

Insights on Healthcare Plastic Waste Management in Lagos State, Nigeria

ENB Wednesday Webinar: Experiences and
lessons learned in plastic pollution
management projects

Özgül Calicioglu,
Environmental Engineer
February 9, 2022



Lagos is the epicenter of solid waste generation and plastics pollution in Nigeria

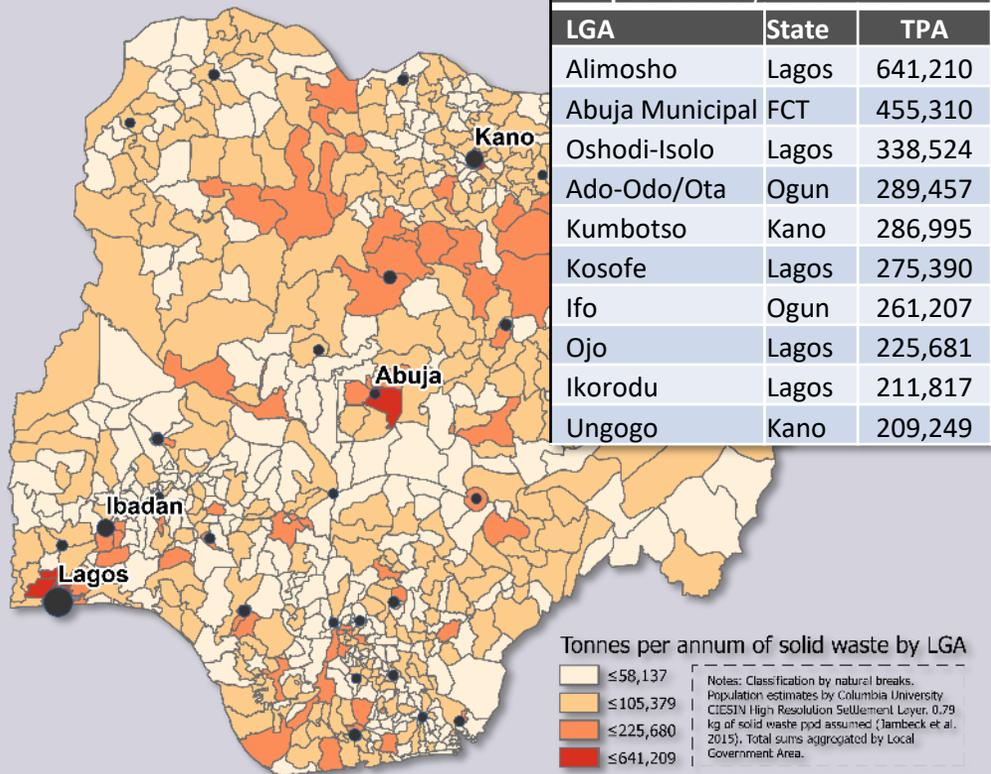
Local Government Areas (LGAs) at the frontline of MSWM

57%
of solid waste is
ORGANIC

11%
of solid waste is
PLASTICS

only
6%
of plastics
RECOVERED²

81%
of solid waste
MISMANAGED¹



61.2 million TONNES
OF MUNICIPAL SOLID WASTE in 2021¹⁶

318,000-840,000 TONNES
OF MARINE PLASTIC DEBRIS IN 2021³

Nigeria the 9th largest contributor to marine plastic debris¹

Nigeria: MSW volumes on par with other major economies

	Nigeria	Egypt	Brazil	Russia	Germany	Indonesia
Total MSW volume in million tonnes p.a.	61.2	60 ⁹	78 ¹⁰	55-60 ¹¹	50.2 ¹²	31 ¹³

Lagos State: A crucial leverage point to tackle solid waste

21 million people

Africa's seventh largest economy (if it were a country)

4.59 MMT
of SW In 2021

7.4 MMT
of SW by 2036

23% of all waste collected is **plastic waste**

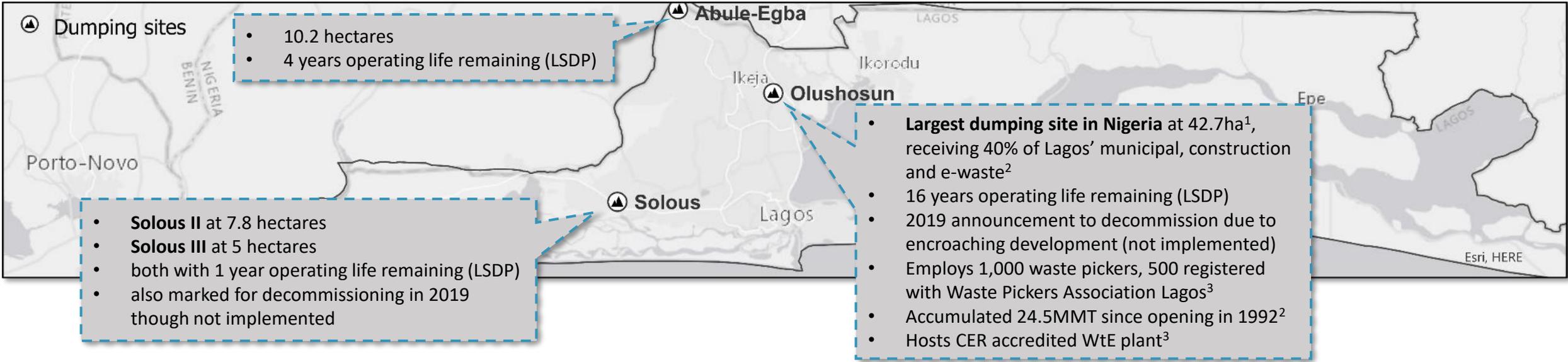
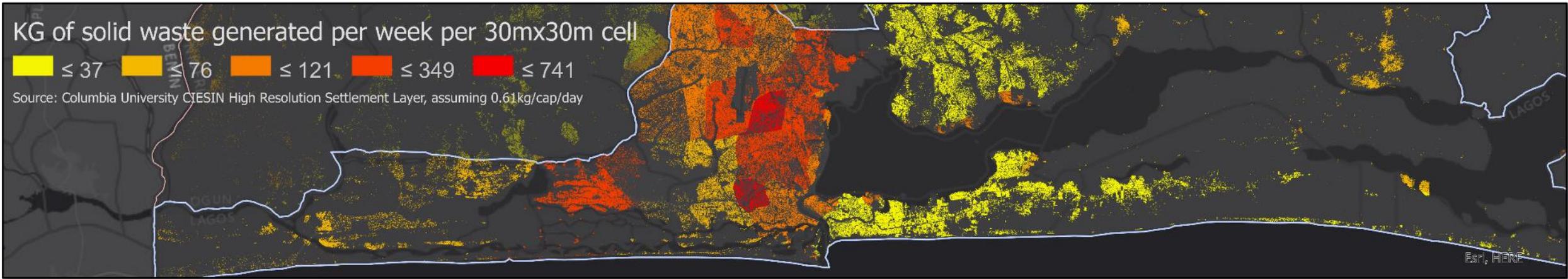
only 13% of recyclable waste is recycled⁴

Lagos in comparison with its peers

	Lagos	Accra	Cairo	Mumbai	Dhaka
Collection rate	20-30% ⁴	40% ⁵	30-60% ⁹	98.85% ⁶	40-60% ⁷
Recycling rate	13% ⁴	5% ⁸	-	31% ¹⁴	90% (PET), 31% (PP) ¹⁵

Note: only indicative as most figures not directly comparable

Dumpsites in Lagos are reaching full capacities.



Objective

Given the increased use of plastics in the healthcare sector, this study aims to understand current practice and provide recommendations.

The Healthcare Waste Management Policy in Nigeria segregates waste based on a color-coded bagging system:



Highly infectious waste
(Incineration)



Sharps
(Incineration)

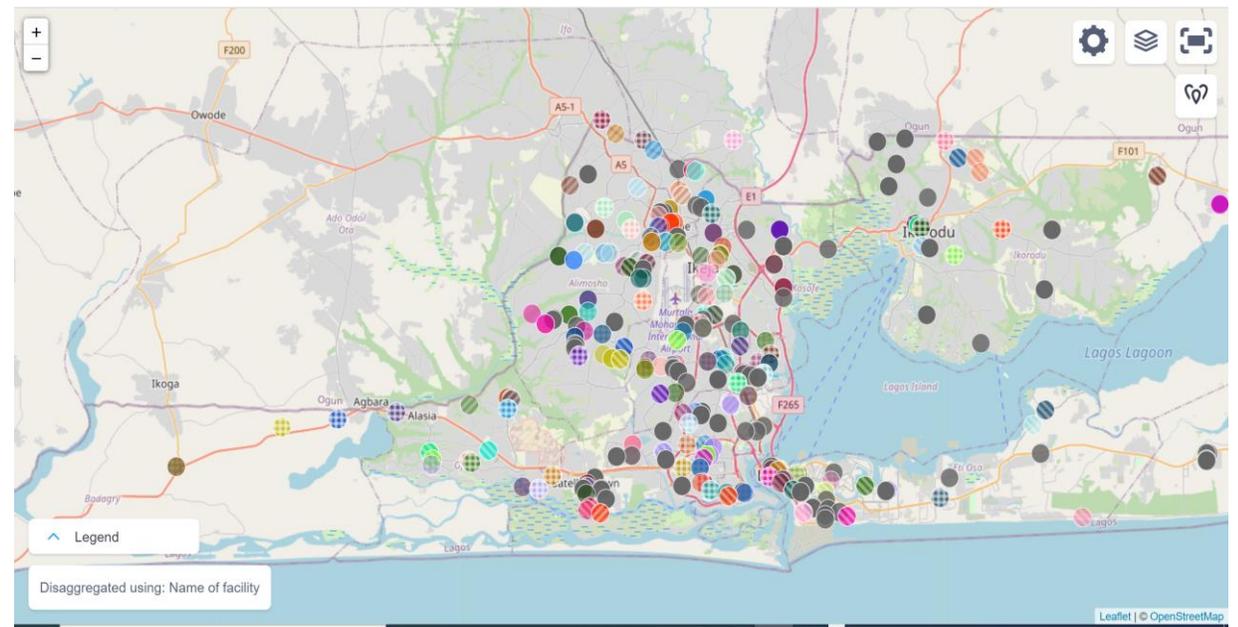


General waste
(Dumpsite)

Infectious waste
(Incineration)

However, the policy does not address plastic waste segregation in the healthcare facilities.

Study design
Survey conducted to understand current practice and provide recommendations in healthcare plastic waste management in Lagos



- The study interviewed:
 - 10 % of (2,330 total) healthcare facilities (private, public, primary, secondary and tertiary) in Lagos State
 - Government institutions, private sector participants under Lagos Waste Management Authority (LAWMA)
- The survey included questions about:
 - types of plastic waste generated
 - plastic waste management practices of
 - nurses,
 - waste supervisors

Take-away #1

The increase in plastic use that the COVID-19 pandemic caused is uncertain due to lack of baseline data.

Recommendation

Estimate or conduct quantitative assessment by waste audits (costly!).

Take-away #2

There is no off-taker for general plastic waste generated at HCFs and end-of-life treatment capacity for infectious waste is insufficient.

Recommendation

Pilot studies and trainings on enhanced segregation of general waste to ensure off-take by recyclers.

Take away #3

There is a difference in the unit cost of healthcare and municipal waste management.

Recommendation

A study to understand market challenges with recycling general waste originating at HCFs.

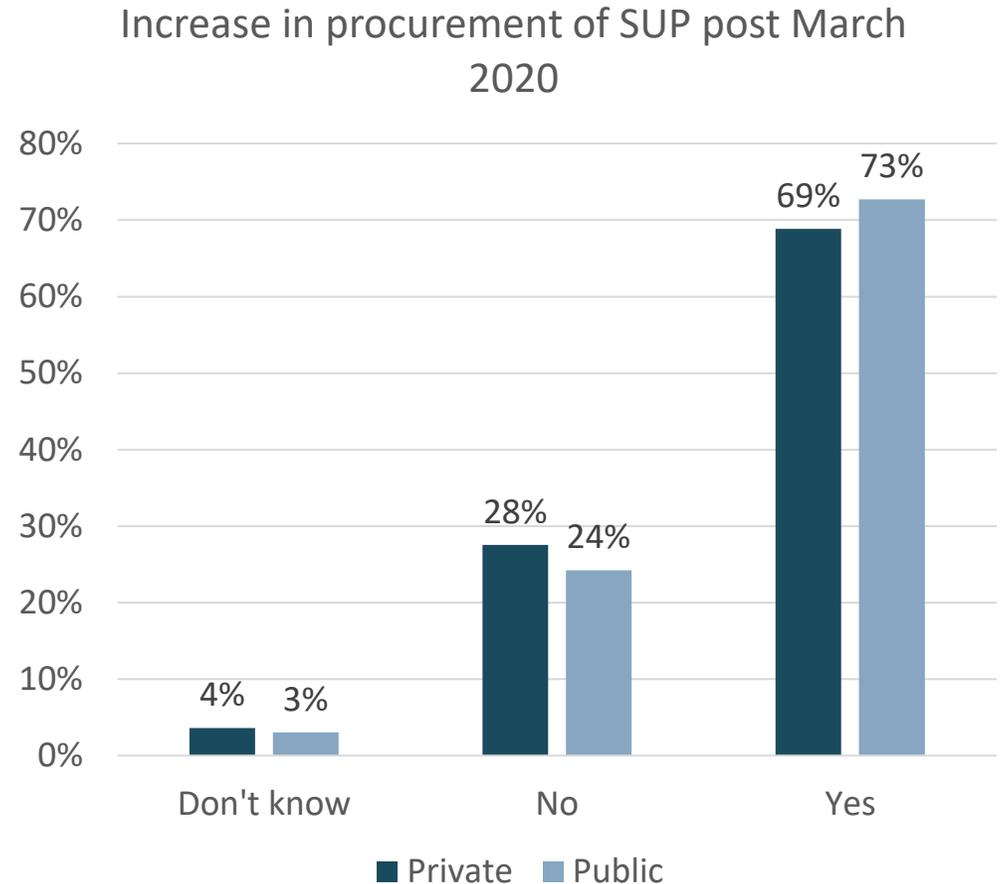
Take-away #1

The increase in plastic use that the COVID-19 pandemic caused is uncertain due to lack of baseline data.

Recommendation

Estimate or conduct quantitative assessment by waste audits (costly!).

Evidence



67% of the interviewed nurses reported that their **requisition for plastic products increased since the COVID-19 pandemic**

Take-away #2

There is no off-taker for general plastic waste generated at HCFs and end-of-life treatment capacity for infectious waste is insufficient.

Recommendation

Pilot studies and trainings on enhanced segregation of general waste to ensure off-take by recyclers.

Evidence

There are only 3 incinerators available in Lagos. Their capacity is not sufficient to meet the demand, and most waste is deposited at non sanitary landfills (dumpsites).



Incinerator at Sura, Simson transfer loading station, Lagos



incinerator at Marini, Oshodi, Lagos

The registered solid waste recyclers, do not source recyclable waste from healthcare facilities to avoid contact with infectious materials.

Take away #3

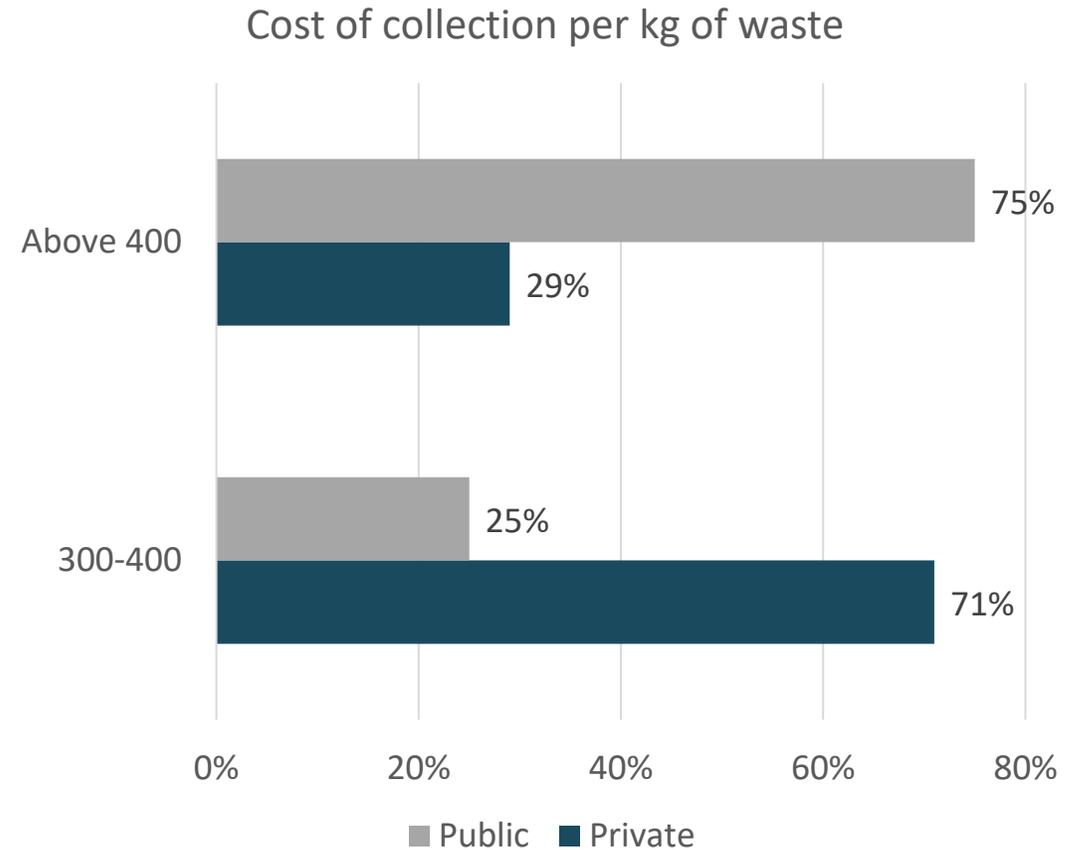
There is a difference in the unit cost of healthcare and municipal waste management.

Recommendation

A study to understand market challenges with recycling (at least general) waste originating at HCFs

Evidence

The average collection cost per kg of waste charged by the PSP operators is N400/kg of waste. This includes bagged waste and sharps boxes.



* The Government pays LAWMA directly for waste collection in public HCFs - the public HCFs may not be reporting their costs accurately.

Our team



**Joseph
Ese Akpokodje**
TTL
Senior Environmental
Specialist (ENB)

Ljupka Arsova
Co-TTL
Investment
Officer
(IFC)

Ozgul Calicioglu
Co-TTL
Environmental
Engineer (ENB)

**James
Michelsen**
Senior Industry
Specialist (IFC)



**Alexander
Larionov**
Operations Officer
(IFC)

**Omezikam Eze
Onuoha**
Consultant (ENB)

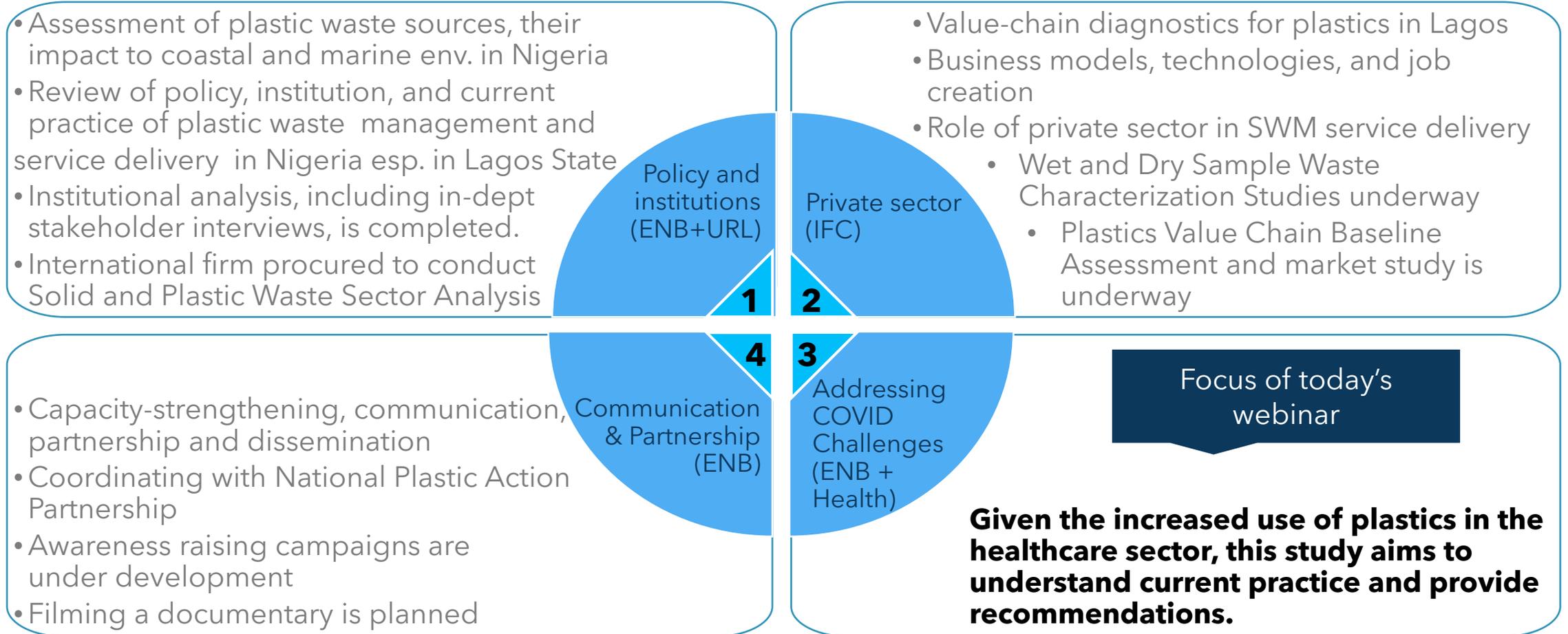
**Ginikachi Adanne
Kalu**
Consultant (ENB)

Benan Berhan
Consultant
(ENB)

Kelechi Amaefule
Consultant (ENB)

- **Ruma Tavorath**
Senior Environmental Specialist
- **Onoriode Ezire**
Senior Health Specialist
- **Etienne Raffi Kechichian**
Senior Private Sector Specialist
- **Dario Quaranta**
Senior Advisor
- **Gregor Herda**
Consultant
- **David Maleki**
Environmental Specialist (ENB)
- **Oznur Oguz Kuntasal**
Senior Environmental Specialist (ENB)

PROBLUE activities aim Reducing Marine Plastic Pollution and Creating Plastic Recycling Market in Lagos State, Nigeria (USD 950 000)



Future prospects: How to ensure momentum in solid waste and plastics agenda in Nigeria



Thank you for your
participation.

Özgül Calicioglu,
Environmental Engineer
ocalicioglu@worldbank.org



Take-away

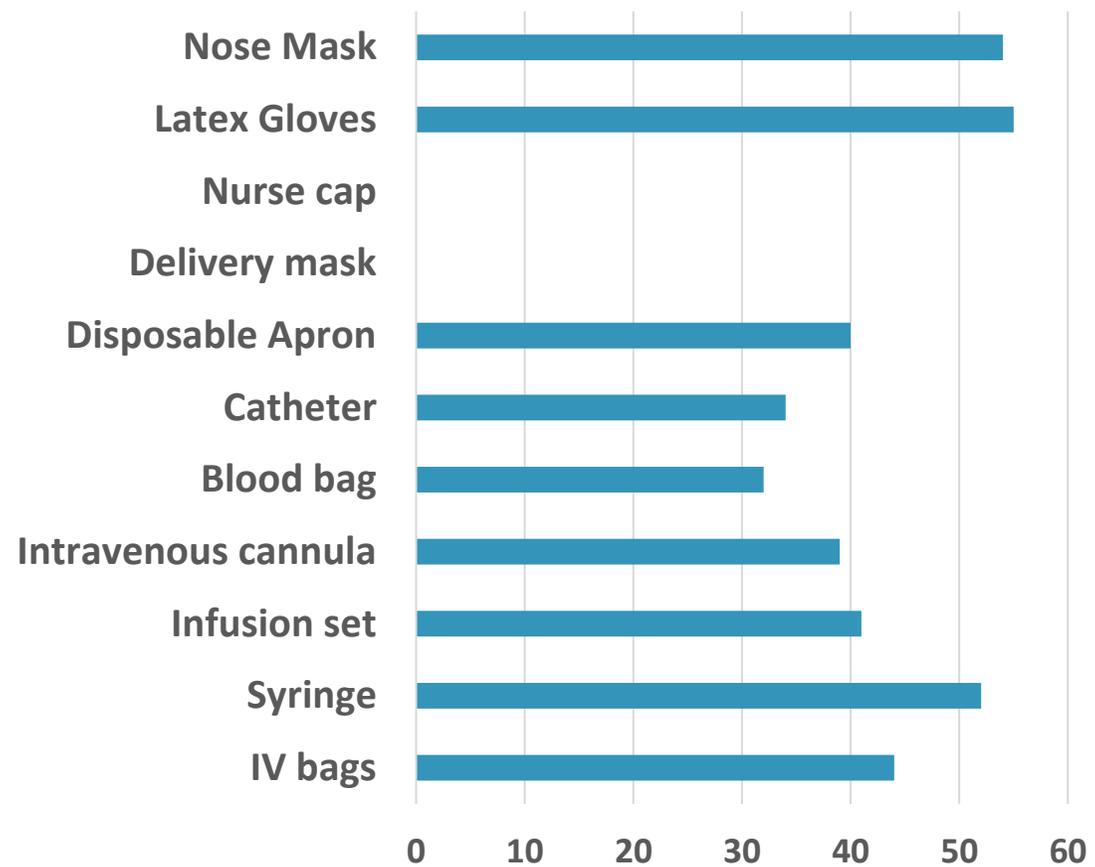
Healthcare waste is relatively homogeneous as a potential feedstock for recycling.

Recommendation

With quantitative data, explore the market potential to recycle (at least general) waste originating at HCFs.

Evidence

Types of Plastic Waste Generated in HCFs



Number of HCFs facilities that indicate they use this type of product

Take away

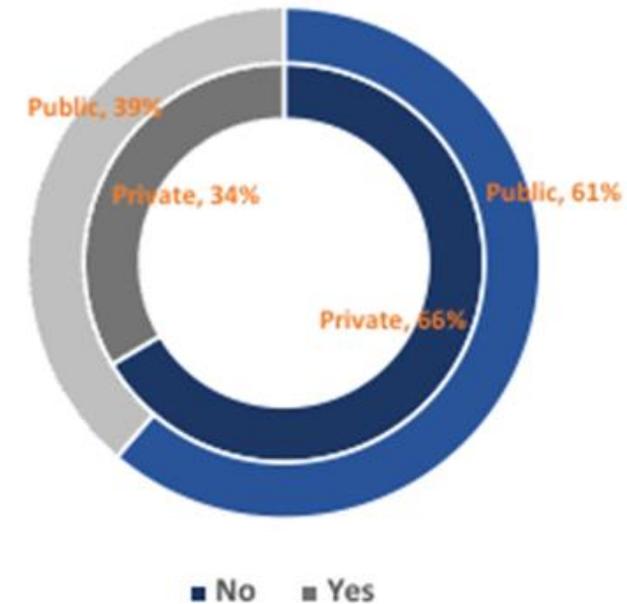
There is a discrepancy between the theory and practice of segregating general plastic waste.

Recommendation

Update the National Policy on Healthcare Waste Management (2013).

Evidence

Number of HCFs that dispose plastic waste with other waste
(Public vs. Private HCFs)



Observations during visit show that **none of the facilities segregate plastic waste** from other wastes, **but 68% of the interviewed nurses reported that their facilities segregate/separate the plastic waste** from other wastes.