



# Inner City Sanitation

## India



19<sup>th</sup> SanCoP Meeting  
6<sup>th</sup> April 2017



# The Brief

- Why and how container based sanitation is a viable option
- What challenges still need to be overcome

# 1. Why container based sanitation ?



## Why not conventional sanitation ?

- **Upfront capital investment**
- Lack of availability of reliable water and energy supplies
- **Shortage of established, professional well resourced utilities**
- Fear of conferring legitimacy on illegal land occupation

## The (unacceptable) alternatives...

- Pit latrines
- Pour flush toilets
- Potentially discharging into unmanaged septic tanks
- Open defecation and flying toilets

# Advantages of container based sanitation

- ➔ Safe containment
- ➔ Safe removal
- ➔ Compact systems
- ➔ Portable units

## Educating the community



## GroSan toilets



## Inner-City Sanitation (ICS) Solution

### Conversion to compost

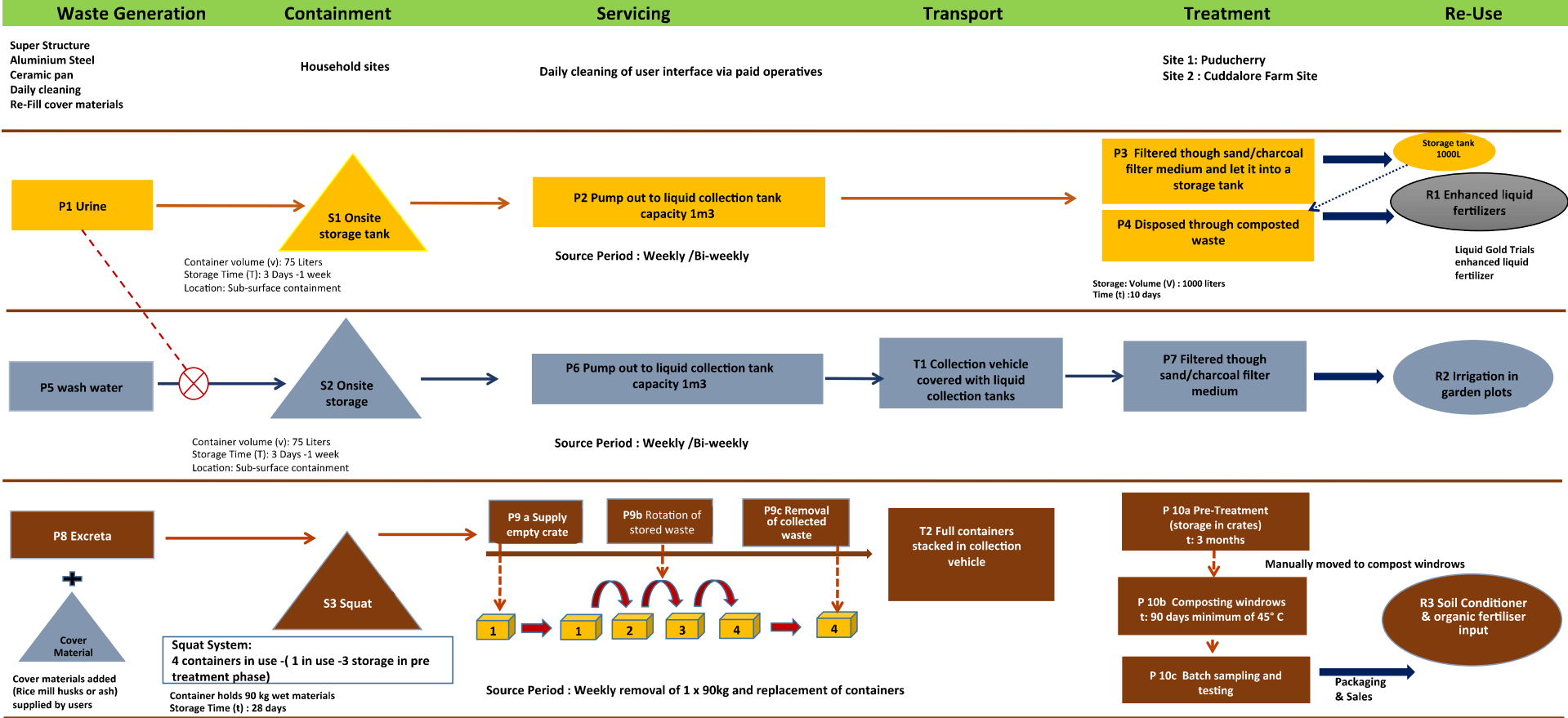


### Collection from GroSan toilets





### GroSan Process Flow Diagram





## 2010 : Cuddalore



Seeds  
of the  
ICS  
system

51  
GroSans

## 2014 : Puducherry



43  
GroSans

Circa  
4,000  
users

## 2017 and beyond : The 2020 Vision

Capital  
funding  
Chennai

150,000  
people

4 More  
Indian  
cities

2,500  
GroSan  
toilets

Negotiating  
to install 100  
GroSans to  
serve 6,000  
people

## 2016 : Chennai



Inner-City  
Sanitation  
Timeline



# The Brief... What challenges

- Perceptions of manual scavenging
- Water flushing, shiny white toilets as the only way to go!
- Evidence of efficacy (peer reviewed studies)
- Understanding of the model at funding and commissioning level
- Evaluation indicators...

# Evaluation

- How cheap is a toilet nobody uses?
- What does it cost to treat the waste?
- What is the overall SROI?
- How do we measure the environmental cost benefit analysis?



Thank you for listening...  
Questions (please)?

# ICG CHENNAI

## CAPITAL COSTS

OFFICE

COMPOUND

GROCOMPLANE

**TOTAL**

STAFF  
MACHINERY

£308,000

£560,000

## OPERATIONAL COSTS

£252,000

STAFF

COMPOST ADDITIVES

RENT

# Closed loop containment removal and processing ecosystem





sanitation  
**first**

## Your Money Will Provide

INCREASED SCHOOL TIME

EXTRA WORKING DAYS

MORE MONEY!

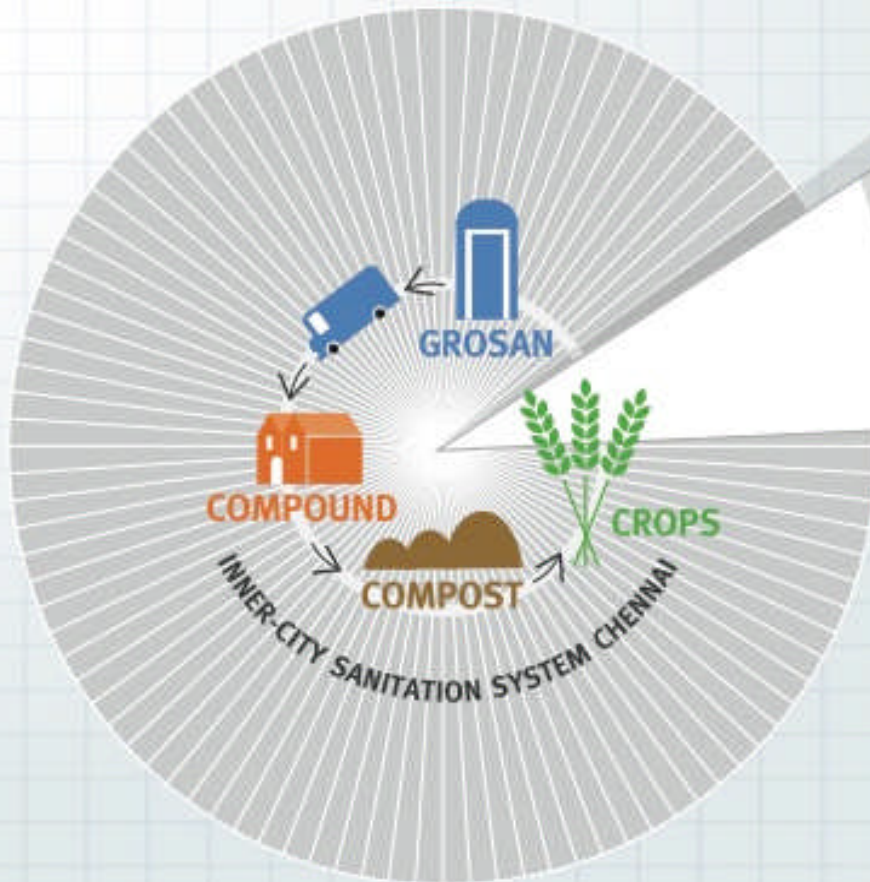





£120.00 PER ANNUM  
BETTER OFF

66 EXTRA WORK DAYS  
PER ANNUM

30 EXTRA DAYS SPENT IN  
SCHOOL EVERY YEAR

BETTER HEALTH PER FAMILY LEADS TO:



-  **£3,000** pays for one GroSan segment
-  **£250** pays for one family within a GroSan segment
-  **£50** pays for one person within a GroSan segment



# 93 million people living in Indian slums have no access to a toilet of any kind

India's slum population is forecast  
to surge to 104 million by 2017  
*(Times of India)*

More than 140,000 under fives  
die every year from sanitation  
related diarrhoeal conditions  
*(Unicef)*

India spends around £17 billion  
annually on food and jobs  
programs, and less than £250  
million on sanitation – a ratio of  
68 to 1. *(New York Times)*



# Successful track record

Cuddalore  
2010

Baseline  
survey

42  
GroSan  
toilets  
installed

3 slum  
areas  
targeted

1,704  
people  
benefitted



# Over 1.4 million people live in the Chennai slums



The vast majority of these people are served by just 714 public toilets...

**This equates to 1,960 users per toilet**



No toilets

Open sewer by the slum



Shardha



She is disempowered and at risk of catching life-threatening diseases



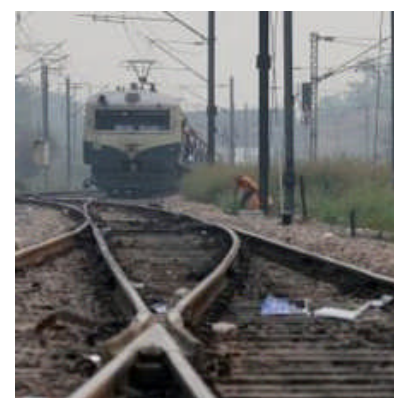
and A

Over a kilometer walk to the nearest public toilet

and A



5 Rupee toilet charge



Open defecation on railway tracks

# ICS Pondicherry



“The headline results for the Inner City Sanitation (ICS) in Pondicherry show stark changes in the lives of the communities benefiting from Sanitation First’s support. This data the team have been able to collect illustrates how, in just over a year, the WASH interventions have had a huge impact on the health and economic status of people in Pondicherry.”

*(Emma Broadbent, Review of results and development of the M&E framework, March 2016)*

# Outcomes measured from the Inner City Sanitation pilot in the Pondicherry slums

## 1. BETTER HEALTH

17% decrease in cases of diarrhoea

## 2. MORE INCOME

Households are 34% better off

## 3. FEWER EXPENSES

42% decrease in healthcare expenditure

## 4. MORE WORKING DAYS GAINED

Missed work days reduced by 62%

## 5. MORE SCHOOL DAYS GAINED

Missed school days reduced by 63%





**There is an urgent and desperate need for sanitation in Chennai slums**

**Our objective is to build on our success in Chennai, the capital of Tamil Nadu by delivering 100 GroSan toilets and 20 urinals to improve conditions for 6,000 slum dwellers by the end of**

ICS Chennai

Enriched compost  
plant

= Sustainable



6,000  
people

2,726  
familie  
s

100  
GroSa  
n  
toilets

20  
urinals

6  
areas

18  
month  
s

Collect human waste from  
GroSan toilets and urinals

Convert it to compost and enrich it  
with our proven formula

Sell it to local farmers

Finance ICS running costs and  
provide a return on investment



A close-up photograph of a person's hands sifting through dark brown, moist compost in a white plastic bin. The hands are positioned in the center, with fingers spread, allowing the compost to fall through. The background is slightly blurred, showing the edges of the bin and some more compost.

**REVENUE**

**COMPOST SALES**  
**SERVICE CHARGE**

# ICS Chennai Expected Outcomes



PER FAMILY



ICS COMMUNITY OF 1,200 FAMILIES

WORK



**66** EXTRA WORK DAYS PER ANNUM

**1,650** WORKING WEEKS OF INCREASED LOCAL PRODUCTIVITY

MONEY



**£120.00** PER ANNUM BETTER OFF

**£144,000** BACK INTO THE LOCAL ECONOMY

EDUCATION



**30** EXTRA DAYS SPENT IN SCHOOL EVERY YEAR

**23** ADDITIONAL YEARS OF SCHOOL ATTENDANCE. AN EXTRA YEAR OF SCHOOLING INCREASES AN INDIVIDUAL'S EARNINGS BY UP TO 10%

# 2020 Vision

➤ 4 Indian cities; Chennai, Mumbai, Varanasi and Delhi

➤ 150,000 people

➤ 2,500 GroSan toilets