HULT Global Case Challenge

THE WATERLOAN SYSTEM

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Problem

-Accessibility to safe water: majority of diseases are caused by polluted and un-safe water

-**Unhealthy sanitation** are reason of social problems

Find an innovative and sustainable solution for at least **100 million people in the next 5 years**

Water Access

Worst old case

-50000 people

-18 Wc

-20 liter per person

New Scenario

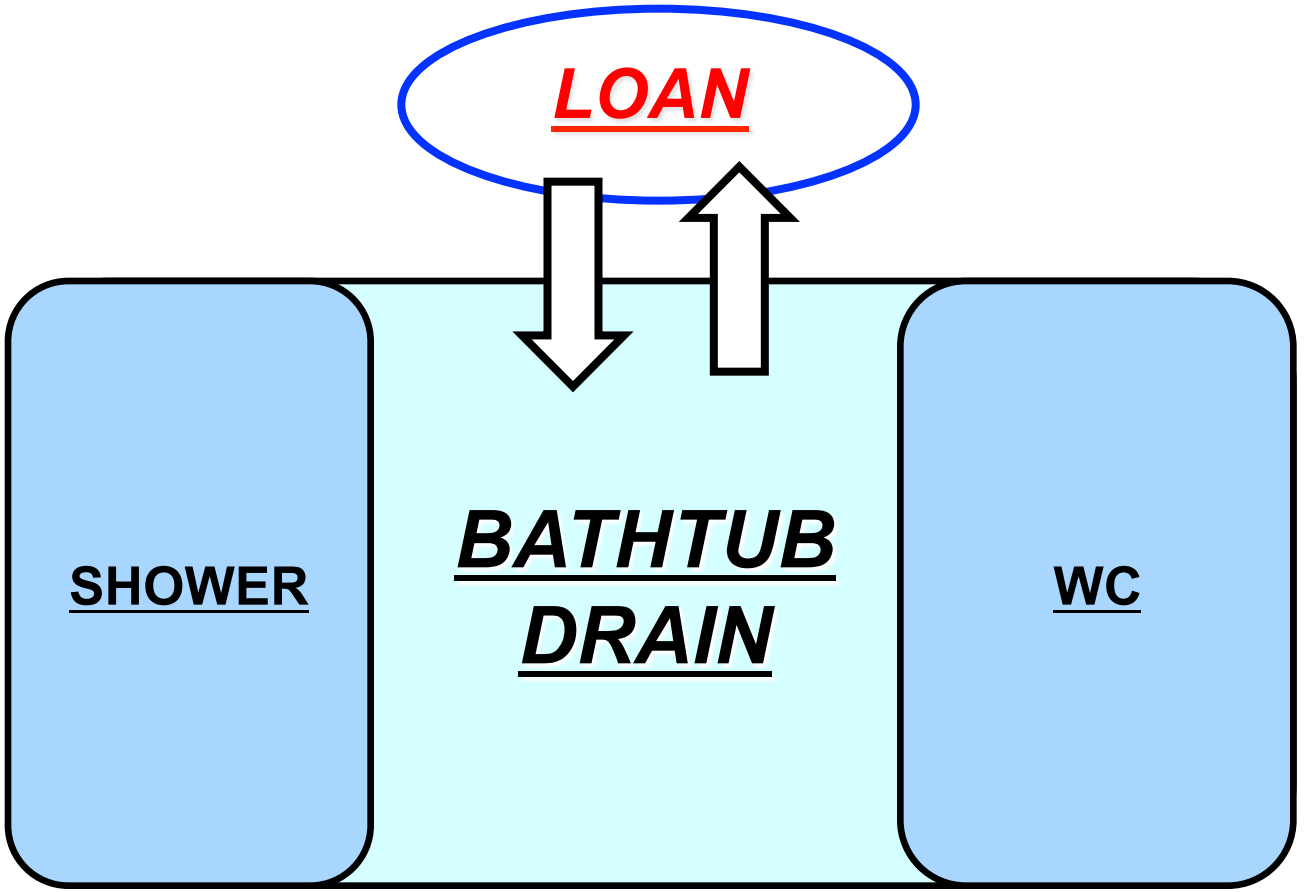
-500 people

-1 toilette

-5 showers

-30 liter per person

Waterloan System



Reverse-Osmosis

1) Strong push on a concentrated liquid
2) Obliges water to pass through a membrane
3) Water lose all the impurity contained in it
4) clean and safe water,

-> the mesh of the membrane must be very small, in the dimension of 0.005µm (micrometer).

Numbers

	Best scenario	Worst scenario
Daily water need (litres)	30	30
Persons per sanitary unit	500	500
Total persons served	2000	2000
Sanitary units needed per type	4	4
Types of sanitary units	2	2
Total dailty water need (litres)	60000	60000
Water withdrawal for personal usage (litres)	20000	20000
On site local usage (litres)	40000	40000
Recovered water from withdrawal (litres)	5000	2000
Total water for depuration (litres)	45000	42000
Depurated water (litres)	33750	16800
Daily water need after depuration (litres)	26250	43200
Saving	56%	28%

Conclusions

1) DEMAND-BASED
   - It starts from the daily personal water need (30l/day)

2) AVAILABILITY
   - How much? The exact amount needed thanks to recovery from recycling
   - How often? Every day on a continuous cycle recycling
   - Maintenance and Energy? Local with energy supply tailored on local resources

3) ACCESSIBILITY
   - < 15-30 minutes walking distance
   - Cost based on actual consumption subtracting recycled amount
   - Education to water reuse and recycle to be provided

Conclusions

4) DRINKABILITY
- 75% of drinkable water after depuration
- Stanford University innovation as future step

5) SUSTAINABILITY
- The system is self-sustaining and affordable
- Low-cost technology to be implemented based on Stanford University innovation

6) SCALABILITY
- Based on local recycling rather then full water transport