



UNIVERSITAT POLITÈCNICA
DE CATALUNYA
BARCELONATECH



WC CUBICLE

IDPS 2013



Lorraine Kelly – Industrial Designer

Luciana Pedrosa – Production Engineer

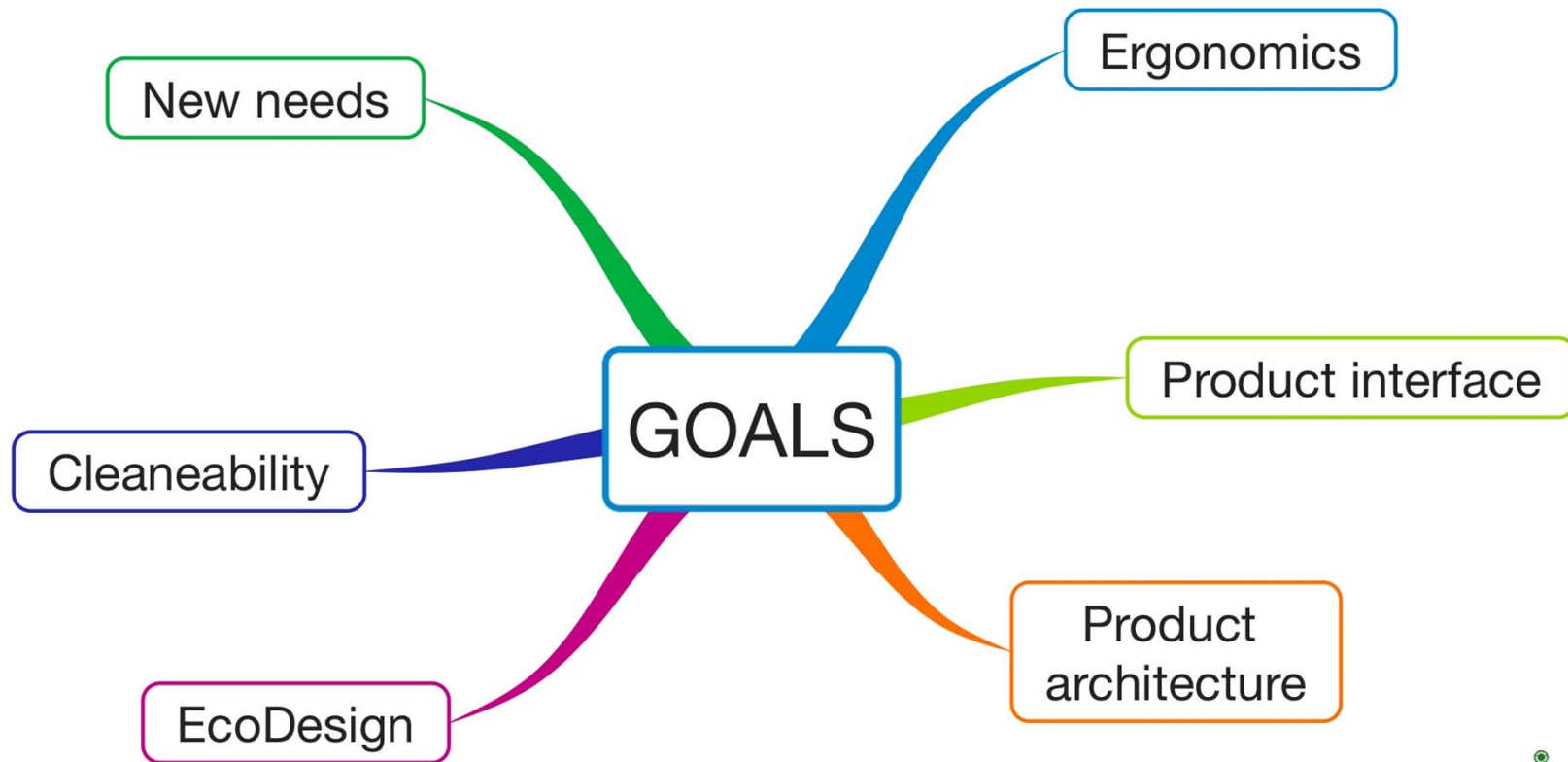
Petra Kopp – Design Engineer

Roger Vallès – Design Engineer

Research



Design a bathroom cubicle for India, containing a toilet or squatting pan, as well as the most adequate solution for waste and water handling.



The Cubicle

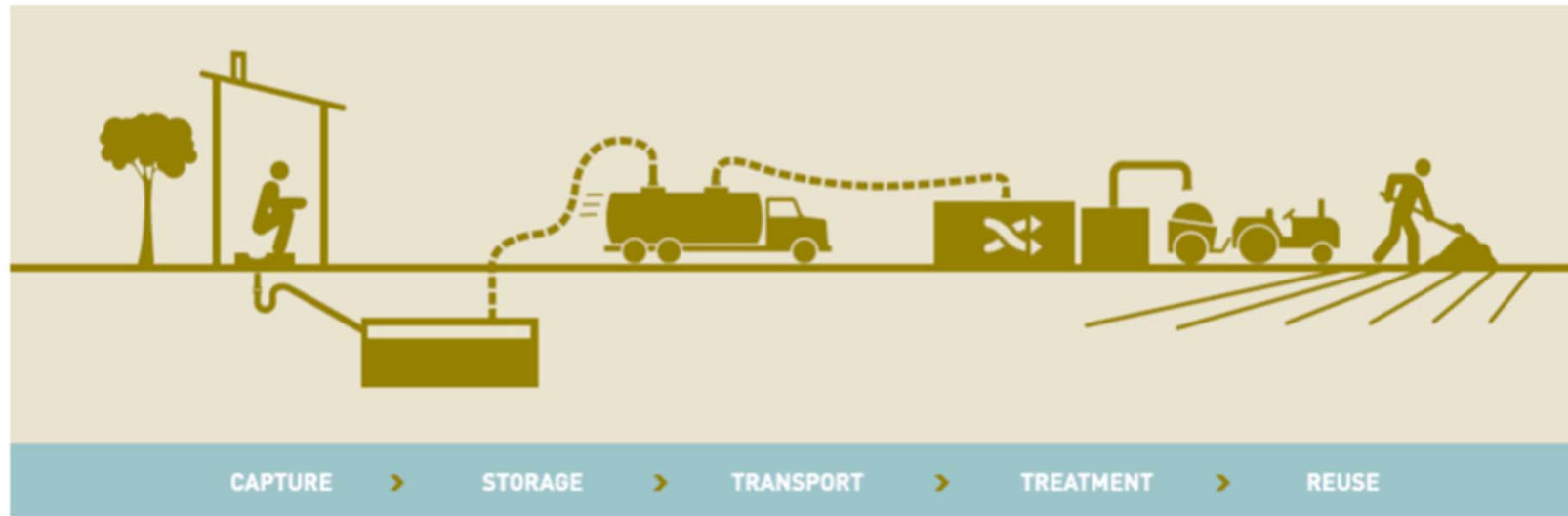
25 persons/day

25 persons/day

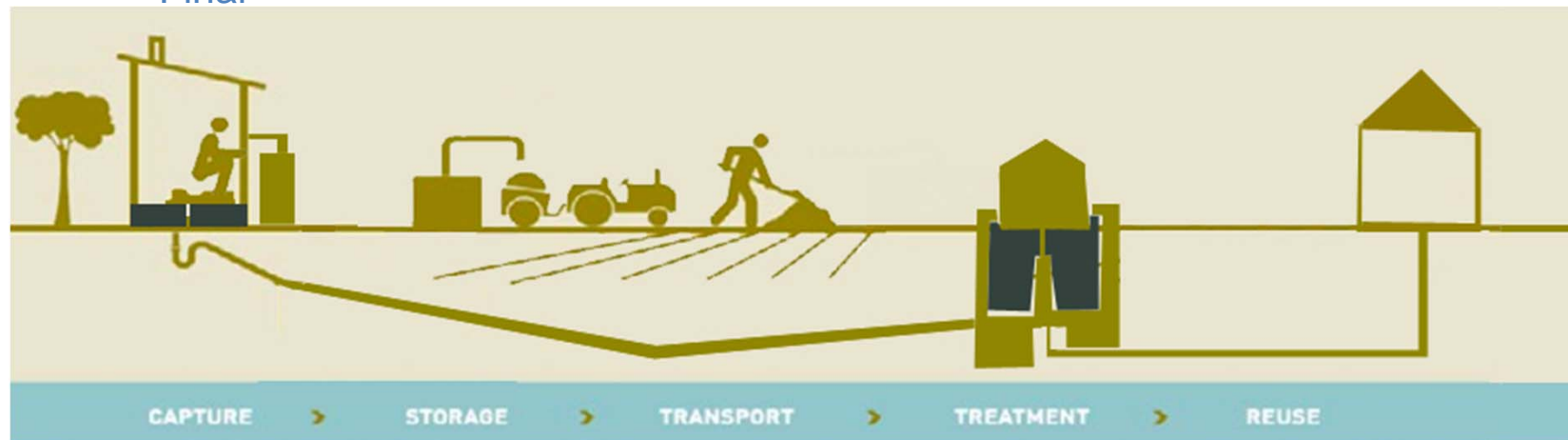


Process

Sanitation Value Chain



Final



Sub-products **Solid waste**
Biogas and fertilizer

Urine
Fertilizer



Bio-digester Fixed-Dome plant

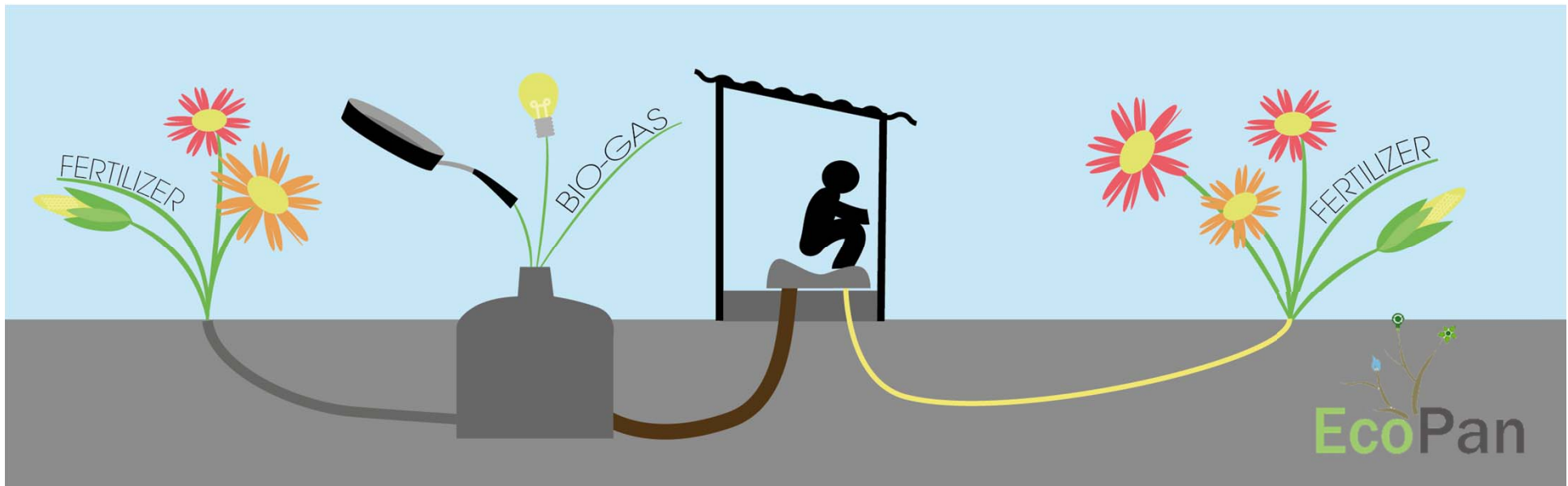
Urine contains most (94%) of the NPK nutrients excreted by the human body

Biogás: for cooking or lighting

Excellent fertilizer for frayed lands of India.

Uses a natural system

Sterile



Fixed Dome Type biogas plant

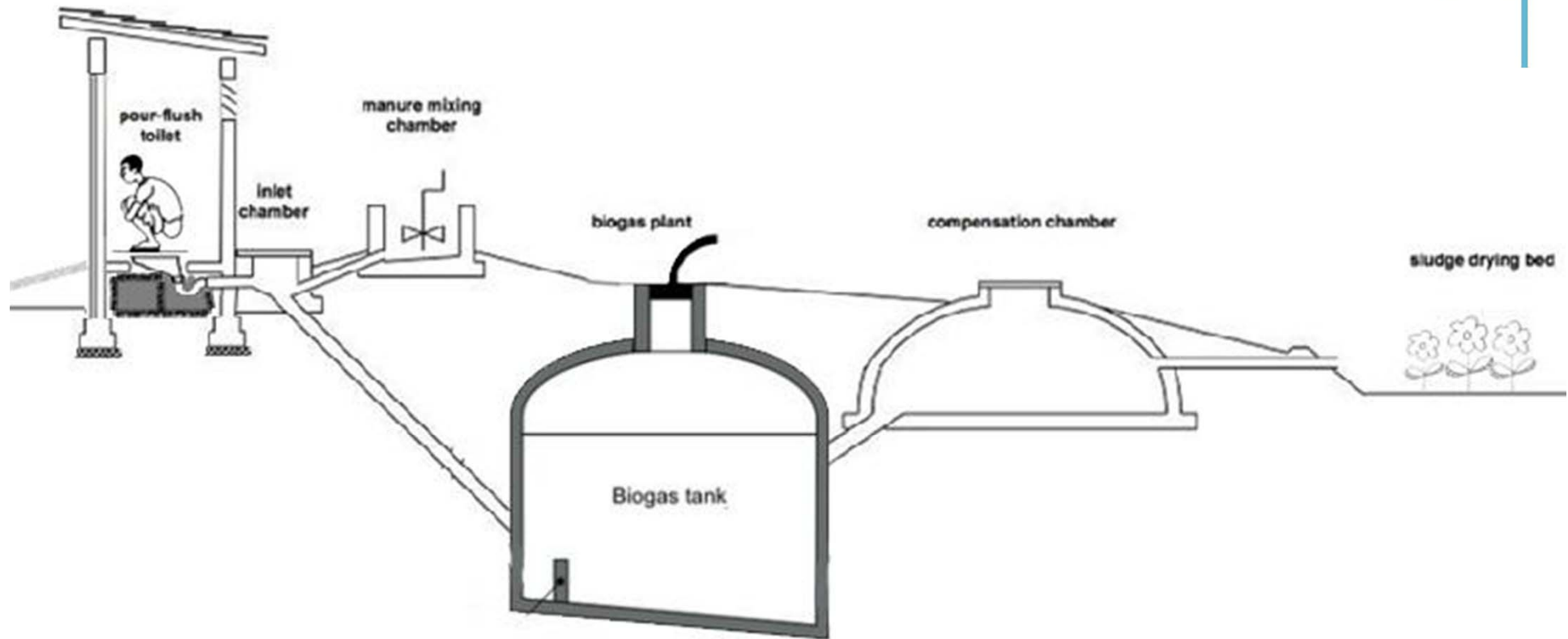


Figure 1

	Average daily feedstock (kg)	Daily water (L)	Plant size (m3)
2 Wc Cubicles	32	32	4
3 Wc Cubicles	48	48	6

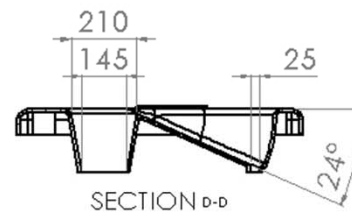
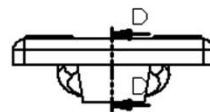
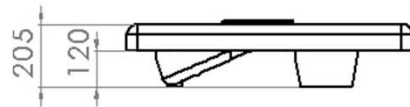
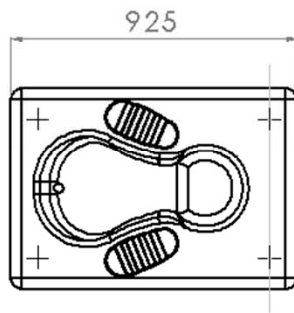
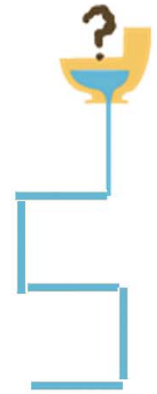
Diapositiva 7

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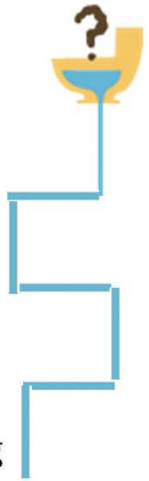
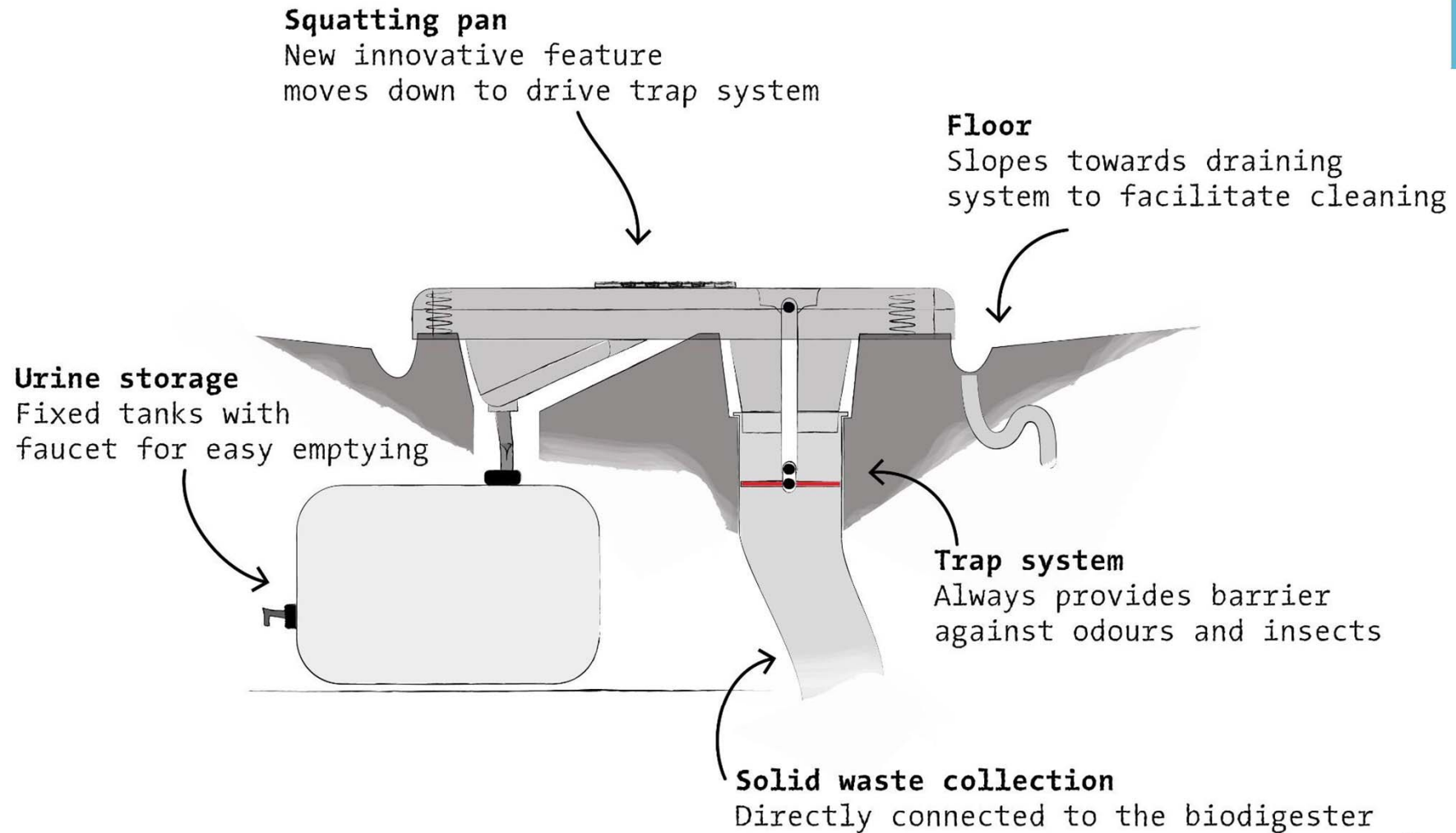
luci

Luciana Pedrosa;

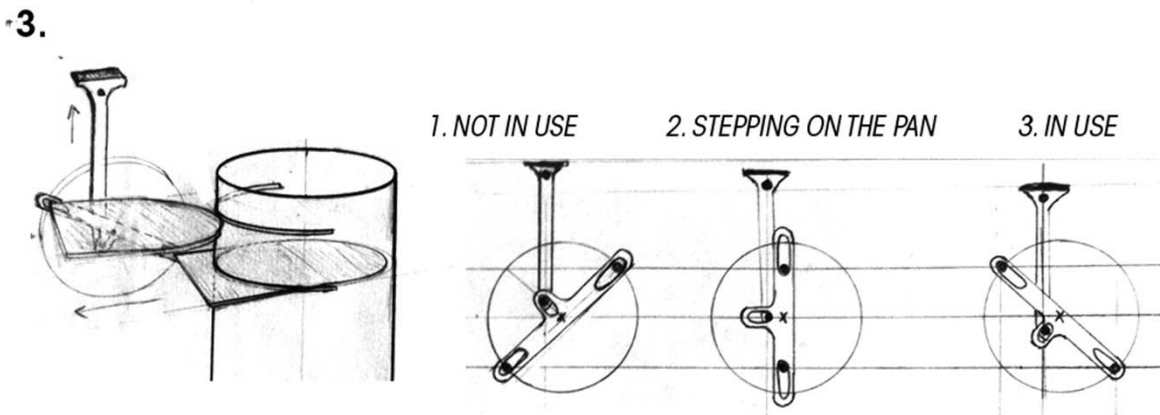
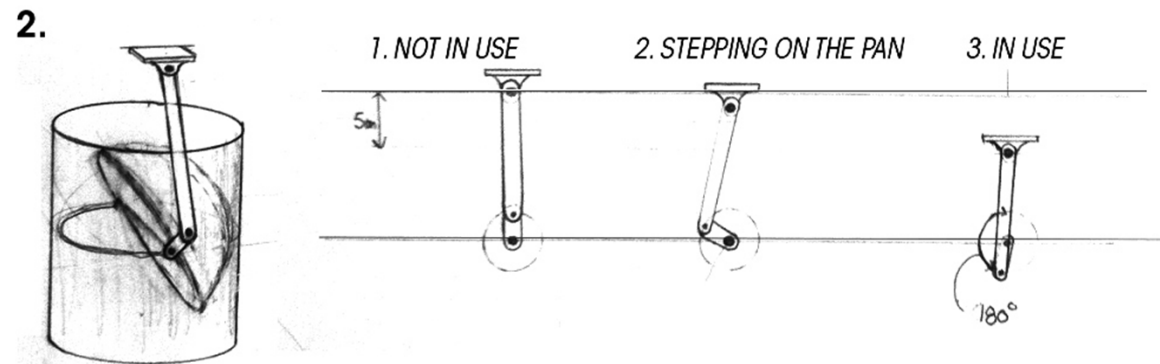
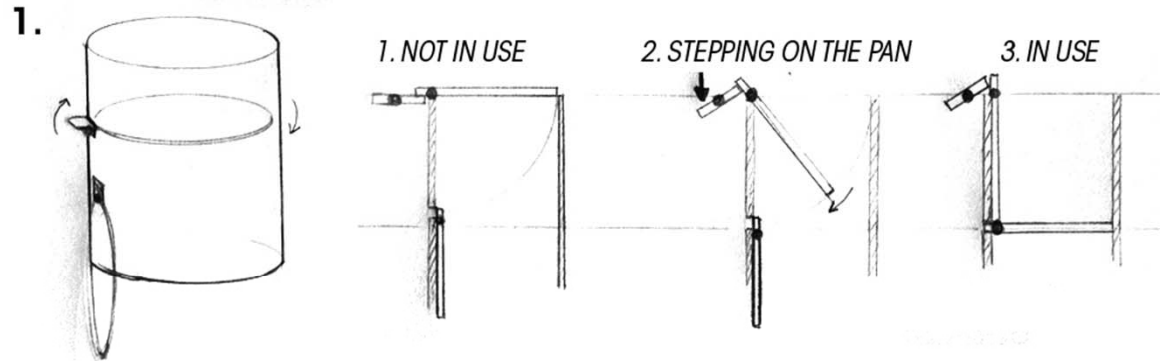
Squatting Pan



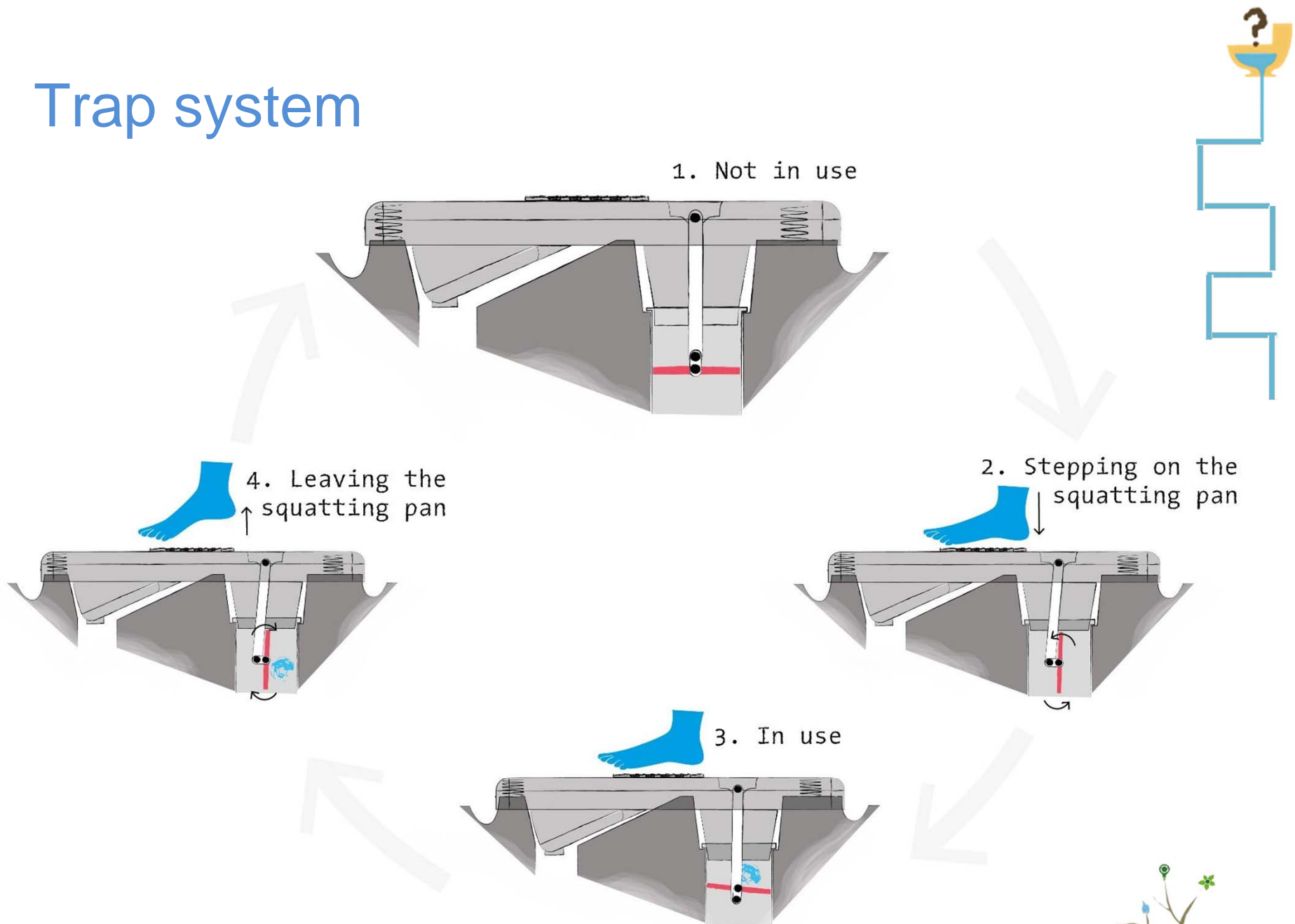
System



Mechanism ideas

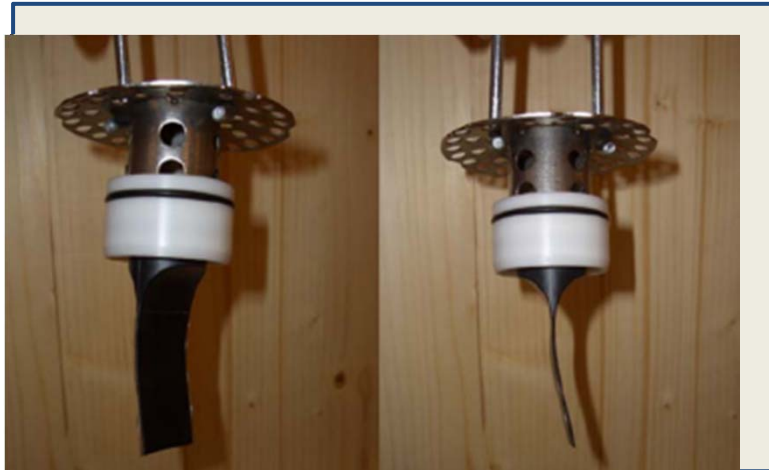
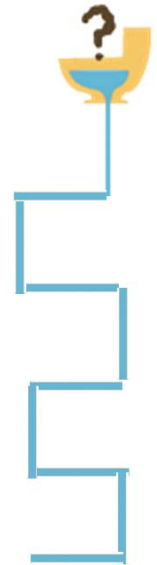
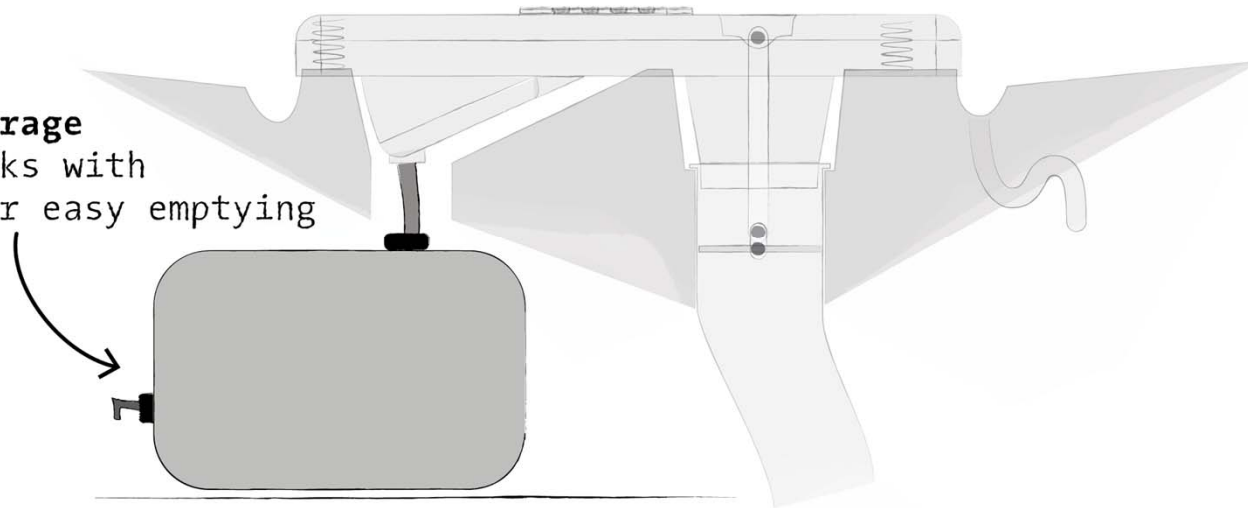


Trap system



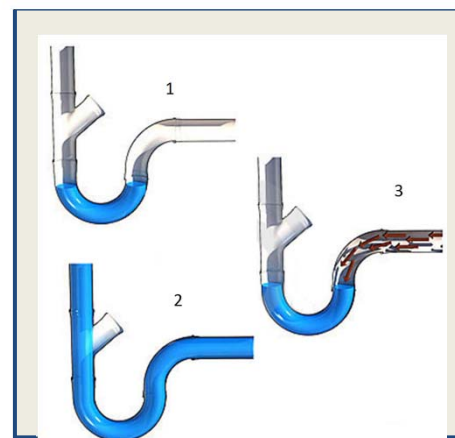
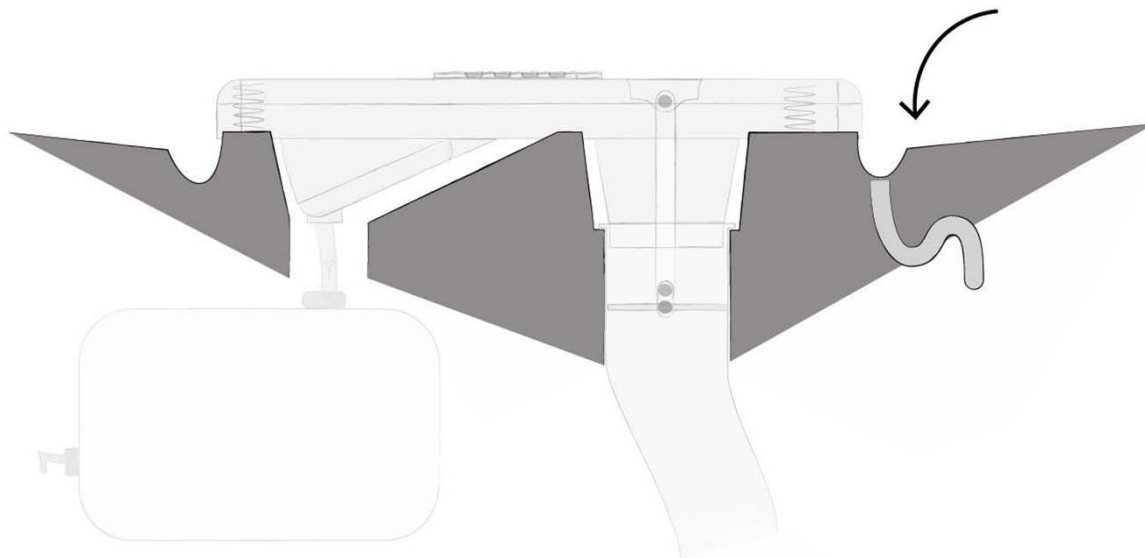
Urine

Urine storage
Fixed tanks with
faucet for easy emptying



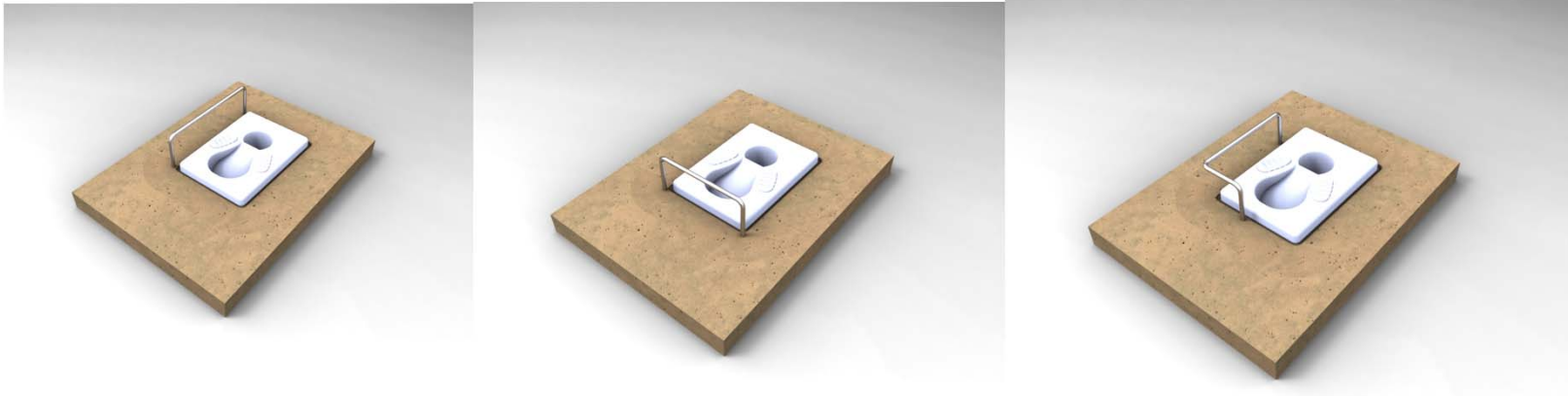
Cleaning

Floor and draining
Slopes towards draining
system to facilitate cleaning

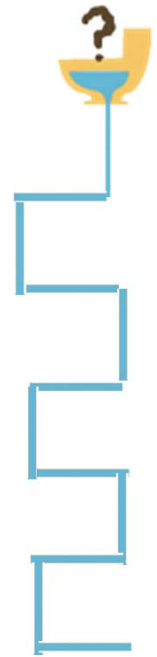


Additional Elements




Handlebar:

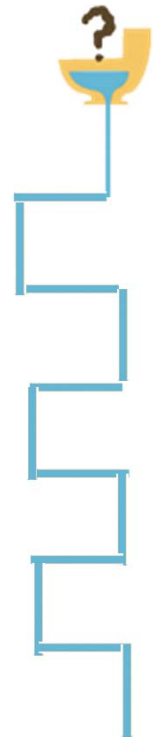


Rain Capture:

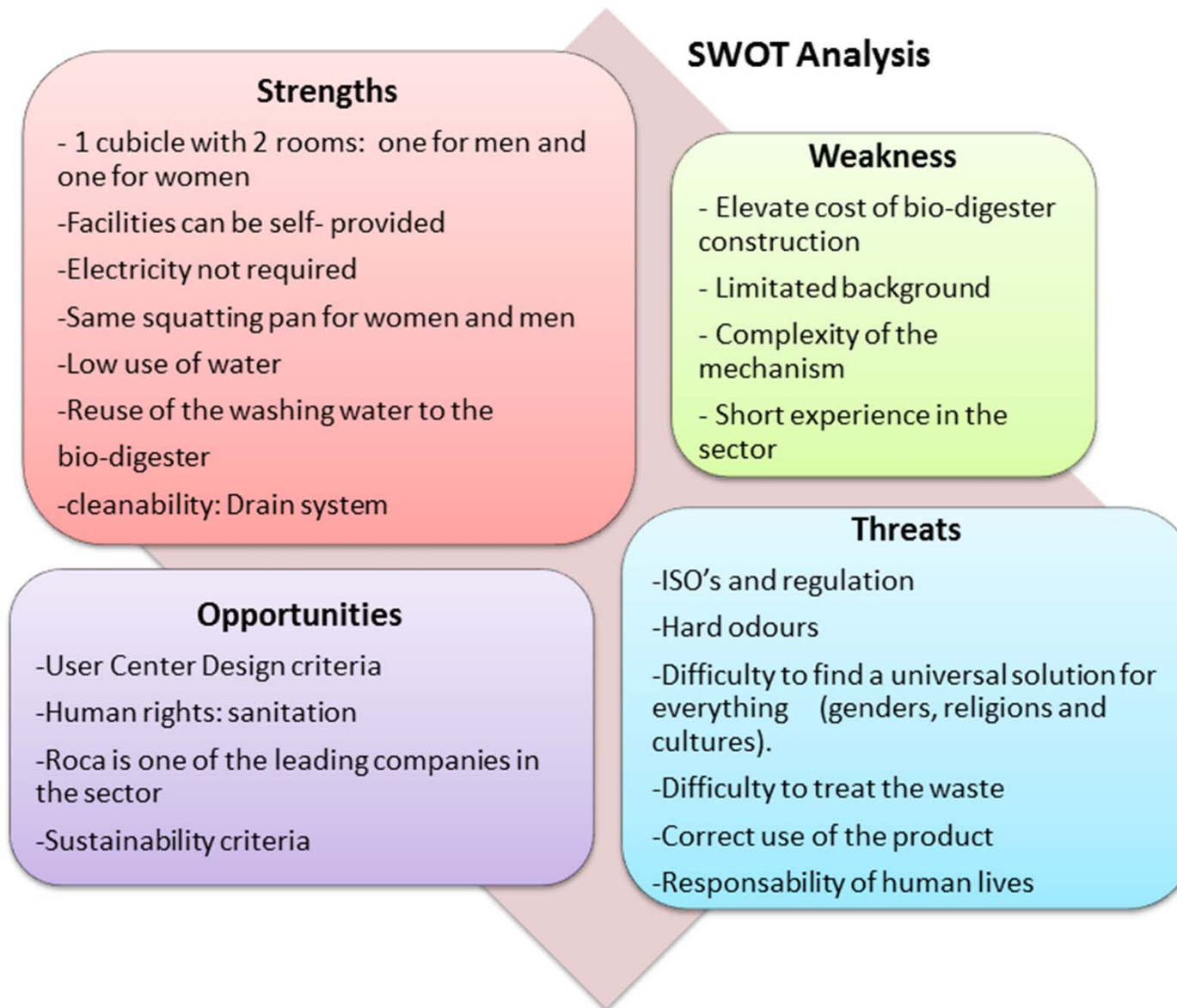


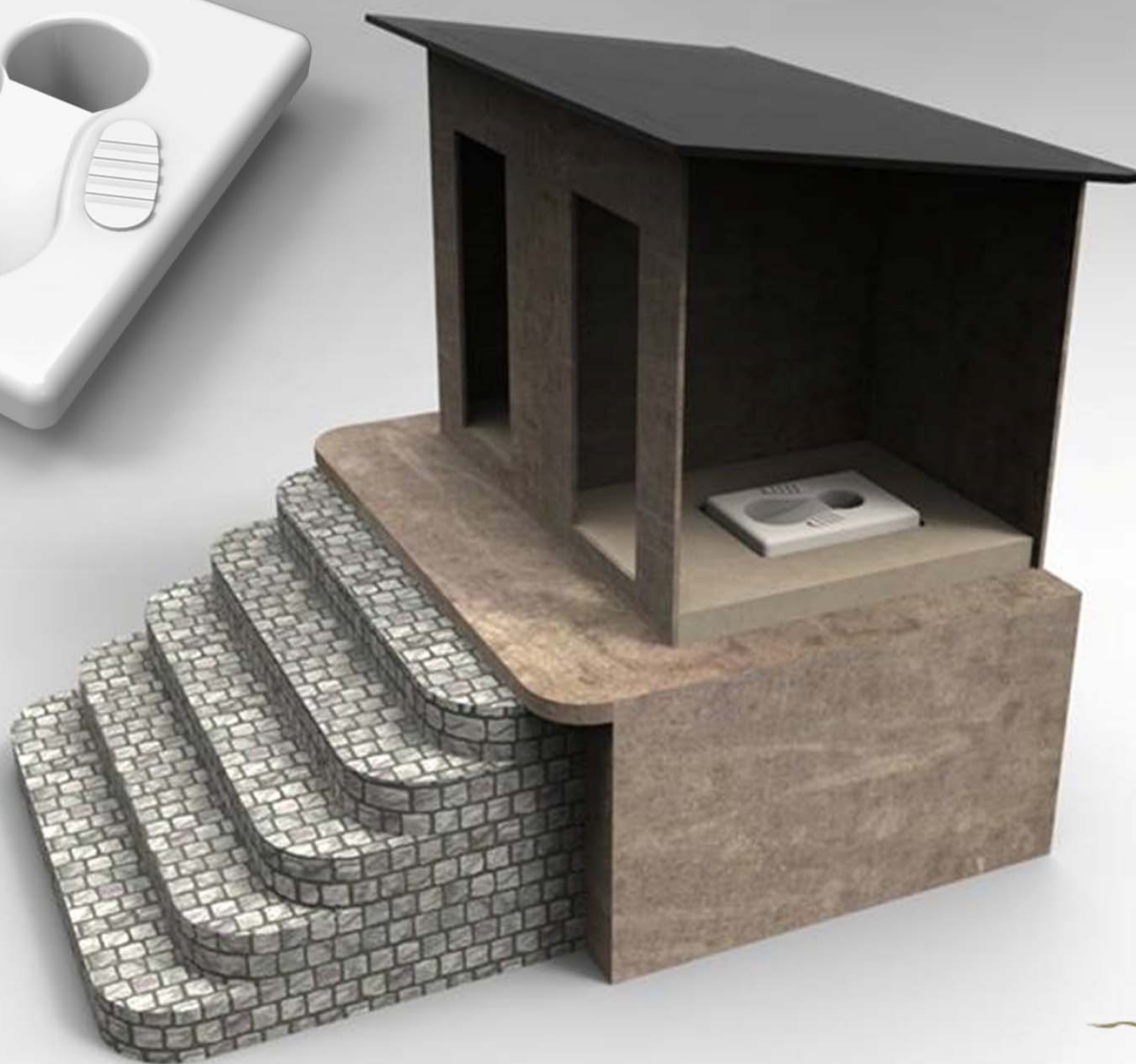
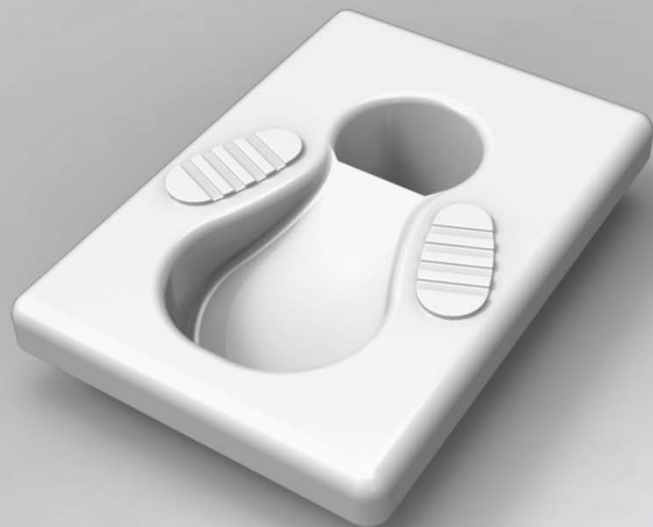
EcoPan vs Other products

			
Less water, and is recycled	✓	✓	✓
Reuse solid waste	✓	✓	✓
Reuse Urine			✓
No requirement of electricity		✓	✓
Easy to understand how to use	✓	✓	✓
Big capacity of users			✓
Unique flap mechanism			✓

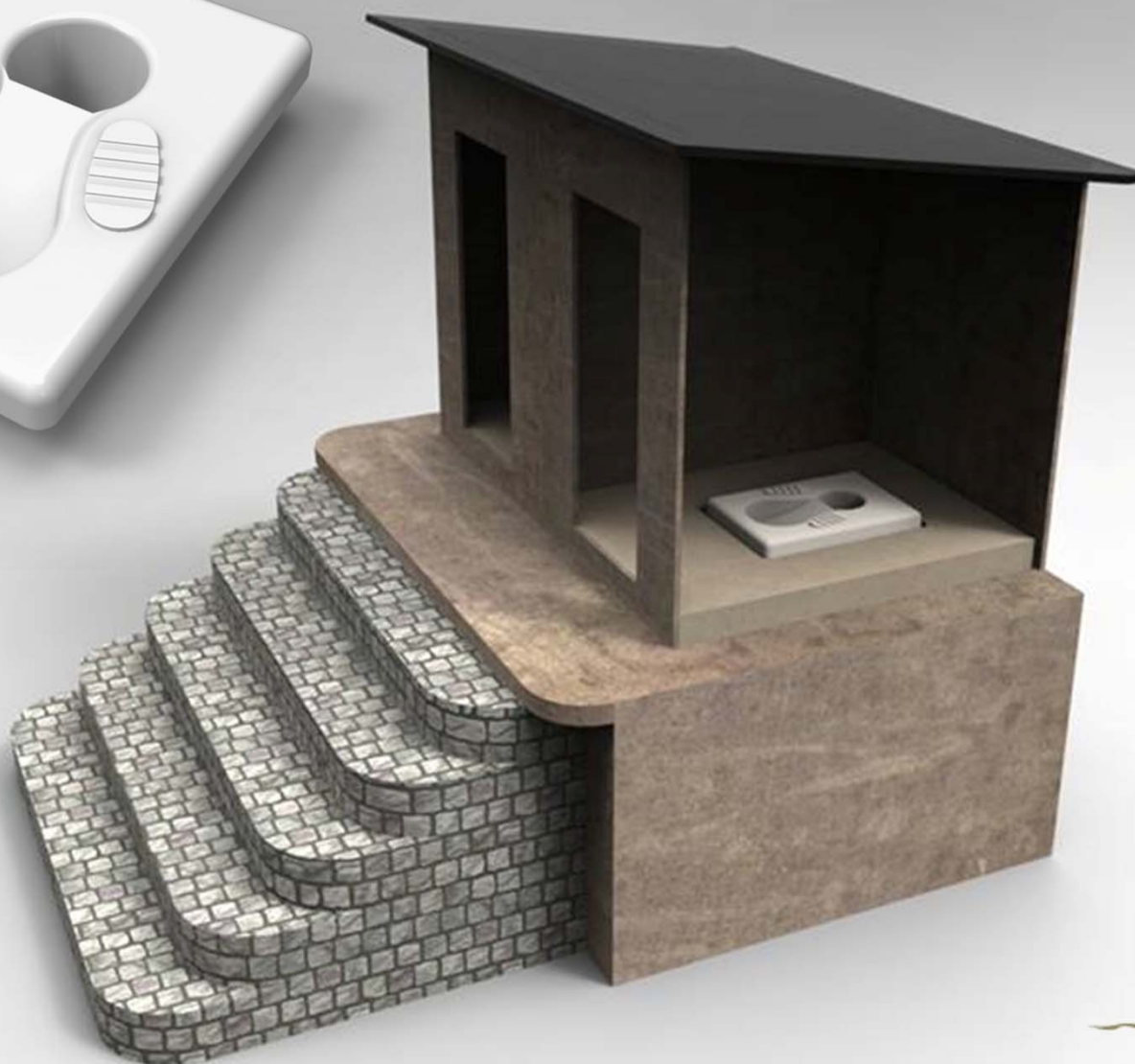


SWOT Analysis





EcoPan



Thanks!

Questions?

