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
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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 RECOVERED

81% of solid waste MISMANAGED

**61.2 million** TONNES OF MUNICIPAL SOLID WASTE in 2021

**318,000-840,000** TONNES OF MARINE PLASTIC DEBRIS IN 2021

Lagos in **comparison** with its peers

**Nigeria: MSW volumes on par with other major economies**

<table>
<thead>
<tr>
<th></th>
<th>Nigeria</th>
<th>Egypt</th>
<th>Brazil</th>
<th>Russia</th>
<th>Germany</th>
<th>Indonesia</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total MSW volume in million tonnes p.a.</td>
<td>61.2</td>
<td>60</td>
<td>78</td>
<td>55-60</td>
<td>50.2</td>
<td>31.13</td>
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**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 recycled

Context

Nigeria: the 9th largest contributor to marine plastic debris

**Nigeria:** MSW volumes on par with other major economies

**Lagos State:** A crucial leverage point to tackle solid waste
Section 1: Problem Statement

Dumpsites in Lagos are reaching full capacities.

- **Largest dumping site in Nigeria** at 42.7ha, receiving 40% of Lagos' municipal, construction and e-waste.
  - 16 years operating life remaining (LSDP)
  - 2019 announcement to decommission due to encroaching development (not implemented)
  - Employs 1,000 waste pickers, 500 registered with Waste Pickers Association Lagos
  - Accumulated 24.5MMT since opening in 1992
  - Hosts CER accredited WtE plant

- **Solous II** at 7.8 hectares
- **Solous III** at 5 hectares
  - both with 1 year operating life remaining (LSDP)
  - also marked for decommissioning in 2019 though not implemented
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.
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.

<table>
<thead>
<tr>
<th>Cost of collection per kg of waste</th>
<th>Public</th>
<th>Private</th>
<th>71%</th>
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<tbody>
<tr>
<td>Above 400</td>
<td>75%</td>
<td>29%</td>
<td>300-400</td>
</tr>
<tr>
<td>300-400</td>
<td>25%</td>
<td>71%</td>
<td>75%</td>
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* The Government pays LAWMA directly for waste collection in public HCFs - the public HCFs may not be reporting their costs accurately.
Our team

- **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)

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

- Assessment of plastic waste sources, their impact to coastal and marine env. in Nigeria
- Review of policy, institution, and current practice of plastic waste management and service delivery in Nigeria esp. in Lagos State
- Institutional analysis, including in-dept stakeholder interviews, is completed.
- International firm procured to conduct Solid and Plastic Waste Sector Analysis

- Value-chain diagnostics for plastics in Lagos
- Business models, technologies, and job creation
- Role of private sector in SWM service delivery
  - Wet and Dry Sample Waste Characterization Studies underway
  - Plastics Value Chain Baseline Assessment and market study is underway

- Capacity-strengthening, communication, partnership and dissemination
- Coordinating with National Plastic Action Partnership
- Awareness raising campaigns are under development
- Filming a documentary is planned

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

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

**Recommendation**

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

- Public, 39%
- Private, 34%

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**.