shared kitchens - shared bathrooms -
- hand carried water into house - outside latrine

WATER USE

- Not possible for people to use more water unless house/dwelling is improved. Often this means:
 - Employment / better income
 - House with bathrooms, showers, inside kitchen, yard well to house connection.
 - - but SANITATION- also expensive.
-

INFORMED CHOICE - WATER





USERS CHOICES - SANITATION

- need to fit water availability and affordability.

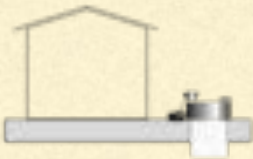



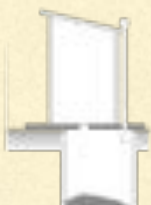


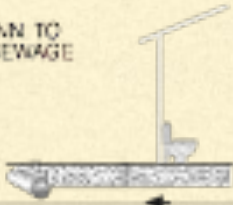

Distribution of monthly household expenditures and incomes				
Range	Monthly expenditure		Monthly income	
(Naira/household/month)	In range	Accumulative	In range	Accumulative
0-2000	4%	4%	8%	8%
2000-5000	16%	20%	18%	26%
5001-10000	38%	58%	34%	60%
10001-15000	17%	75%	15%	75%
15001-20000	11%	86%	8%	83%
20001-30000	7%	93%	7%	90%
30001-50000	4%	97%	5%	95%
>50000	3%	100%	3%	98%
Number of observations		980		696
(US\$1=82Naira approx.)				

WHY NOT ALL HIGHEST SERVICE LEVEL?

Income ? Houseing standard ??

Technology Options and Combinations

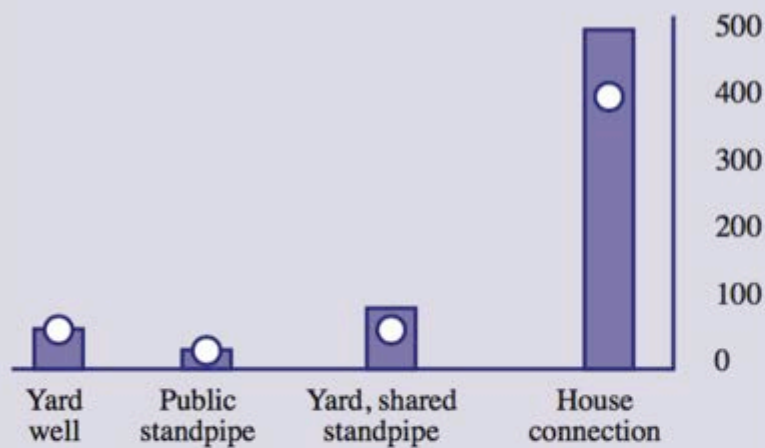
Water supply & Sanitation

Typical water use (l/hd) →	YARD WELL 	PUBLIC STANDPIPE 	YARD/SHARED 	HOUSE CONNECTION 
	20 - 30	30	30-80	100 - 150
VENTILATED IMPROVED PIT/LATRINE 	Main Option Low Income		POSSIBLE	NOT POSSIBLE
POUR FLUSH TOILET 			POSSIBLE	POSSIBLE
WC + ONSITE SEPTIC TANK 	NOT POSSIBLE	NOT POSSIBLE	POSSIBLE ONLY AT HIGHER WATER CONSUMPTION	Main Choice High Income
WC + CONN TO PUBLIC SEWAGE LINE 	NOT POSSIBLE	NOT POSSIBLE	NOT POSSIBLE	
PUBLIC TOILET 	Supplementary Services		POSSIBLE	NOT POSSIBLE
			POSSIBLE	

AFFORDABILITY CHART?

WATER SUPPLY

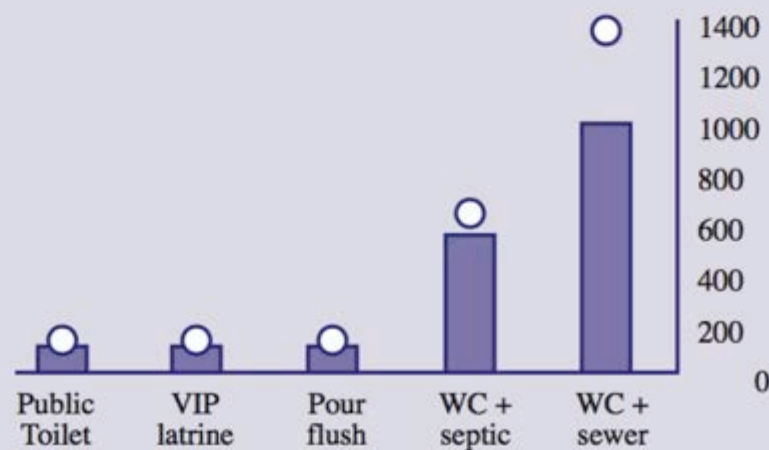
Willingness to Pay compared to costs



SOLID WASTE



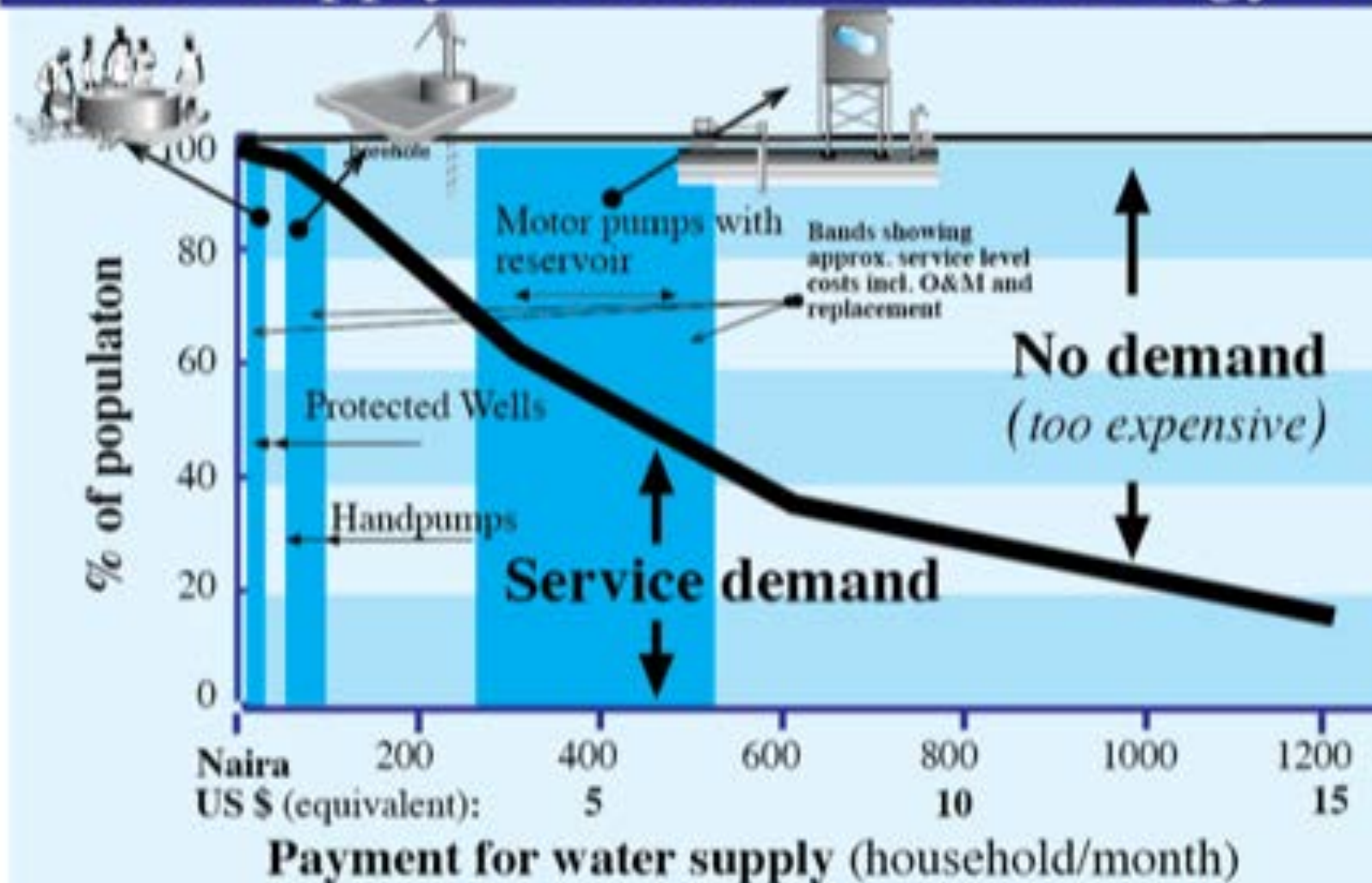
HUMAN WASTE



THE POOR WILL PAY, BUT NOT THE RICH!

Who needs subsidy?

Water Supply Demand and Technology Costs



REAL DEMAND - NEED FOR SUBSIDY?

Assessment of sustainability.

SUSTAINABLE - REVENUE COLLECTION

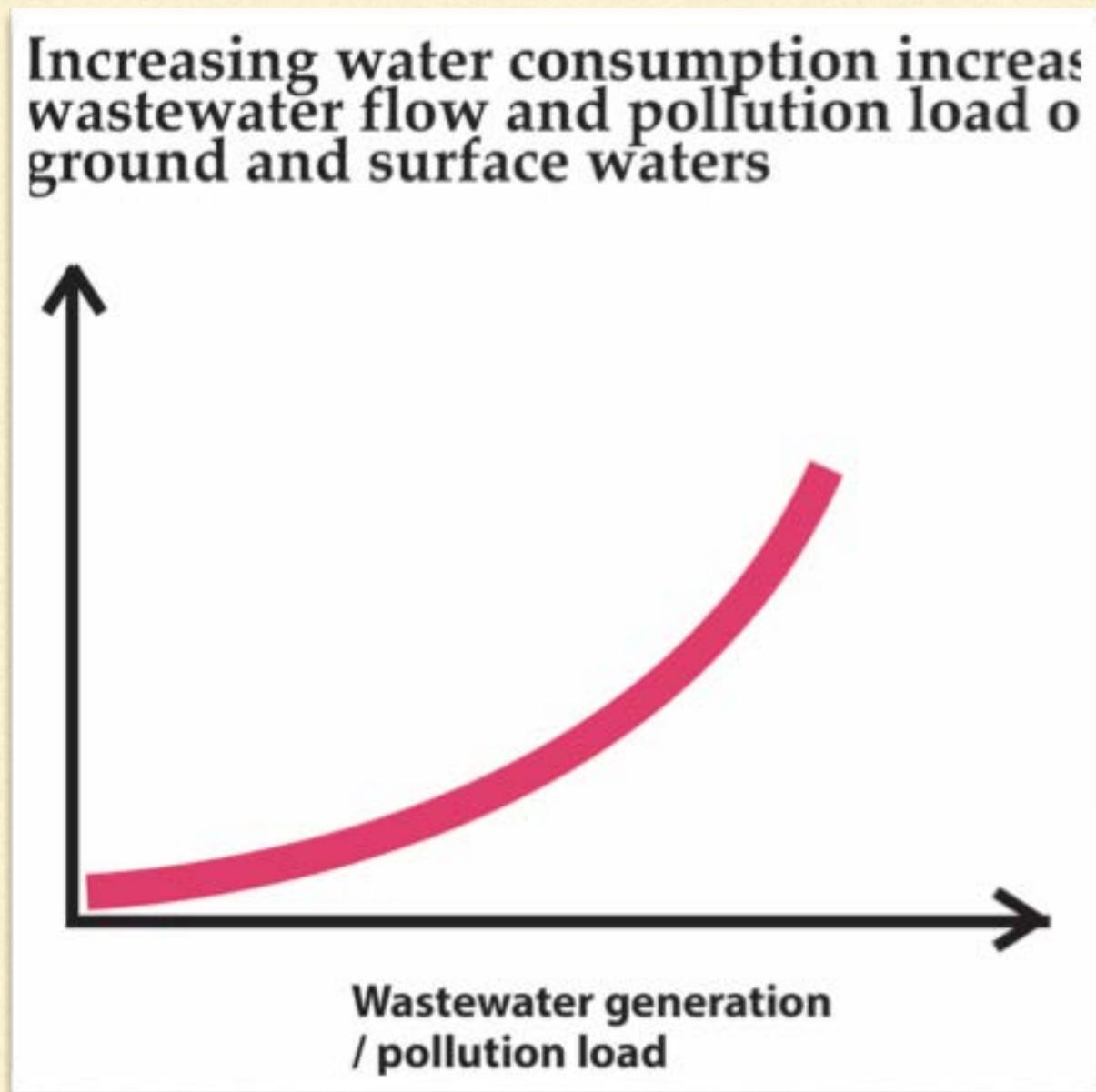
- Realistic sustainable development based on revenue collection?
- Extension of services

HOW IT SHOULD NOT BE!

PLANNING FOR THE FUTURE -

- Unless employment improves, income increase, Kabul is likely to expand with similar proportions of high, medium of low income citizens in need for affordable services.
 - This means that system should be needed to accommodate for varied services, at different tariffs, but also flexible and upgradable so that people can improve their house where they live and upgrade water and sanitation services.
-

REMEMBER:



- Wastewater handling may cost 3-4 times more than water supply.
- If the “rich” gets more water, does their wastewater enter the groundwater and wells for the poor?
- NEED for a plan for ALL

Technology Options and Combinations

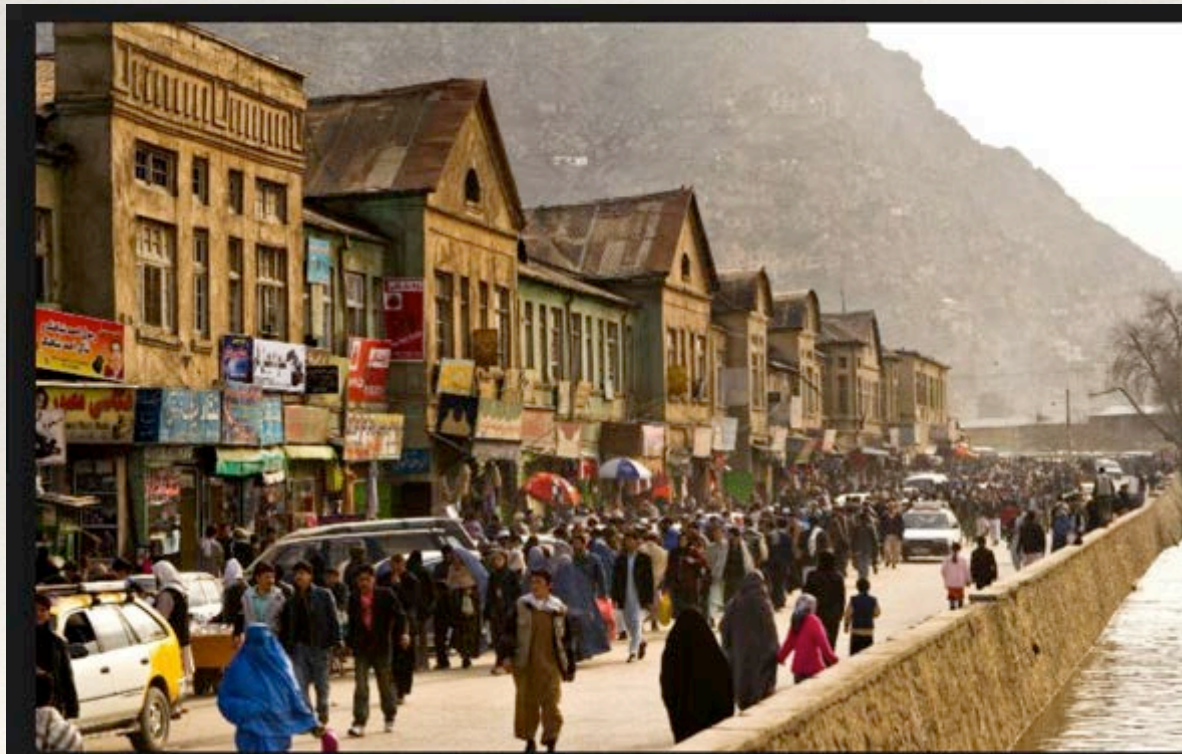
Water supply & Sanitation

Technology Options and Combinations		YARD WELL		PUBLIC STANDPIPE		YARD/SHARED		HOUSE CONNECTION																	
Water supply & Sanitation																									
Typical water use l/h/d →		20 - 30		30		30-80		100 - 150																	
VENTILATED IMPROVED PITLATRINE				<table><thead><tr><th>Year</th><th>Water (m3/d)</th><th>Wastewater</th><th>Sludge m3/d</th></tr></thead><tbody><tr><td>2005</td><td>90,000</td><td>infiltration</td><td>490</td></tr><tr><td>2010</td><td>132,000</td><td>infiltration</td><td>720</td></tr><tr><td>2010</td><td>194,300</td><td>infiltration</td><td>1060</td></tr></tbody></table>		Year	Water (m3/d)	Wastewater	Sludge m3/d	2005	90,000	infiltration	490	2010	132,000	infiltration	720	2010	194,300	infiltration	1060	Wastewater to infiltration		NOT POSSIBLE	
Year	Water (m3/d)	Wastewater	Sludge m3/d																						
2005	90,000	infiltration	490																						
2010	132,000	infiltration	720																						
2010	194,300	infiltration	1060																						
POUR FLUSH TOILET				<table><thead><tr><th>Year</th><th>Water (m3/d)</th><th>Wastewater</th><th>Sludge m3/d</th></tr></thead><tbody><tr><td>2005</td><td>264,000</td><td>infiltration</td><td>900</td></tr><tr><td>2010</td><td>345,858</td><td>infiltration</td><td>1178</td></tr><tr><td>2010</td><td>453,000</td><td>infiltration</td><td>1544</td></tr></tbody></table>		Year	Water (m3/d)	Wastewater	Sludge m3/d	2005	264,000	infiltration	900	2010	345,858	infiltration	1178	2010	453,000	infiltration	1544	Wastewater to infiltration		NOT POSSIBLE	
Year	Water (m3/d)	Wastewater	Sludge m3/d																						
2005	264,000	infiltration	900																						
2010	345,858	infiltration	1178																						
2010	453,000	infiltration	1544																						
WC + ONSITE SEPTIC TANK		NOT POSSIBLE		Wastewater to infiltration or?		<table><thead><tr><th>Year</th><th>Water (m3/d)</th><th>Wastewater</th><th>Sludge m3/d</th></tr></thead><tbody><tr><td>2005</td><td>135,000</td><td>infiltration</td><td>245</td></tr><tr><td>2010</td><td>135,000</td><td>infiltration</td><td>245</td></tr><tr><td>2010</td><td>135,000</td><td>infiltration</td><td>245</td></tr></tbody></table>		Year	Water (m3/d)	Wastewater	Sludge m3/d	2005	135,000	infiltration	245	2010	135,000	infiltration	245	2010	135,000	infiltration	245		
Year	Water (m3/d)	Wastewater	Sludge m3/d																						
2005	135,000	infiltration	245																						
2010	135,000	infiltration	245																						
2010	135,000	infiltration	245																						
WC + CONN. TO PUBLIC SEWAGE LINE		NOT POSSIBLE		Wastewater to treatment		NOT POSSIBLE																			

Focus on consultations:

- Real demand based on service demands by user
- Affordability for user and government
- Sustainable environmental solutions
- Use user surveys, not textbooks for assessment of service demands

Avoid top down “dictation” of service provisions



Time for conceptual design:



Thank you
for listening