



CITY OF CAPE TOWN  
ISIXEKO SASEKAPA  
STAD KAAPSTAD



Cape Peninsula  
University of Technology

## **PILOT PROJECT:**

# **DESIGN STRATEGIES FOR ENHANCING SERVICE DELIVERY IN SOLID WASTE MANAGEMENT AT DOORNBACH, CAPE TOWN**

## **TESTING PROTOTYPES PHASE**

Cape Town, 6 February 2017



## SUMMARY

### MAIN ACTIVITIES

- Monday, **16th May 2016** - Doornbach Team Meeting;
- Saturday, **21st May 2016** - meeting with the Doornbach community leaders;
- Wednesday, **20th June 2016** - meeting with Councillor Lubabalo Makeleni
- Saturday, **29th October 2016** - installation of wooden poles
- Monday, **31st October 2016** - installation of prototype bins; and
- Saturday, 29th November 2016 field visit of sites

### ANNEX 1 - Flyer

## PILOT PROJECT:

### DESIGN STRATEGIES FOR ENHANCING SERVICE DELIVERY IN SOLID WASTE MANAGEMENT AT DOORNBACH, CAPE TOWN

This phase was started with considerable delay due:

- Delays in the production bin prototypes (in Gauteng) and delivery of the same to Cape Town;
- The “Fees Must Fall” protests by students caused further delays in the functioning of key CPUT activities/functions including administration, logistics and finances;
- Around May 2016, the structure of Doornbach community leaders was disrupted and finally collapsed during the installation phase of the prototypes. Communication with the Du Noon Ward Councilor and his team was hampered (due to the local government elections of August 2016) despite the research team’s best efforts. Councillor Lubabalo Makeleni eventually facilitated effective contact with new community leaders in October 2016.

### MAIN ACTIVITIES

- Monday, **16th May 2016** - Doornbach Team Meeting;
- Saturday, **21st May 2016** - meeting with the Doornbach community leaders;
- Wednesday, **20th June 2016** - meeting with Councillor Lubabalo Makeleni for identification and introduction of new representatives in the community;
- Saturday, **29th October 2016** - installation of wooden poles (for raised bins) and mapping geostationary/GPS location pins at the shacks selected by community leaders for the installation of the prototype bins;
- Monday, **31st October 2016** - installation of prototype bins; and
- Saturday, **29th November 2016** field visit of sites with installed bins to gather participating households’ feedback.

## Saturday, 29th October 2016 - installation of wooden poles

Installation of wooden poles and geostationary mapping at the shacks selected by community leaders for the prototypes installation phase. For the installation, we chose to work with John Van Niekerk, an industrial designer (born in the Eastern Cape) who is proficient in isiXhosa. His knowledge of the language has been invaluable during the installation phase. On the first day there was a tense confrontation between certain residents and the recognised community leaders who accompanied us - the residents challenged the authority and mandate of the community leaders in their role as project collaborators. Whereas the situation rapidly escalated, a physical confrontation was averted through the intervention of other residents.

The community leaders identified the nine shacks where prototype bins were installed. On the first day the research team dug holes and cemented the wooden poles into the ground. The geostationary positioning of the nine installations was done concurrently.

All the names and the telephone numbers of residents' contact persons were collected for each installed bin and a leaflet with instructions on the use of the bins was handed out.

Bin Number	GPS location	Reference	Mobile contact	Shack Number
Bin n. 1	33°48'43.9"S 18°32'16.9"E	Thabisa Solombela	0784831039	A120
Bin n. 2	33°48'42.7"S 18°32'22.4"E	Khusewa Zimasile	0786678721	B131
Bin n. 3	33°48'40.0"S 18°32'22.1"E	Zoleka Tunyana	0735038602	C80
Bin n. 4	33°48'36.2"S 18°32'17.6"E	Nomlindelo Mzolisa	0782028570	D273
Bin n. 5	33°48'35.0"S 18°32'16.1"E	Nomelikaya Dlaze	N/A	D281
Bin n. 6	33°48'33.5"S 18°32'14.6"E	Bukelwa Tshali Rhoswa	0735827120	F37
Bin n. 7	33°48'29.9"S 18°32'12.5"E	Nosniwe Mahlati	0780763966	G93
Bin n. 8	33°48'34.1"S 18°32'08.5"E	Kholekaya Dlabathi	0735638706	H279
Bin n. 9	33°48'33.0"S 18°32'11.2"E	Bulelwa Djongo	0782609470	E176



## Geostationary positioning Bins map









## Monday, 31st October 2016 - installation of bins prototypes

On the second day the bins were attached to the cemented wooden poles.



## **Saturday, 29th November 2016 - field visit for feedback**

On the Saturday, 29th November 2016 a field visit was carried out to inspect the condition and use patterns of the bins as well as to receive feedback from participating residents and the community leaders.

### **Main findings:**

1. The bin was too wide at the brim to accommodate the standard-issue blue bags. Additionally, the bins were deemed too deep for effective retrieval of garbage placed within them. Whereas the design team followed the directions and incorporated input during the co-design workshops with the community members (the bins were designed along the dimensions to facilitate two blue bags), observations and reports on actual use during experimentation revealed practical limitations.
2. Most representatives reported that the blue bags in the bin locking system did not work well and several attempted to secure the bags on the rim of the bins though not in an effective manner. All the respondents however reported that they were satisfied with the color, shape, elevated height and lid of the bins. Additionally, respondents were happy with the location of the bins with respect to collection services of the Waste Collection Service.
3. The system of fixing the bins to the ground with cemented poles proved to be robust and durable - no pole was moved from its original position, and there were no reports of vandalism.

### **Next Steps:**

- conclude project with community members and participating residents by providing feedback on the user-centric co-design processes they have participated in since the outset;
- propose revised design specifications of the bin by drawing from the rich data and feedback from the research process; and
- compile and submit the final close-out report for the project (complete with financials, detailed technical drawings and relevant appendices) for the action and reference of the City of Cape Town's Solid Waste Management team.









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**This is a bin prototype made to test the use for waste collection. Feel free to tell us what you think about this bin and your suggestions to improve it.**

**Contact one of the Community Leader in your area to tell him what you think about this bin**

**Contact:** \_\_\_\_\_

