

## **MoSan - Mobile Sanitation**

### **Toilet for the Urban Poor in Bangladesh**

non-infrastructure based dry-separation  
toilet for the urban poor in Bangladesh

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**Slum** built above the Banani lake in Dhaka

### **ISSUES IN URBAN SLUMS**

- dense population
- extreme poverty
- disputes about landownership
- lack of investment capacities
- availability of adequate space
- natural disaster, flooding
- no gender equality



### **CONCEPT**

The lightweight toilet can be carried and used at a convenient place, e.g. inside the private dwelling. It separates faeces and urine. A tight lid and dry covering material avoids smell. Every day full inner buckets are emptied. Human waste will be treated and reused as compost fertilizer or biogas.

### **TARGET GROUP**

Urban poor in Bangladesh, living in precarious settlements with no possibility of getting access to built sanitation due to unclear land tenure. The beneficiaries are mainly women, children, elderly and disabled people with fewer opportunities to leave the settlements.



The mobile toilet could be used inside of a **Kacha toilet**

### **BENEFITS**

- mobile solution
  - owned per family or household
  - increased privacy and hygiene
  - minimize danger for females of going out at night
  - offering more frequent toilet visits
  - reduce health risks by withholding urine
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- close the sanitation chain, to save water and environment
  - high quality fertilizer production
  - reduce/ stop open defecation
  - job opportunities for slum dwellers within sanitation business (e.g. collector)

**Carrying Strap** made from recycled cement bags



Urine is collected in recycled **PET bottle**



## **DESIGN AND FUNCTIONS**

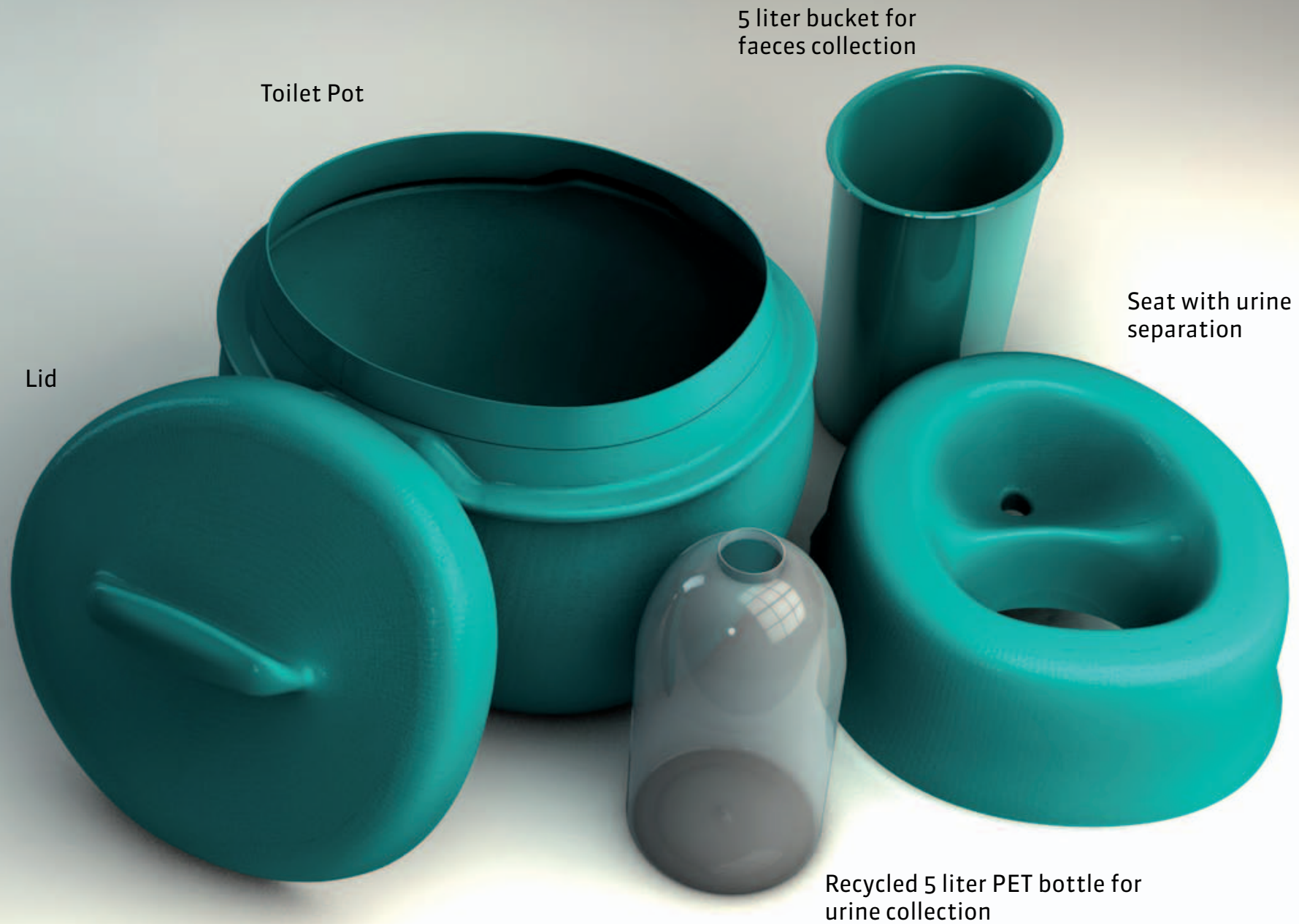
The design separates faeces and urine into different containers. Dehydration of faeces kills pathogens. Absorbents such as dry ash should be added to the faeces bucket after each defecation to absorb moisture and make it less unsightly for the next user.

Urine is diverted into a separate bottle-like container and later used in diluted form as plant fertilizer.

Anal washing options at a separate place or over an extra bowl. Wash water can be filtered through sand beds.

At this stage the toilet is designed for hand-laminating with jute-fibres and epoxy. The surface is water repellent. Urine is separated into a recycled water PET bottle.

Material decisions are made on base of feasibility for coming tests with approximately 50 families. After testing the toilet, the design and the sanitation system will be updated and specified.



Toilet Pot

5 liter bucket for  
faeces collection

Seat with urine  
separation

Lid

Recycled 5 liter PET bottle for  
urine collection

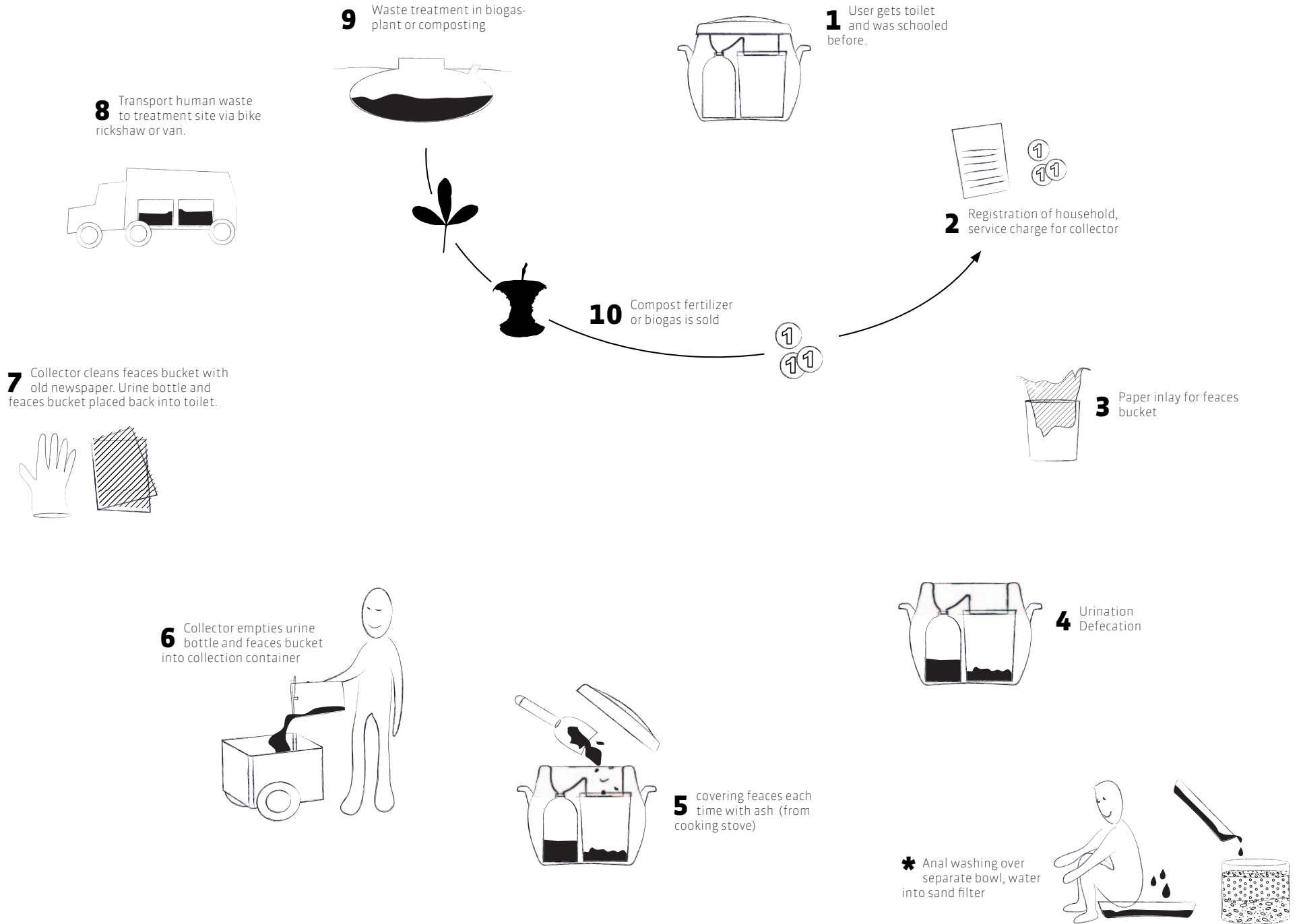


### **ARGUMENTS FOR A SITTING TOILET** (opinion of slum dwellers, interview results)

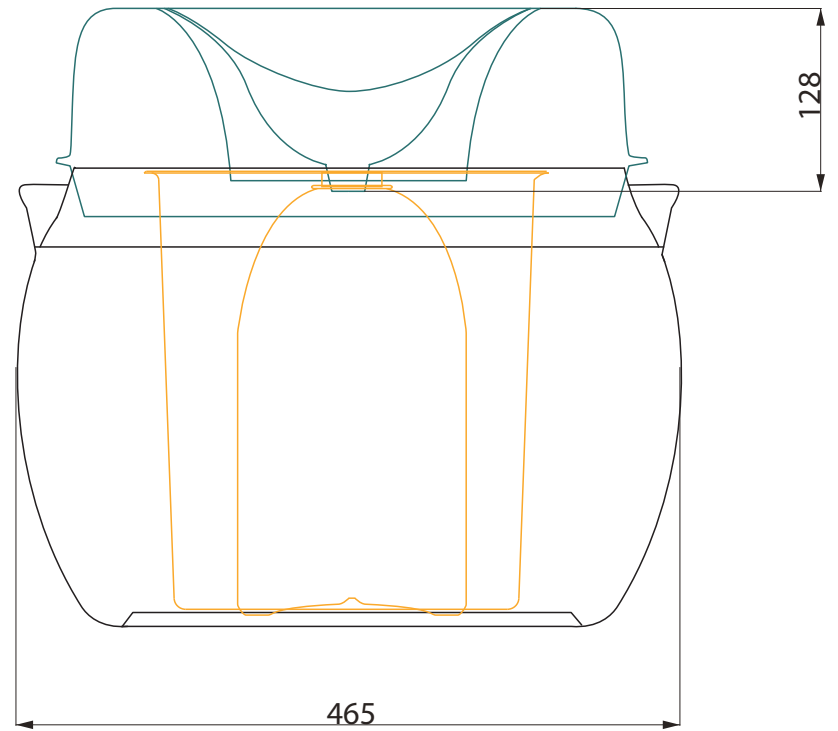
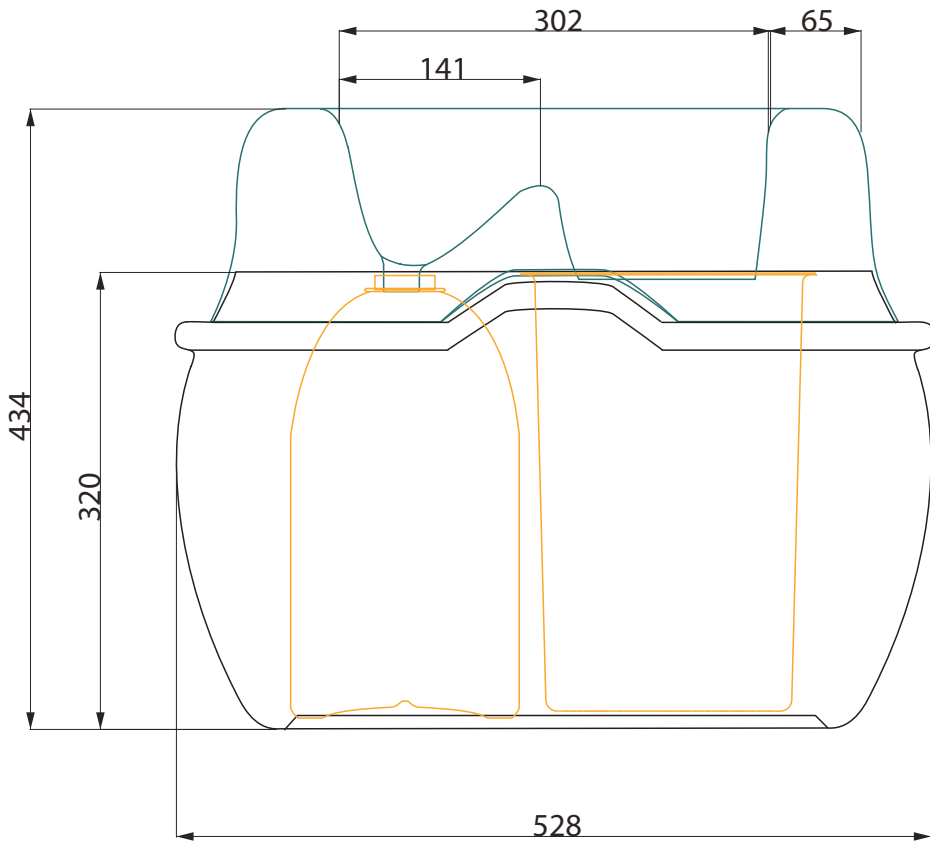
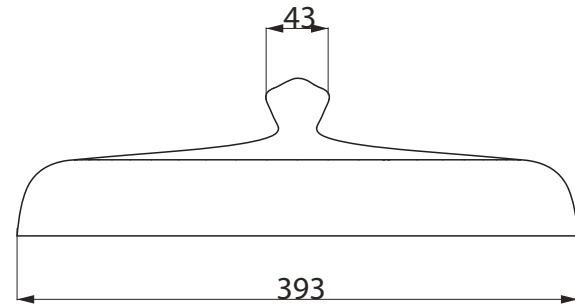
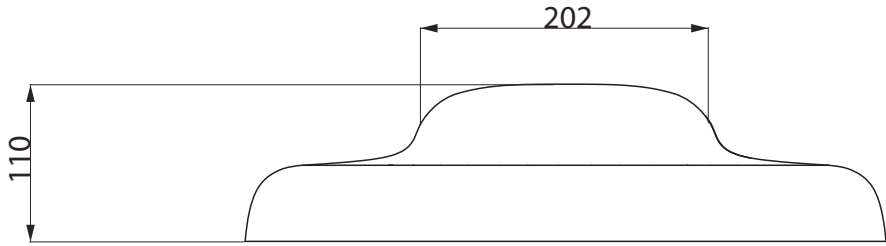
- withdrawal from open defecation
- status symbol (western model toilet)
- improvement
- higher willingness to spend money
  
- benefits for elderly, disabled people  
small children

### **COLLECTION OF FAECES**

- removable bucket inside toilet
- ash/saw dust base layer in bucket
- paper inlay (preferred undyed paper)
- ash/sawdust to cover faeces
- collector empties bucket into transport container,  
user gets back the same bucket  
or  
bucket is replaced with new one  
(to be determined, test required)
  
- add-on of biodegradable plastic bag possible in future







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All Photographs and illustrations by Mona Mijthab,  
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