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Measuring Volumes of GTC Waste in Kenya: What do we need to scale up?

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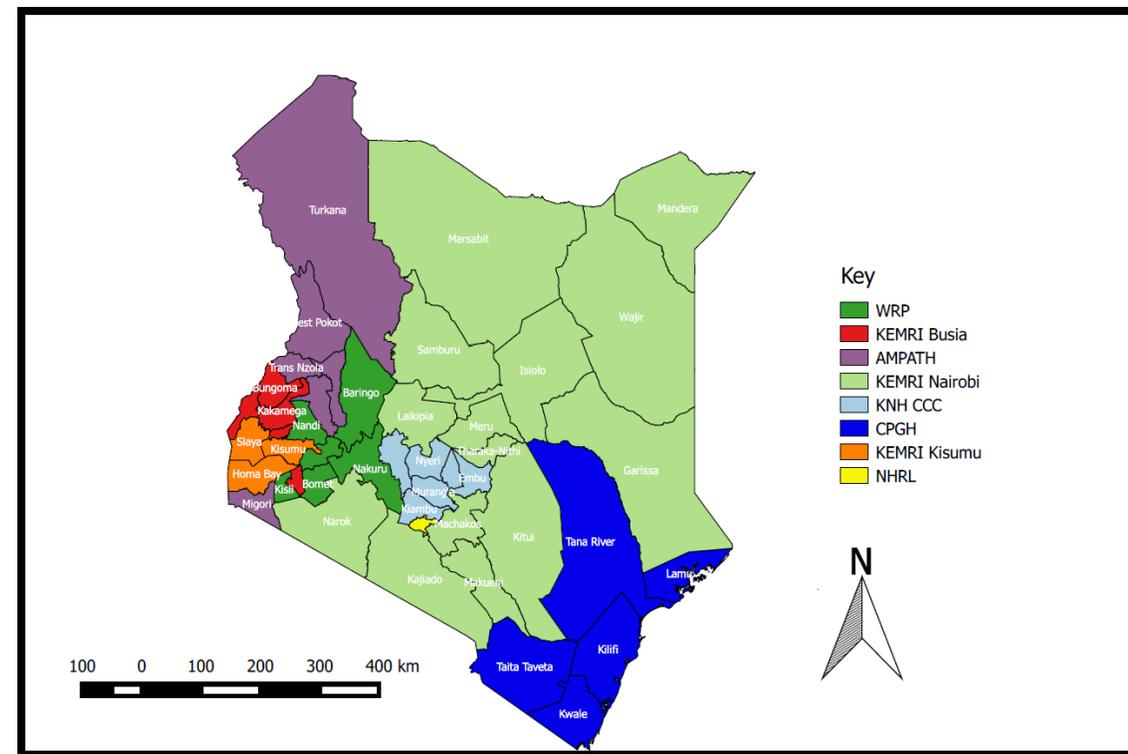




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Introduction

- Molecular diagnostics produce potentially hazardous chemical waste containing Guanidinium thiocyanate (GTC)
- Kenya generates a significant amount of waste containing GTC due to its large testing volumes
- Guideline has been developed to inform proper disposal
- Collaborative project was initiated to develop and utilize Waste Cost Analysis Tool and Framework



Country	Liquid GTC waste (litres)	Solid infectious waste (Kg)
Eswatini	3,892.83	22,244.76
Ethiopia	4,805.15	37,648.2
Kenya	28,484.85	200,259.48
Malawi	6,815.88	56,099.76
Zimbabwe	55,015.73	72,640.08
Total	99,014.44	2,191,162.28

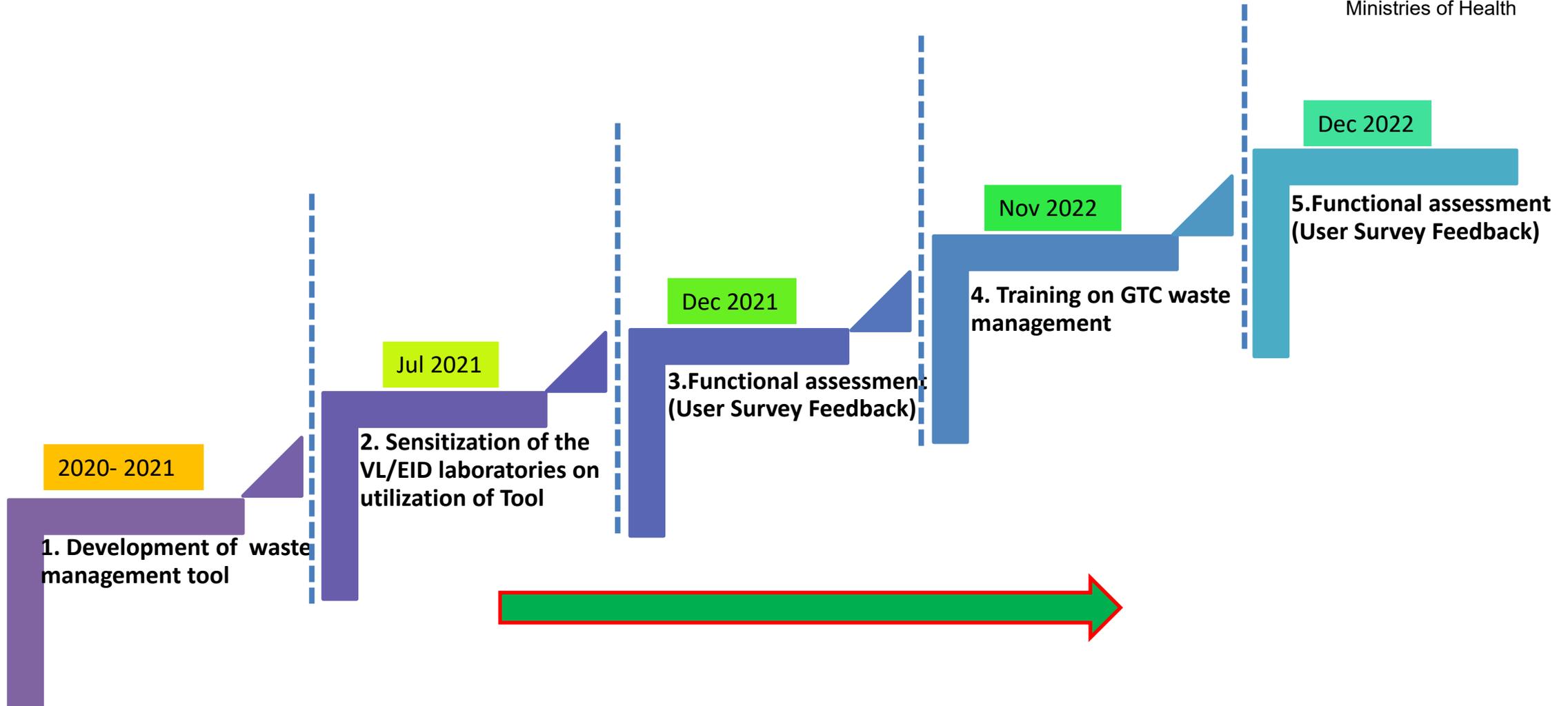
ASLM Assessment Report (2020b)



Progress GTC Waste Management Handling:2020-2022



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WCAF Checklist



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- Checklist name
 - HIV Laboratory (VL&EID) Waste Cost Analysis Framework (WCAF) (v11.0) (
- Purpose
 - Support centralized laboratories to accurately quantify solid and liquid waste from the HIV VL&EID program
- Checklist
 - VL&EID Testing volumes
 - Liquid waste volumes
 - Solid waste (kg)
 - Waste management practices and anticipated operating cost
 - Laboratory operational plan to inform COP

HIV Laboratory [VL & EID] Waste Cost Analysis Framework (v11.0)

This HIV Laboratory Waste Cost Analysis Framework provides an easy to use, tool to support centralized Laboratories to accurately forecast liquid & solid waste volumes from their HIV Viral Load and Early Infant Diagnosis Programs, enabling the estimated cost of healthcare waste management and disposal to be included within COP planning in a standardized manner.

TO BE COMPLETED BY EACH CENTRALIZED LABORATORY DIRECTOR:
Please read the Instructions for Use tab and then answer all questions shown in yellow in descending order, using the respective boxes and/or drop down menus. Where present, a red cell indicates an error in that answer, and a green cell, indicates that your inputs have been validated.

Confidentiality Note: Please do not share the details of the tool and project.

Section One

The first section of this tool enables you to provide key information regarding your laboratory and testing volumes, which will be used to generate the budget figure.

Please select the country in which your laboratory is based: **Kenya**
Please enter the name of the facility where your laboratory is based: **EDARP Donholm**

Please input your estimate of the number of each test you will deliver during the next COP cycle, into the yellow boxes below:

	Last 12 Months (Actual)	Next COP Cycle (Forecast)	Increase / Decrease	% Change
HIV EID tests run (incl. QC, repeats etc)	3,495	5,000	1,505	43.1%
HIV VL tests run (incl. QC, repeats etc)	53,299	60,000	6,701	12.6%

For each analyzer which will be deployed during the next COP cycle, please select the appropriate answers from each of the drop down menus below. If you have multiple analyzers please complete 1 column for each analyzer present for example, if you have 1 x Abbott m2000 and 2 x Roche c4800, complete 3 columns:

Centralized Laboratory Platform #	1	2	3	4	5	6	7

Costs			
Cost of recycling service for packaging waste suitable for recycling (kg)	0	KSH	
Consignment Cost	0	KSH	<i>i.e. Transport costs & documentation</i>
# of Consignments each year	0		<i>Leave blank if included in cost of disposal</i>
Total Cost of Recycling Service	-	KSH	<i>Leave blank if no consignment cost</i>
Waste Management option selected for Solid Waste Disposal	None of these options		
Cost of disposal & treatment (kg)		KSH	
Consignment Cost		KSH	<i>i.e. Transport costs & documentation</i>
# of Consignments each year			<i>Leave blank if included in cost of disposal</i>
Total Solid Waste Disposal Costs	-	KSH	<i>Leave blank if no consignment cost</i>

Section Five

The fifth section contains the information generated by this Waste Cost Analysis Framework, which you will require as part of your next COP Cycle submission.

Budget required with Next COP cycle for disposal of program waste in a standardized manner as per CDC ILB guidance: **789,783 KSH**

Exchange Rate: **0.0091** KSH to USD

Budget required with Next COP cycle for disposal of program waste in a standardized manner as per CDC ILB: \$7,278 US Dollars

Please enter this figure in your COP cycle budget submission



Assessment Approach



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Functional Assessment

- Checklist was shared by email to the VL&EID Laboratories by NPHL Biosafety office
- Filled checklist shared back laboratory directors
- NPHL shared the checklist with the CDC ILB team
- Analysis done in-country

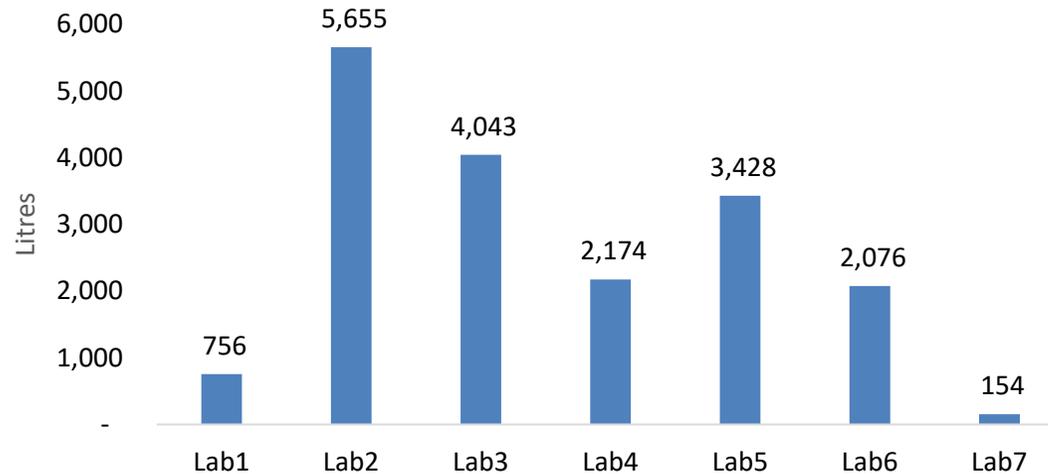




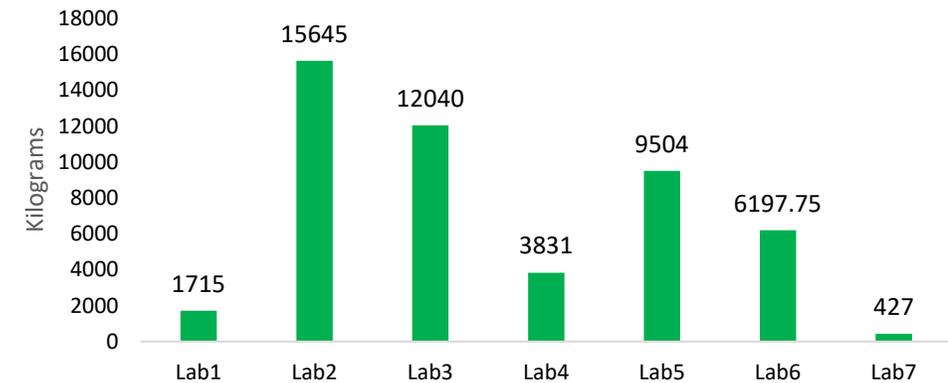
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Preliminary Analysis

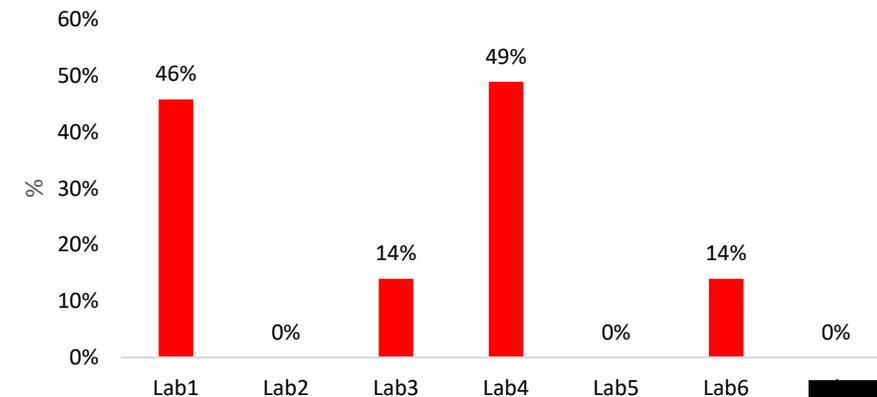
Liquid Waste for Treatment & Disposal
n=7



Total Solid Waste for Disposal
n=7



Percent Solid Waste Recycled



- A total of 7 out of 12 labs participated in the assessment
- A total of 18,285 liters and 49,360 kg of solid waste were reported by 7 labs
- Eighteen percent of all waste is recycled
- Two (28%) of laboratories and three (42%) reported High Temperature Incinerators for liquid and solid waste



Scale up plan



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Approach:

Phased approach will be necessary

- 15 Reference laboratories from 7
- POC sites

Considerations:

1.Coordination:

- TWG subcommittee on GTC waste management

2.Guideline

- Update implementation and monitoring plan in GTC waste management guideline
- Incorporate reporting to MoH-Biosafety

3.Capacity building

- Utilize the trained staff at National level to facilitate step down to POC sites (counties)

4.Scheduled assessment

- Part of the laboratory biorisk assessment



Areas of improvement



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- Add Alinity M equipment
- Delete the Roche CAPCTM
- Work with country to have a lab specific and National dashboard for tracking
- Scheduled feedback from CDC ILB after survey feedback
- Targeted resensitization of the laboratories



Challenges



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1. Delay in completing checklist and analysis

- Tool to be available online e.g. through ODK for ease of filling and prompt analysis
- Follow-up emails & phone calls

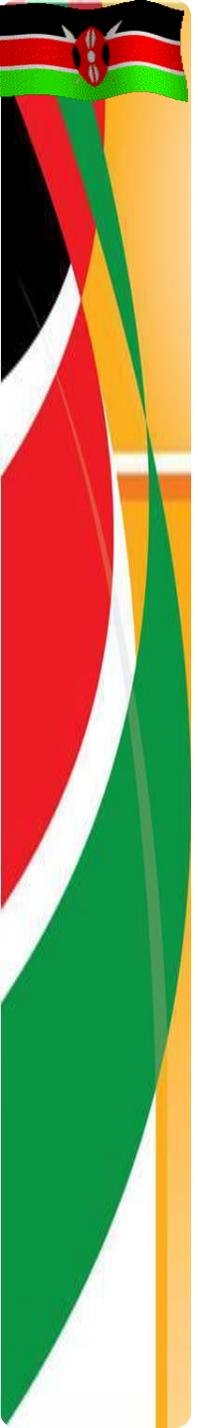
2. Incomplete checklists submitted

- Planned sensitization of lab managers/biosafety officers

3 Impact not felt

4 Resources for GTC waste management





Acknowledgment:

- MoH, DNLS
- VL/EID Testing Laboratories
- ASLM
- Roche
- CDC
- USAID
- DOD/USAMRU
- Amref Health Africa



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Thanks

