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The dilemma of disposable diapers in rural South Africa

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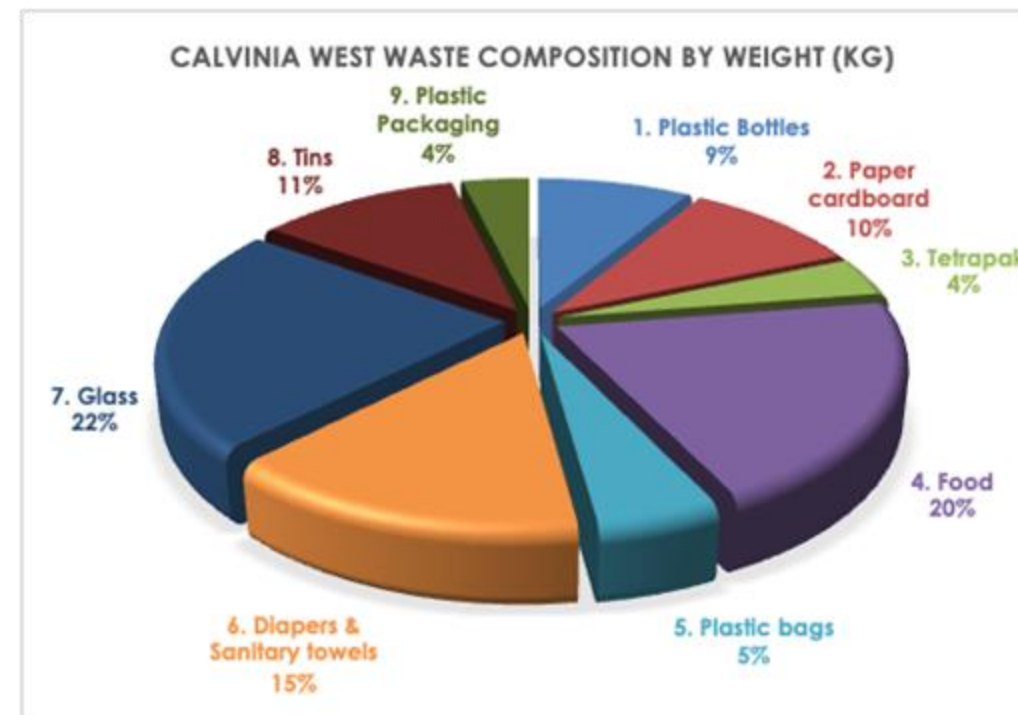
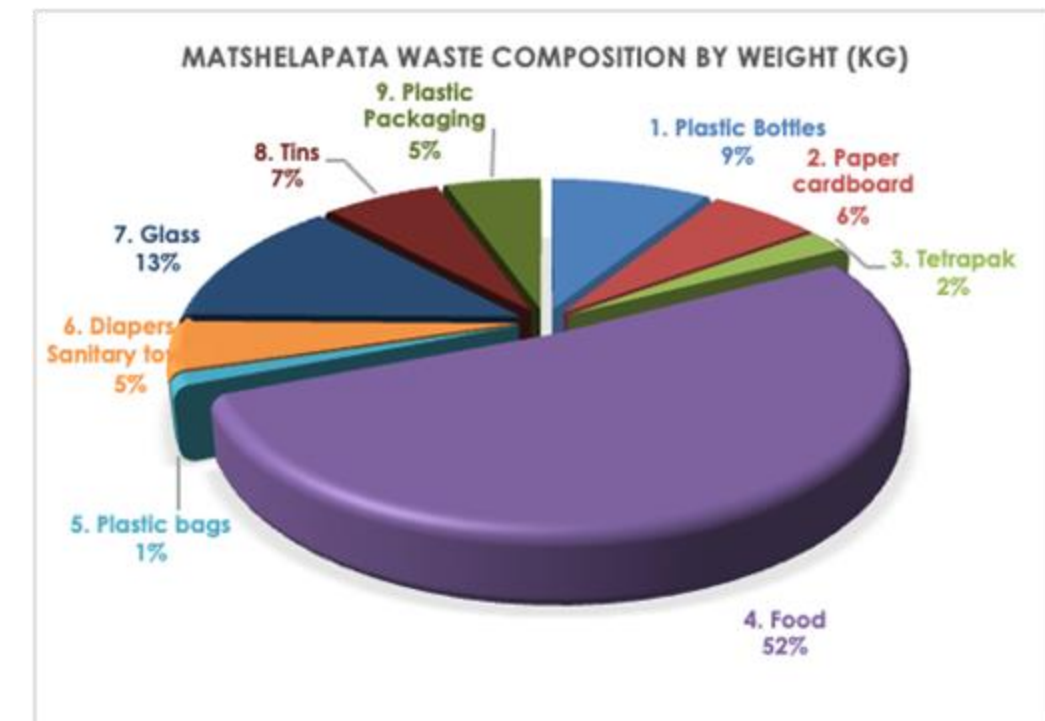
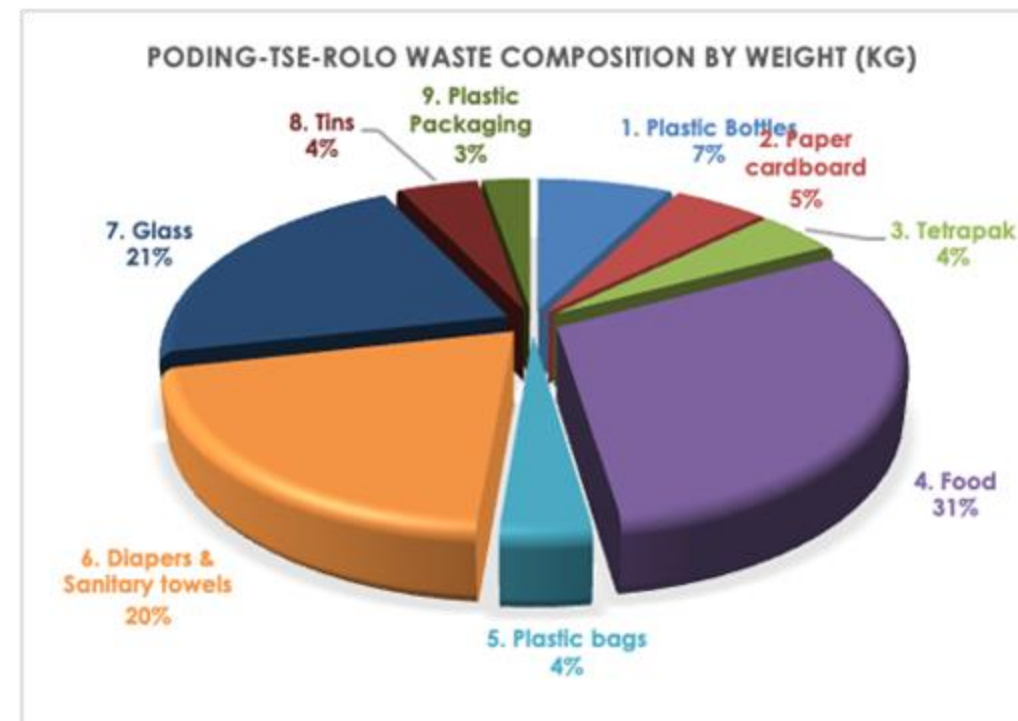
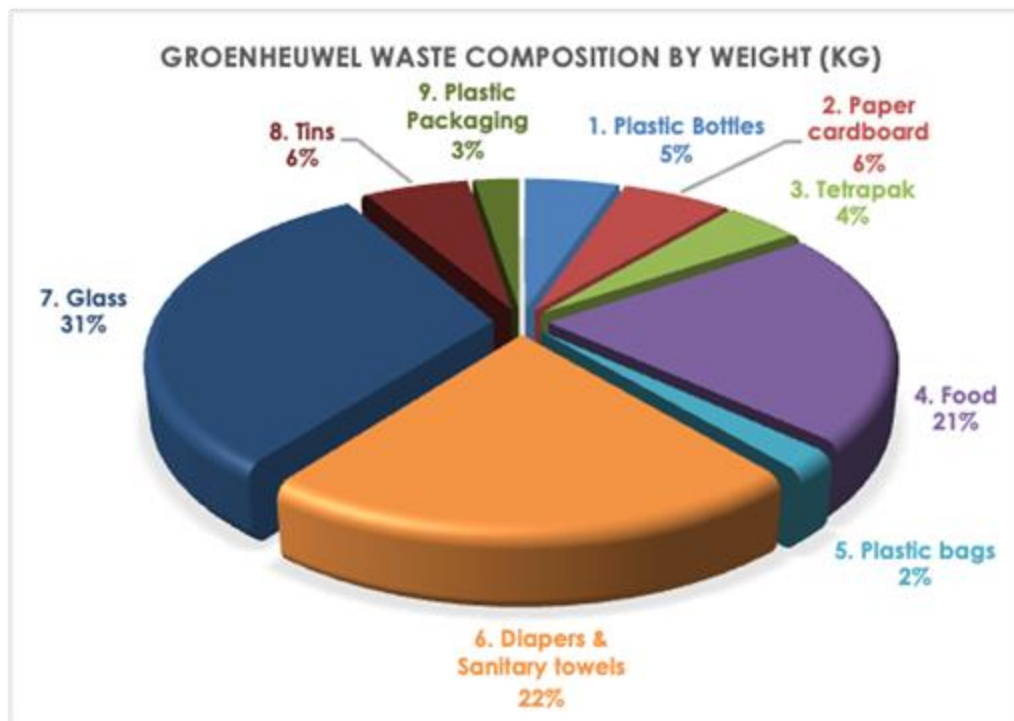
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‘Discovering’ the dilemma

2019-2022 Clean City/Towns project: Awareness of fate of uncollected disposable diapers



Diapers and sanitary towels: significant portion of waste (by weight) in several areas





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Separation and discarding





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Clean yards and dirty rivers

Illegal dumpsites in Megoring, Limpopo



Legend

● Illegal Dumpsites

Limpopo -Google earth



Background and aim of studies

2022 - 2024

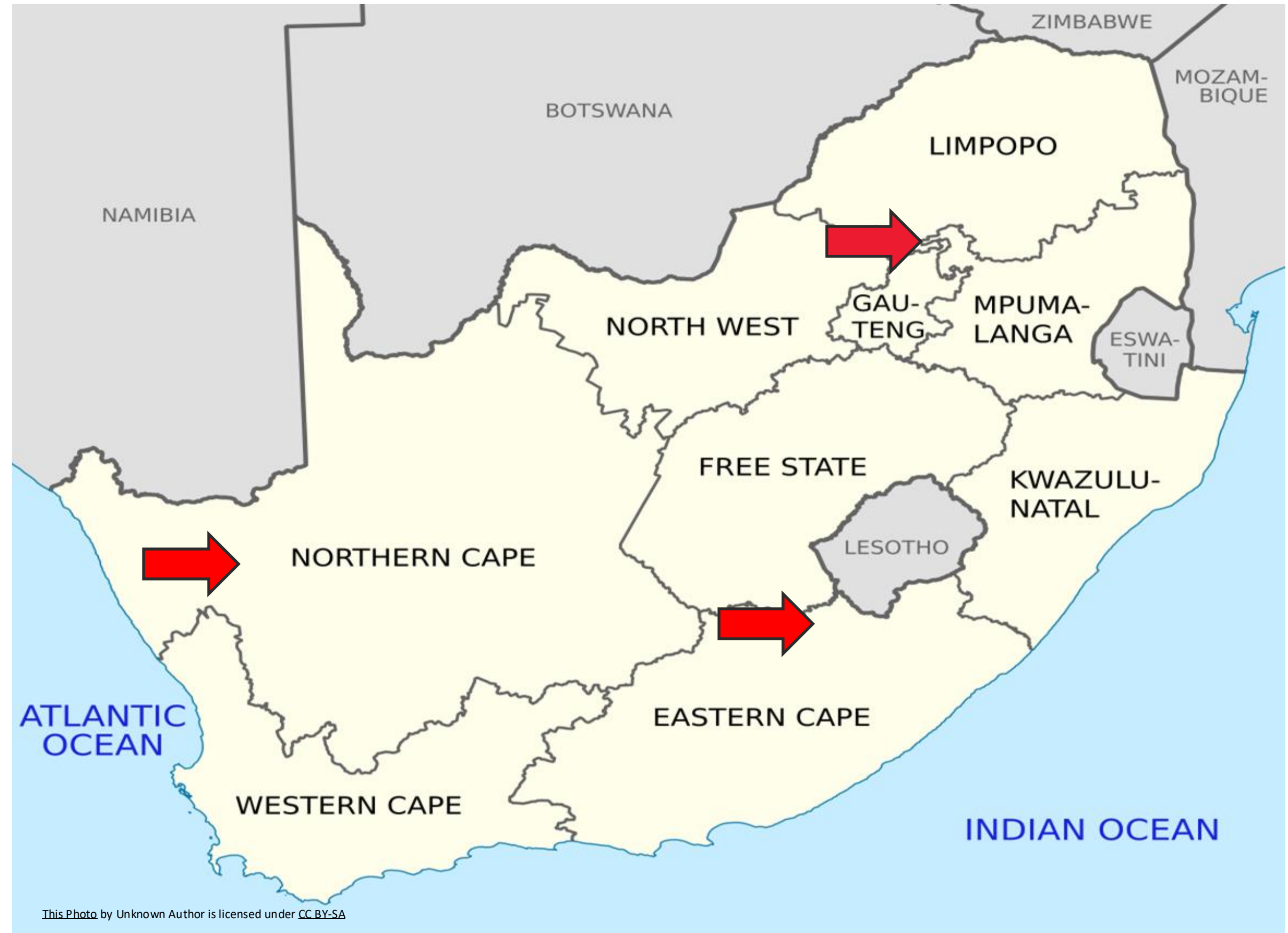
Conducted the same research in 4 different low-income areas:

- 8 villages in rural **Kruger to Canyons Biosphere** (K2C) in Mpumalanga and Limpopo provinces (CSIR funded)
- **Calvinia-West** township, Northern Cape (CSIR funded)
- 3 villages in **K2C** (Kimberly-Clark funded)
- Rural **Matatiele**, Eastern Cape, 'Smart Nappy' Pilot Project (Nedbank Green Trust funded)



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Locations of studies



Research methodology

❖ Quantitative data collection - Questionnaires completed

K2C	1575
Calvinia West	193
K2C	157
Matatiele	504

❖ Focus group discussions

❖ Mapping communities

❖ GIS Mapping of dumped diapers: K2C, Calvinia-West

❖ Member-checking meetings



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Results



Biographical data: caregivers with babies

Evaluation Criteria	Matatiele (2024)	K2C (2024)	K2C (2023)	Calvinia- West (2023)
Gender	92% Female	83% Female	97% Female	92% female
Average age	38 years	32 years	32 years	31 years
Number of children wearing diapers per household	2	3	1	1.3
Unemployment	80%	??	71%	70%
Government social grant recipients	93%	92%	97%	97%



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Challenges in rural areas: Inadequate collection and improper disposal

- Only 60% of South African households received a regular, weekly waste collection service (in 2023).
- There is a huge discrepancies in collection between urban (84.4%) and rural (12.5%) areas.

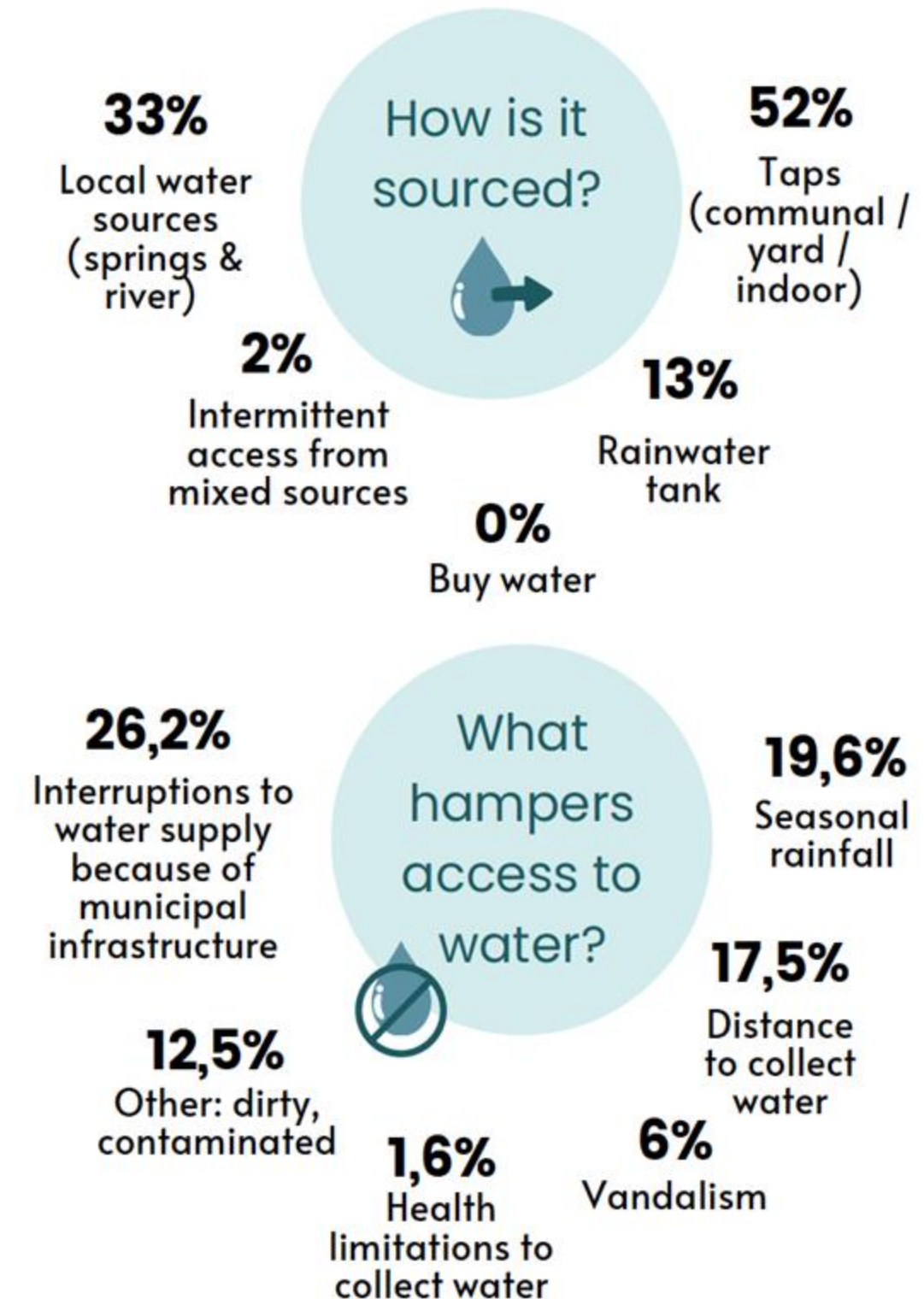
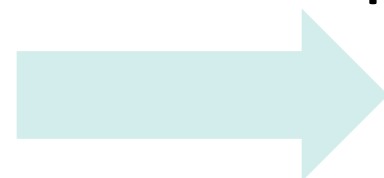




Waste and infrastructural barriers

LAUNDRY WATER USAGE

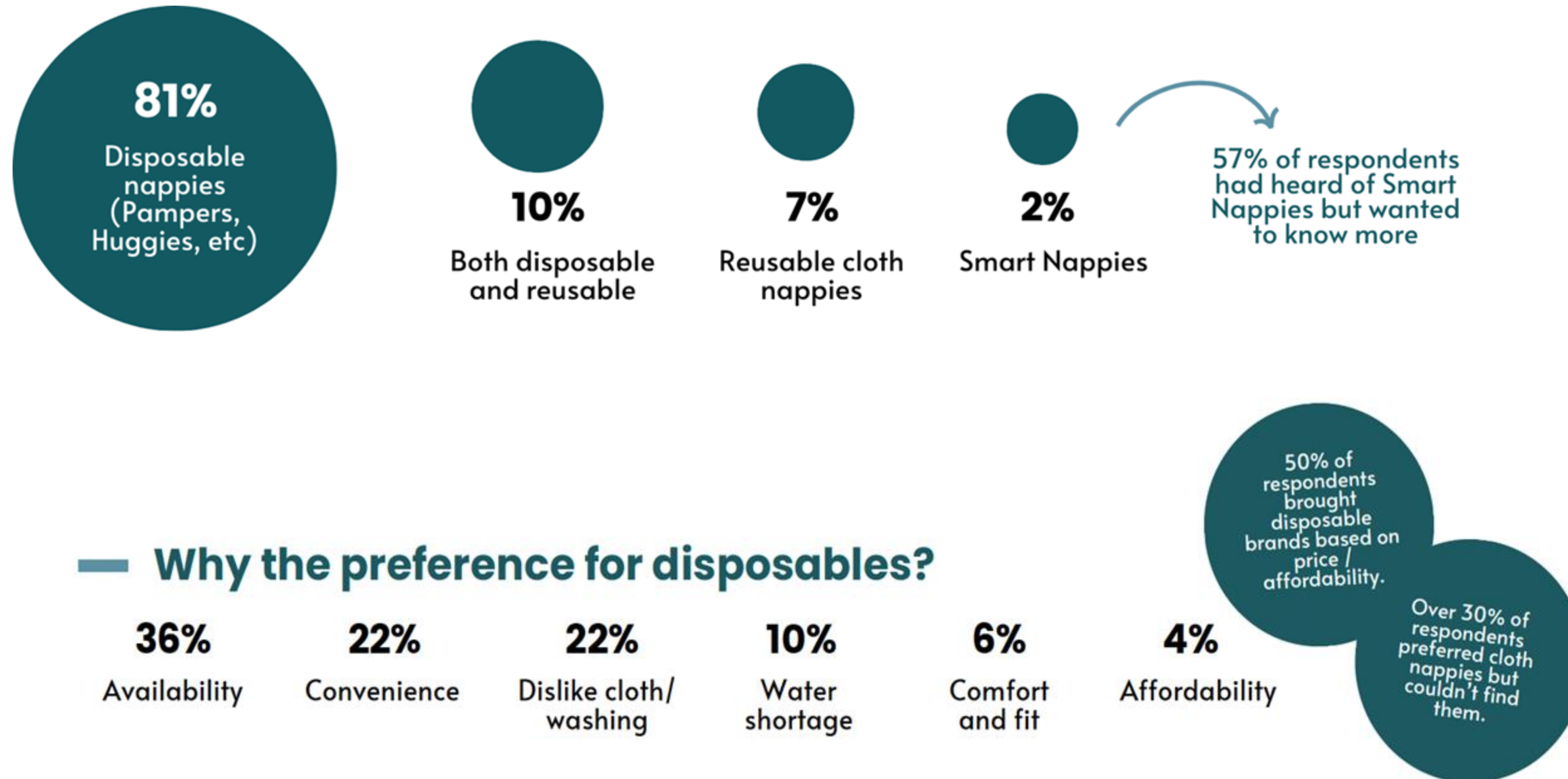
- **K2C:** No running water and pit toilets; no electricity; no WM
- **Calvinia:** Weekly WM; no bins or bags; electricity if and when can afford. Taps in yard or house
- **K2C:** 80% water from borehole/ community tap; 99% pit latrines; 64% no WM, 44% skip bins
- **Matatiele:** 52% water from taps, 33% from local water sources



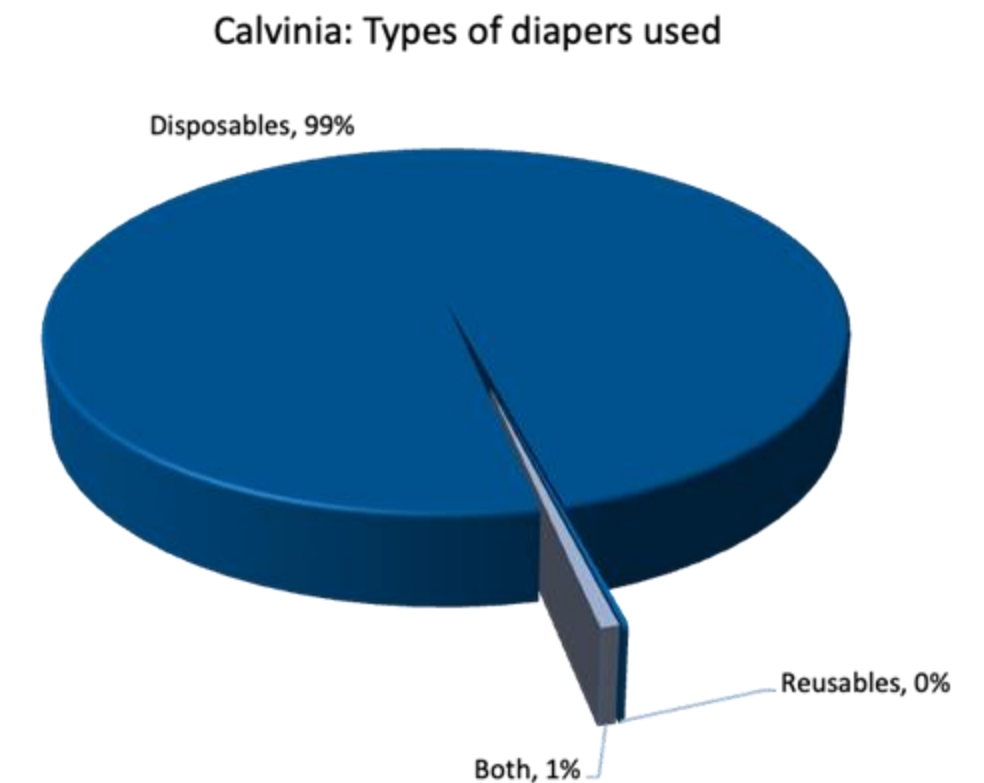


Nappy type preference

Matatiele



Calvinia-West





Nappy preference and reuse

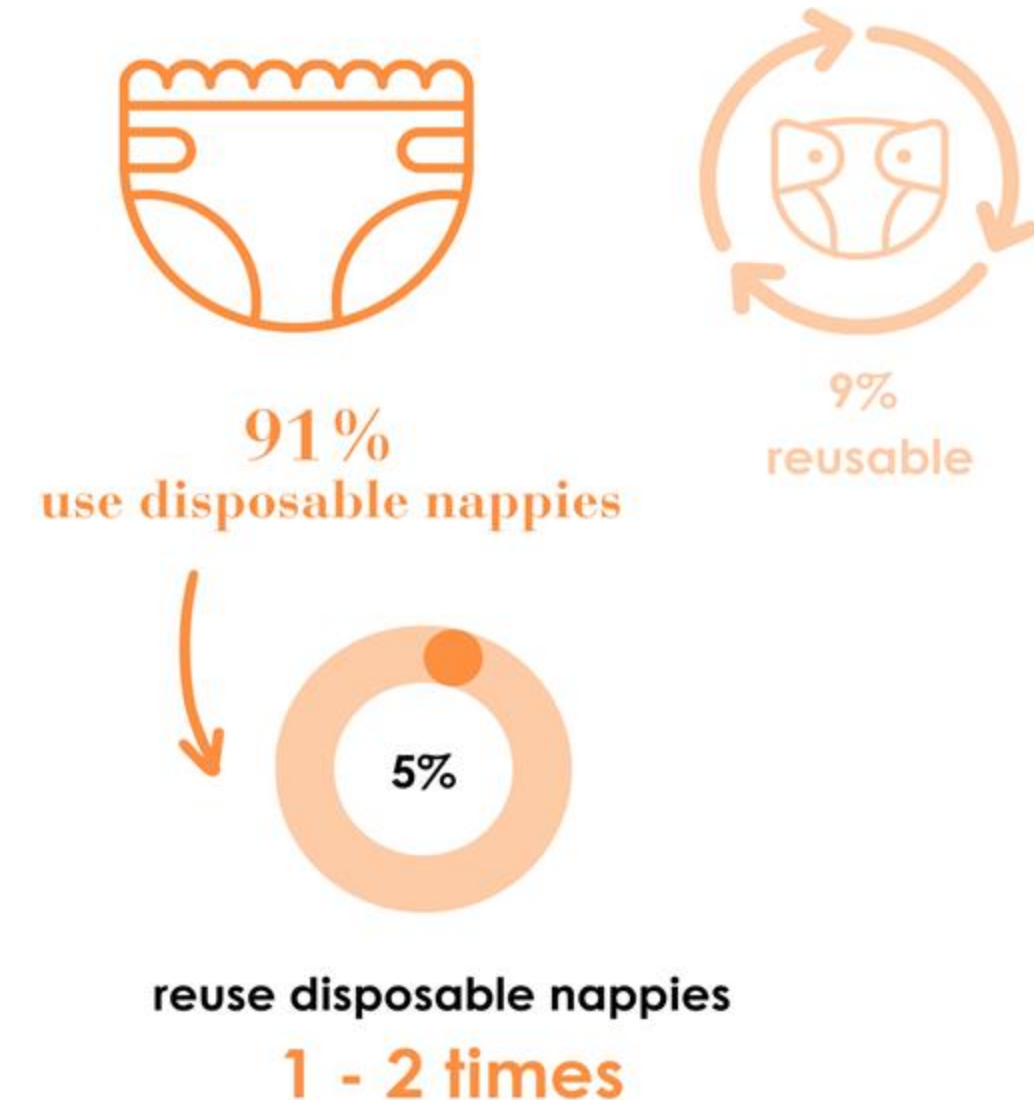
Langa



The process:

- Sometime the nappy is not too dirty when my child is constipated i remove the stool and reuse it to save money.
- When my child is constipated i remove the hard stool and let my child use it again.
- If the stool is hard and not sticky I will remove it and use the nappy again.
- If the stool is dry and nappy is not wet from urine - I use a wipe to remove the stool and put it back on.

K2C



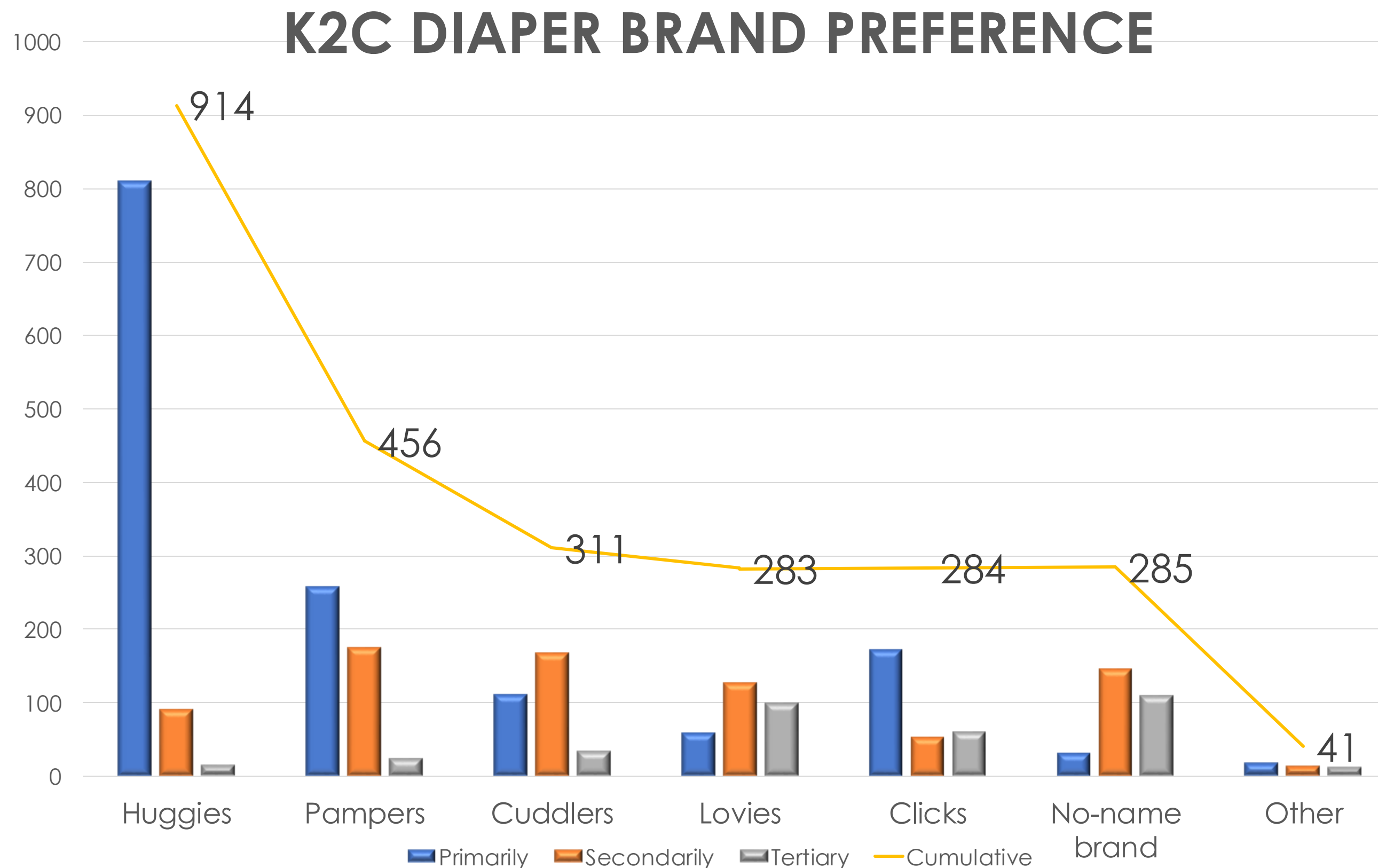
The process:

- First empty the stool, then wash after you dry the nappies.
- Empty the stool, dry them, also wash them.
- First dry then later wash them after emptying the stool.
- Rinse and dry them.
- Empty the stool, wash and dry them after.



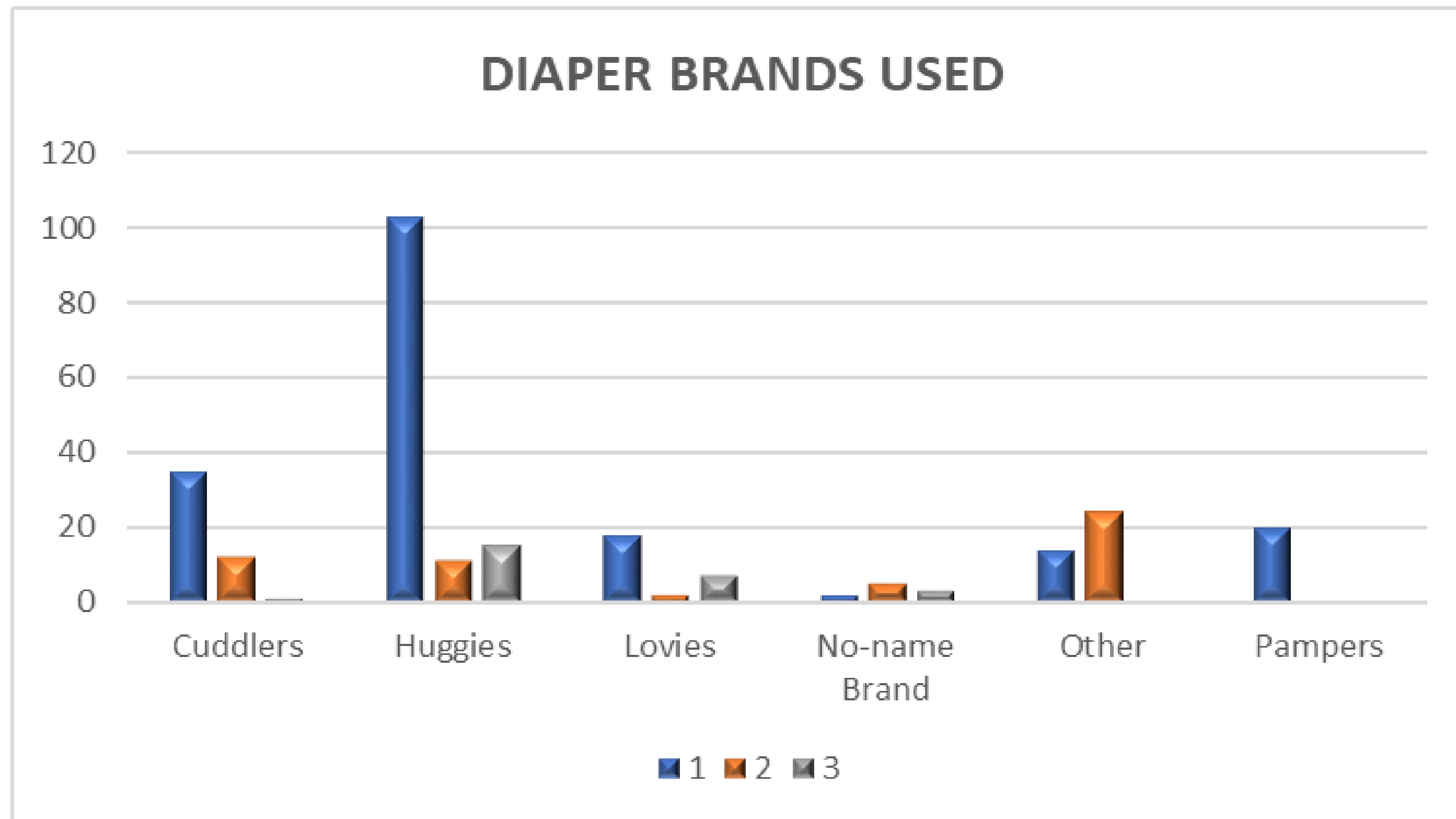


Nappy brand preference (*K2C, 2023*)





Nappy brand preference (Calvinia-West)





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Nappy brand preference: K2C and Langa



Langa: **13%**

K2C: **38%**

HUGGIES

Langa: **28%**

K2C: **59%**



Langa: **38%**

K2C: **15%**



Langa: **17%**

K2C: **9%**



Langa: **1%**

K2C: **32%**

OTHER

Langa = Somali shop: **2%**

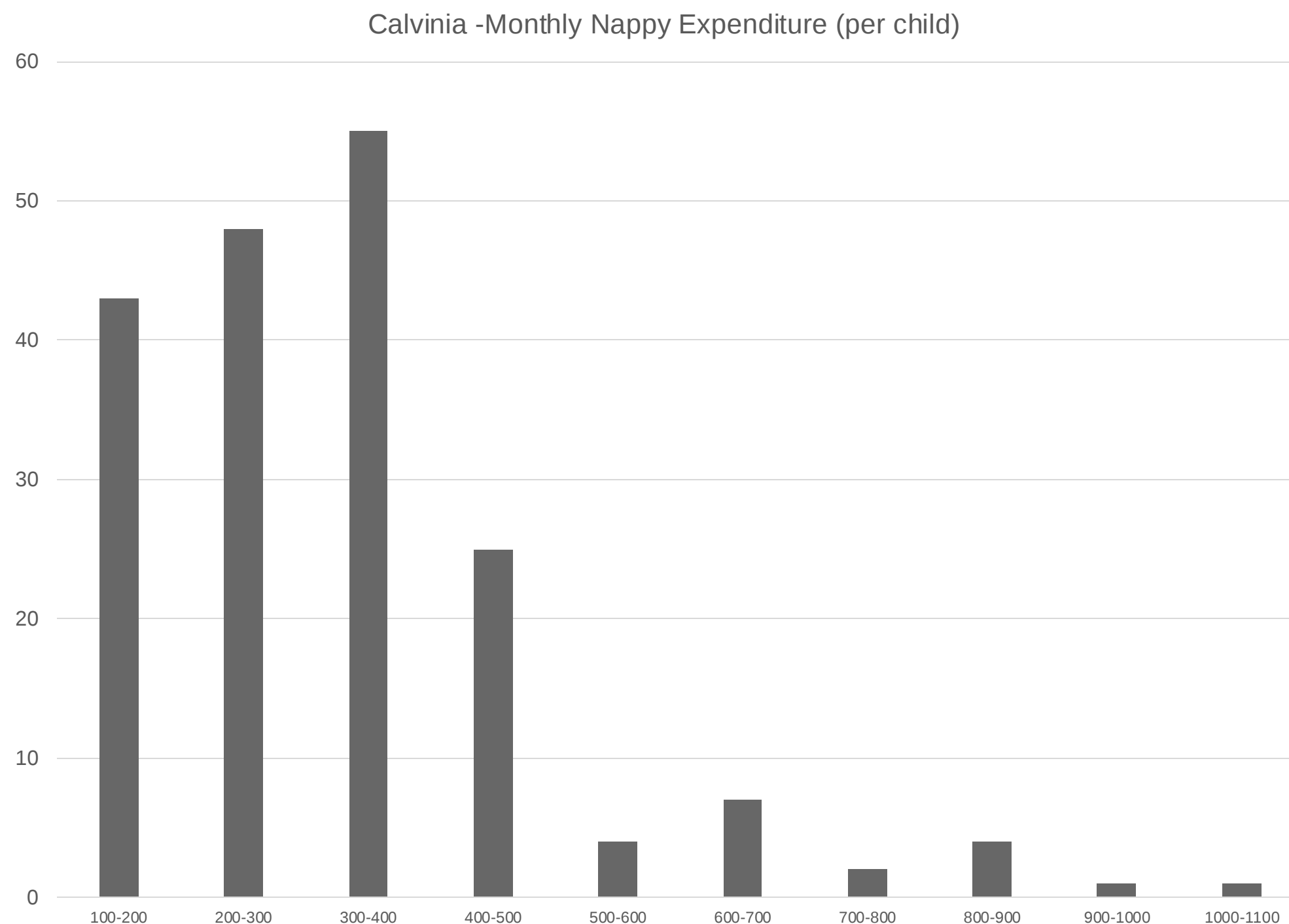
Langa = No name brand: **1%**

K2C = DisChem Baby: **1%**



Spending on nappies

Calvinia



Matatiele

Costs

The **average amount**
spent on nappies =

R220

per child per month

“I only use
pampers
when I have
enough
money to
buy [it]”

It ranges between

R100 and R550

per child per month



The average
spend for one
child's nappy
wearing life
equals the cost
of 3 cows!





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Separation of nappies

➤ Do you separate used nappies from other types of waste?

$N = 149 / 157$

Langa

YES | 32%



K2C Biosphere

YES | 76%





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Managing nappies (Matatiele)



NAPPY DISPOSAL

How much +
how often?

ON AVERAGE,
each respondent uses



4 nappies ≥ 24 hours

How?

51%
Burying

15%
In pit latrine

15%
Dispose into
environment
(stream,
donga,
roadside,
veld)

14%
Burning

5%
Landfill or
bins in town

Extrapolating the data to the population under 32,5 years of 25 000 residents
THIS MEANS THAT:

Matatiele
PRODUCES

100 000 nappies per day

@ 200gr
each =
**20
tons!**



40
skip bins



170
minibus taxis
fully loaded
with nappies



Almost
6
soccer fields
covered in
nappies



the weight of
57
cows



20
5000L JoJo
tanks filled
with nappies

THAT IS
EQUAL TO:

OR

3.1 million nappies per year!

@ 200gr
each =
**1130
tons!**



2263
skip bins!



18 605
packed
minibus
taxis



Over
200
soccer fields
covered in
nappies



the weight of
3230
cows



1240
JoJo tanks

THAT IS
EQUAL TO:

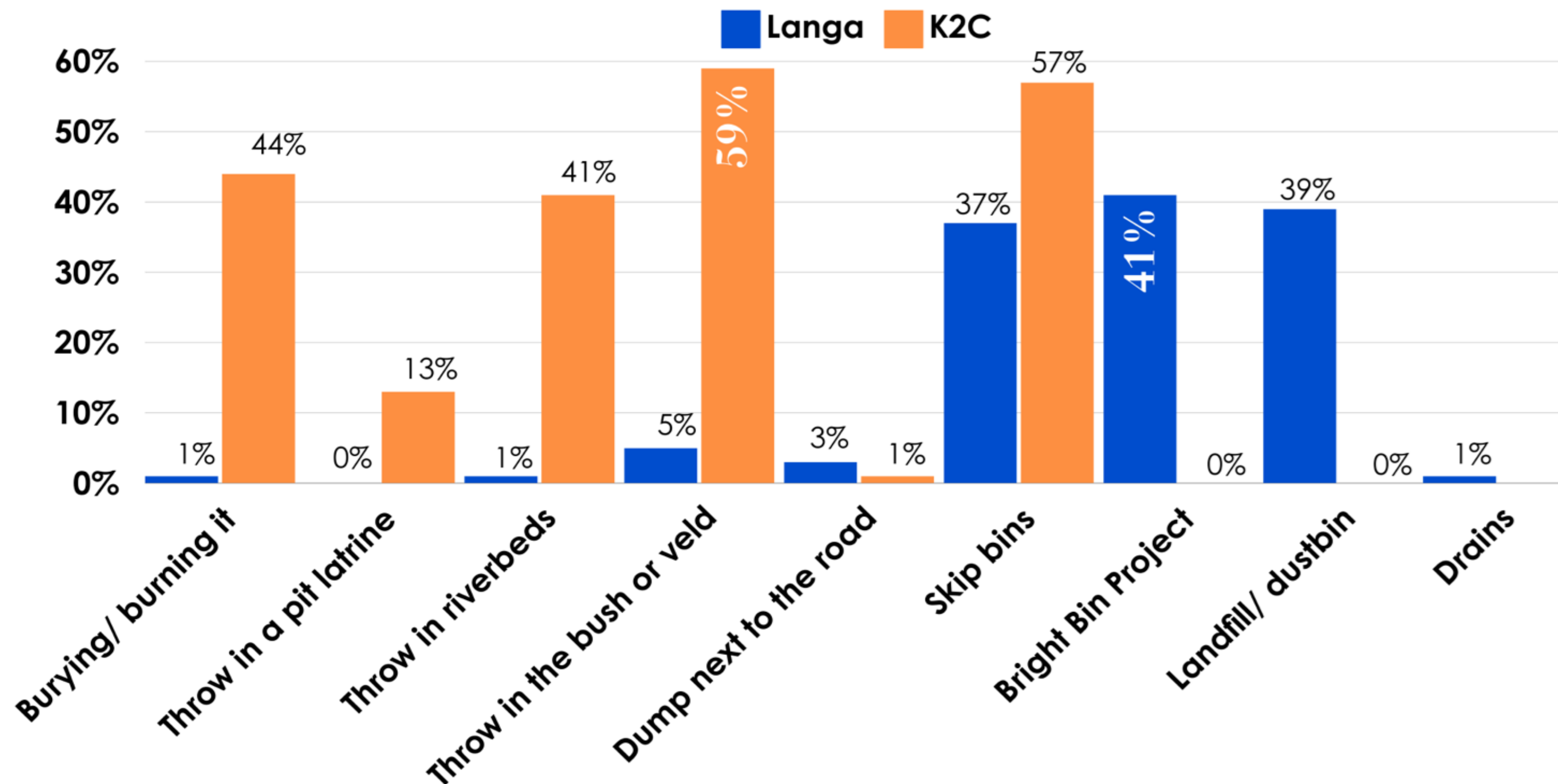
Enough for
a taxi
convoy from
Matatiele to
Cairo!

Enough to
host an entire
AFCON
tournament on
nappies
instead of
grass!

Enough
to supply the
whole Matatiele
town with water
(but filled with
nappies!)

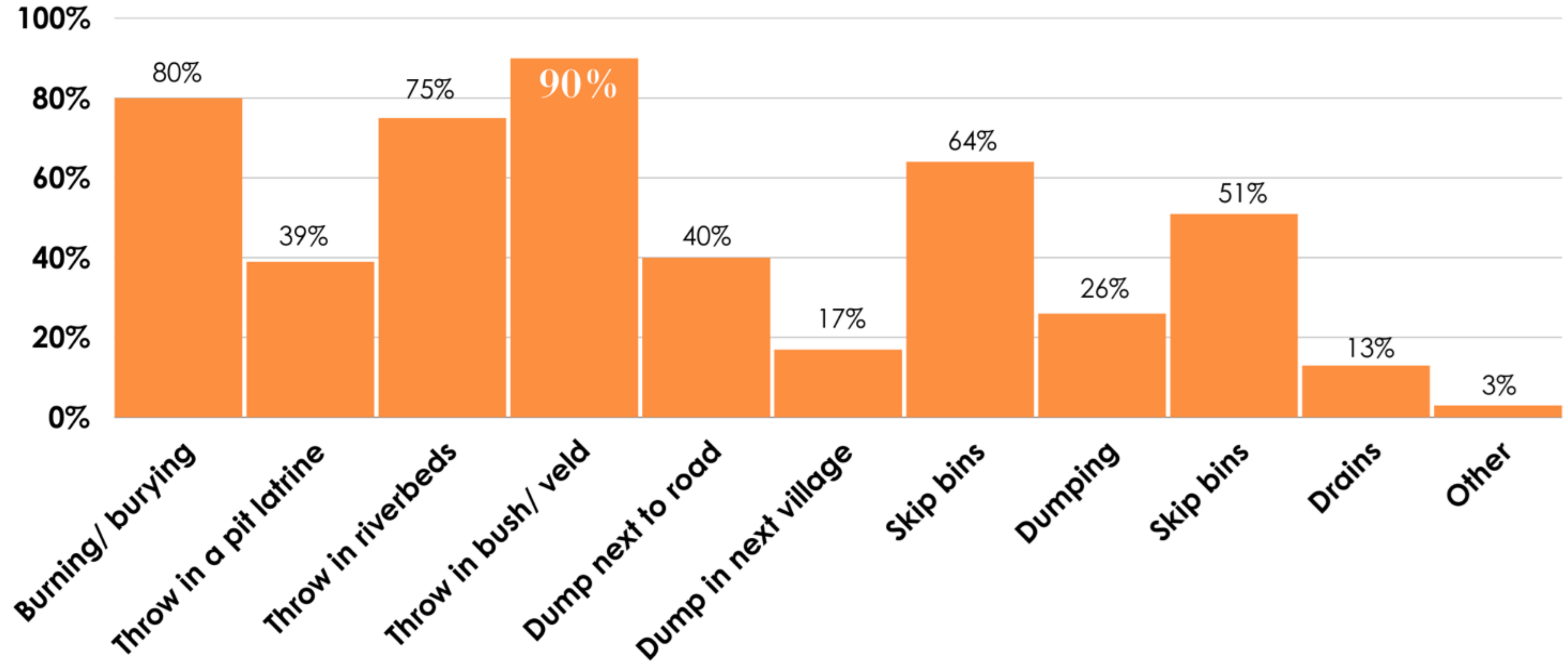


Managing nappies (K2C and Langa)





Managing nappies (K2C 2023)





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Rural managing of diapers

- Landfilling
- Burning (difficult)
- Burying
- Dumping
- Pit latrine

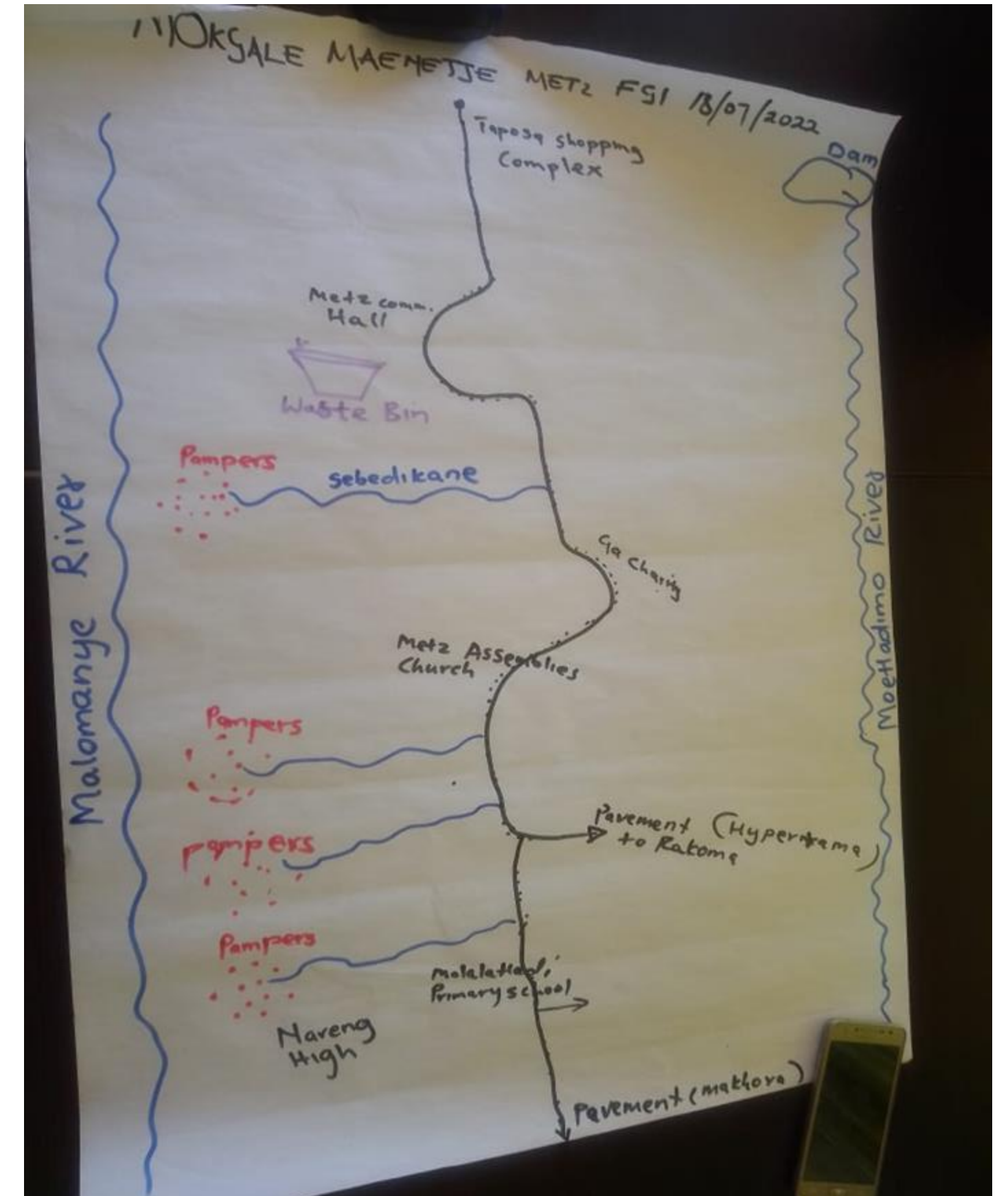
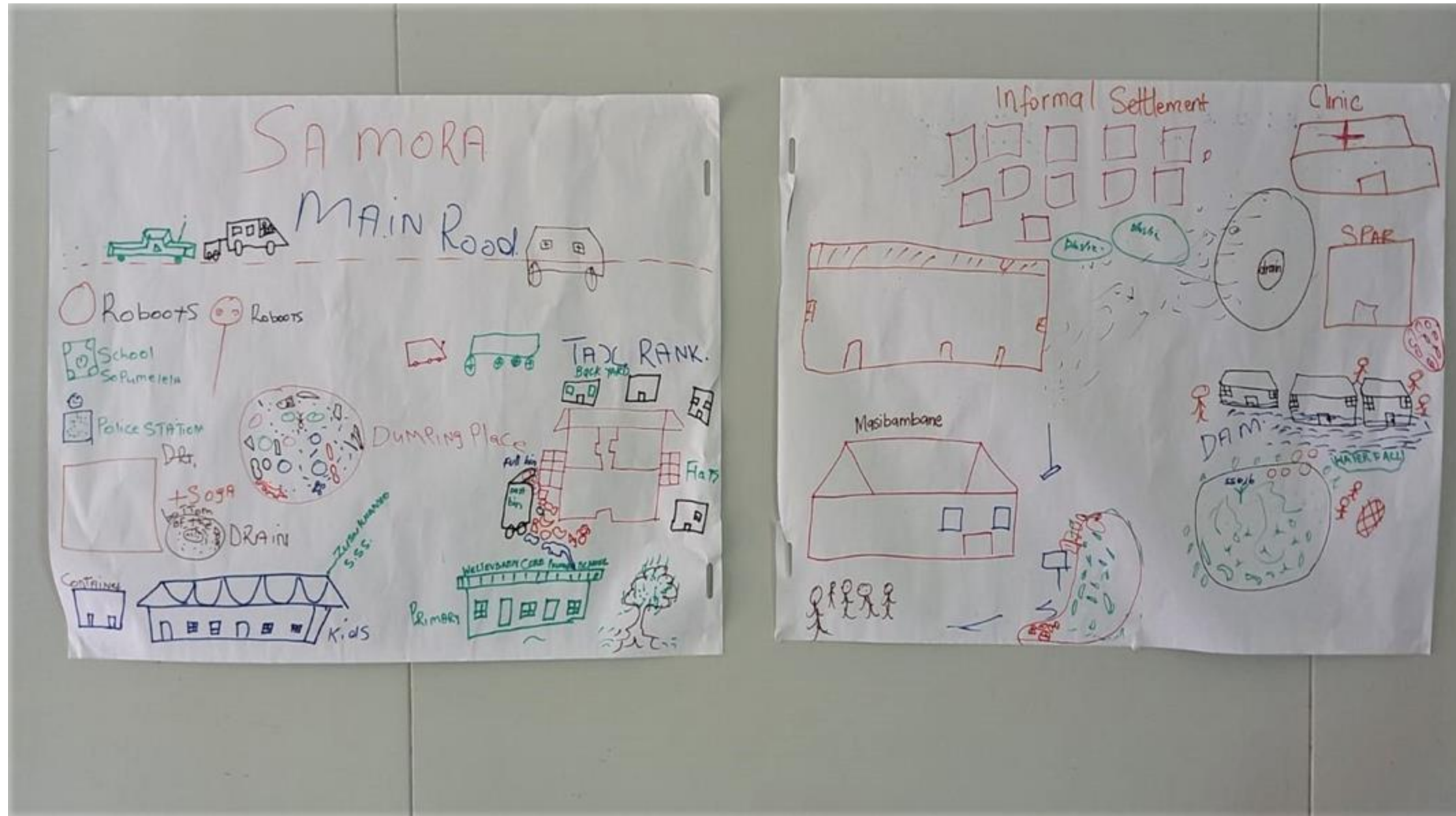




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Managing of nappies

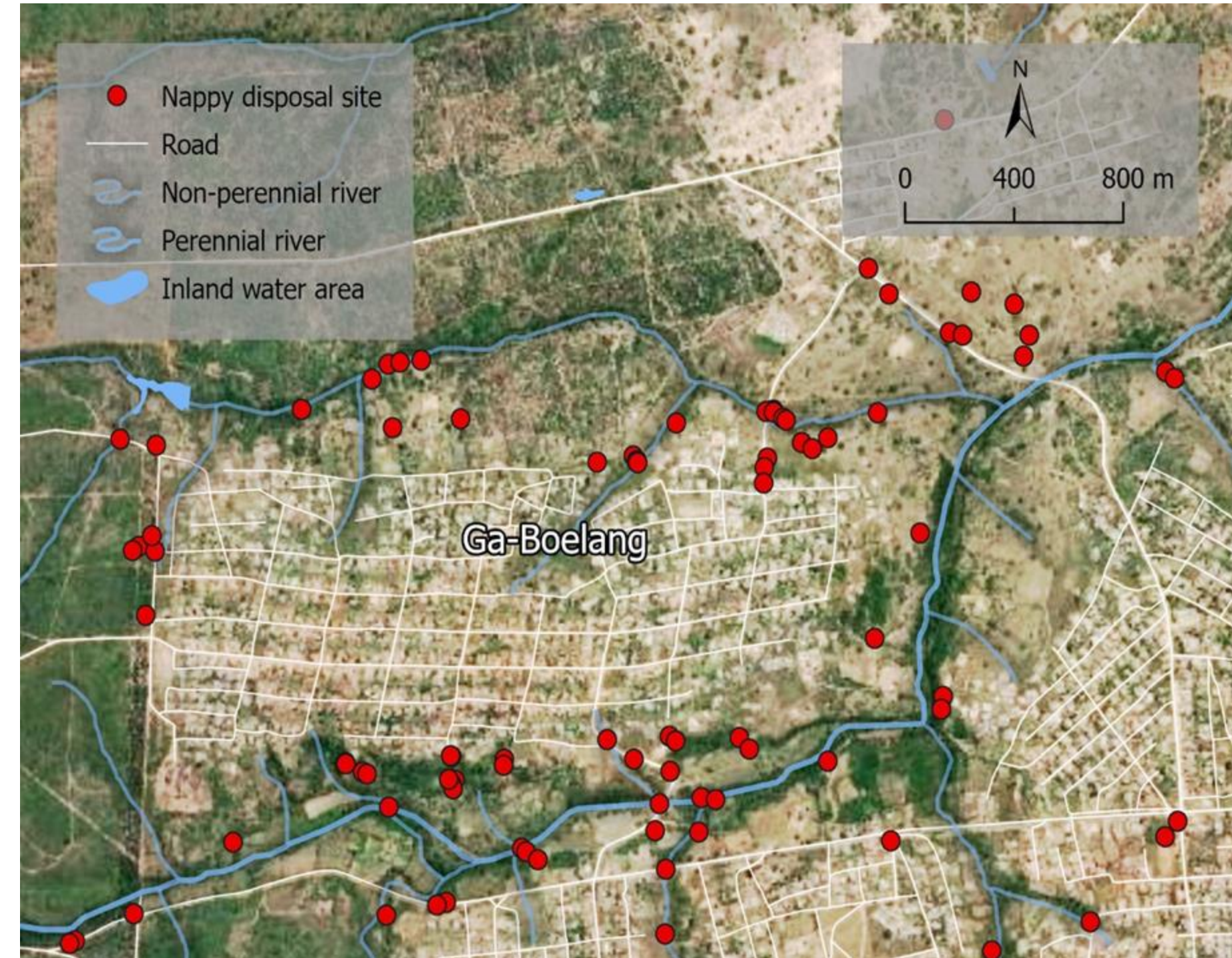
Mapping and focus groups discussion





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Managing of nappies



Health-socio-cultural impact

- **Health concerns**

“sickness”; children play with it”; “water quality deteriorate”; “pollute drinking water”; “concerned about children”; traditional practices.
(SDG 3, 6, 14, 15)

- **Shame and image of the community**

"It gives a bad impression of our community and there is no longer any pride in the community"

- **Affects overall health and well-being**



Child health impact

Context

- Low-income communities often live in close proximity to formal and informal waste sites (landfills, dumps, etc.)
- Due to improper waste management, children in low-income communities are exposed to waste heaps
- Waste heaps contain organic and inorganic waste, including hazardous waste (dirty diapers, rotten food, e-waste, etc.)
- Waste attracts insects and vermin like mosquitoes, flies and rodents which can spread diseases such as malaria, dengue, and cholera
- Unmanaged waste also harbor waterborne, foodborne, and soil-borne pathogens, resulting in higher instances of diarrhea for children living close to the waste heaps

Findings

- South African research (SUN and UWC) – Across 12 communities in the Western Cape, researchers surveyed 371 households and mapped all dormant waste heaps
- Preliminary results show that most children in these communities grow up within 150m from a waste heap
- Children growing up within 150 m of a waste heap are 67% more likely of being stunted in their growth, compared to those that live more than 300m from a waste heap • Increasingly, studies show that inadequate local waste disposal is associated with an increased risk of childhood stunting ➤

Environmental impact

- Diapers going into the environment. It is estimated that:
 - 145,000- 170,000 diapers generated in Bushbuckridge Municipality per day that will probably be dumped
 - 31,000- 37,000 diapers generated in Maruleng Municipality per day without any waste management services rendered
 - Animals/livelihoods affected
 - ❖ goats, pigs and cattle die
 - Water quality deteriorates
 - Biodiversity
 - Sewerage systems: blocked and overflowing
 - Polluted environment
 - Air quality affected by burning and smell
- “our beautiful area is damaged”***



Relevant current discussions

➤ **Death of children**

President Ramaphosa: “Since the beginning of September 2024, there have been a total of 890 reported incidents of foodborne illnesses across all provinces.” • “Rubbish is not collected regularly, streets are not being cleaned, creating conditions for rats and other pests to thrive.” (link to Terbufos a ‘street pesticide’ used to control rats) • Joint Operational and Intelligence Structures established [NATJOINTS Foodborne Illness]

➤ **State of local government**

President Ramaphosa (SONA 2025): “In many cities and towns across the country... refuse is not collected” • “This has happened because many municipalities lack the technical skills and resources....” • “We will undertake extensive consultation to develop an updated White Paper on Local Government to outline a modern and fit-for-purpose local government system.”

➤ **AHP Strategy**

Deputy Minister Swarts (Environment): “Absorbent Hygiene Product (AHP) waste represents one of the problematic waste streams in South Africa” • “The Department has taken a position to lead in the development of the [AHP] strategy for designing, management and disposal of AHP waste >

Thank You.

Questions?



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AQUILA
· ENVIRONMENTAL ·

