USAID | DELIVER PROJECT Tools Used to Strengthen LMIS in Countries Where JSI Operates

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Director, Public Health Supply Chains Systems Strengthening
What is the USAID | DELIVER PROJECT?

The project works in more than 30 countries to increase the availability of essential health supplies to clients.

The project does this by—

• strengthening national and international supply chains
• ensuring transparent and cost-effective procurement and delivery
• creating more supportive national policy environments
• increasing coordination and commitment for commodity financing
• leveraging local resources
• enhancing the availability and use of information

Funded by the U.S. Agency for International Development and administered by John Snow, Inc.
Current challenges with paper-based LMIS

- Aggregation and Access to data is slow and cumbersome
- Continuous printing and distribution of the tools
- Arithmetic errors in data reported
- Limited Analytics
- Long lead time
- Challenge in sending reports from one level to the next
- A majority of the processes are manual
- Errors in transcribing and reading illegible handwriting

Arithmetic errors in data reported
The solution – eLMIS:

- An integrated data repository where all R&R data (and other routine logistics data) can be entered.
- An analytical tool which can process the raw data for decision-making.
- A predefined and custom reporting tool for administrators, managers, policy- and other decision-makers.
- Technical interfaces for use in exchanging data with other MOHSW / MOH approved MIS solutions.
- Improving availability of health commodities at SDPs.
Benefits of Computerizing the Logistics System

Why eLMIS?
- Faster, easier, and more accurate reporting of data
- Better data visibility for managers
- Better decisions regarding stock levels
- Reduced stockouts
- Better health outcomes

Benefits of eLMIS
- Generates cost savings by eliminating books and couriers
- Simplifies data gathering, reporting, and authorization through commodity integration
- Improves data quality and timeliness
- Increases accountability by improving data visibility to managers
- Reduces workload for health facility staff
- Provides access to real-time and historical data for more informed decision-making
- Can adapt to changes in existing and future logistics systems
- Developed to interface with other e-tools supporting health initiatives
Currently there are 3 primary eLMIS systems that have been implemented and are being used:

<table>
<thead>
<tr>
<th>Implemented Country</th>
<th>TZM</th>
<th>HCMIS</th>
<th>vLMIS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tanzania / Zambia</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ethiopia</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pakistan</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Core Functionality

<table>
<thead>
<tr>
<th></th>
<th>TZM</th>
<th>HCMIS</th>
<th>vLMIS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Procurement</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Product Selection</td>
<td>N/A</td>
<td>N/A</td>
<td>*</td>
</tr>
<tr>
<td>Forecasting</td>
<td>X</td>
<td>X</td>
<td>*</td>
</tr>
<tr>
<td>Order Placement</td>
<td>**</td>
<td>N/A</td>
<td>*</td>
</tr>
<tr>
<td>Vendor Performance</td>
<td>N/A</td>
<td>N/A</td>
<td>*</td>
</tr>
</tbody>
</table>

### Warehouse Inventory Management

<table>
<thead>
<tr>
<th></th>
<th>TZM</th>
<th>HCMIS</th>
<th>vLMIS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Warehouse Procedures</td>
<td></td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>LMIS</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Inventory Control</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Product Quality Control</td>
<td></td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

**Legend:**
- *eLMIS is used to perform procurement functions through pipeline software*
- **Export of order data to ERP/WMS system for fulfillment**
<table>
<thead>
<tr>
<th>Implemented Country</th>
<th>TZM</th>
<th>HCMIS</th>
<th>vLMIS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Tanzania / Zambia</td>
<td>Ethiopia</td>
<td>Pakistan</td>
</tr>
<tr>
<td>Core Functionality</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Distribution / Transportation</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Distribution Planning</td>
<td></td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Order Tracking</td>
<td></td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Consumption Reporting</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Customizable requisition approval workflow</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Email and SMS Alerts</td>
<td></td>
<td></td>
<td>X</td>
</tr>
</tbody>
</table>
A Closer Look: Tanzania / Zambia (TZM)

The Ministry of Health TZ:
- Operates at least 4 Vertical programs to deliver services to public health facilities
- Uses quarterly report and request forms to gather information from public health facilities
- Approximately 6000+ facilities
- Distribution of medical supplies is handled by a Medical Stores Department (MSD) which has a central hub and depots in nine zones.

Ministry of Health ZM:
- Operates at least 4 Vertical programs to deliver services to public health facilities
- Receives monthly report and requisition forms to gather information from public health facilities
- Approximately 2000+ facilities
- Distribution of medical supplies is handled by Medical Stores Limited (MSL)

**Business processes:**
Requisition, Order Processing, Receiving, Inventory Management, Dispensing & Forecasting
What are TZM eLMIS and OpenLMIS?

**TZM eLMIS**
Electronic Logistics Management Information System developed by Zambia MOH and Tanzania MOHSW
- Collaborative Requirements Development Methodology
- OpenLMIS code with additional features & customizations for Tanzania and Zambia
- New code released as open source
- Requirements, software development, deployment, training and support

**OpenLMIS**
Collaboration among multiple donors and partners
- Global initiative to develop shared, open-source solutions for managing medical commodity distribution in low and middle income countries
- Collaboration allows all partners to more rapidly create full-featured open-source software for use in multiple countries
- Partners include Rockefeller Foundation, Bill and Melinda Gates Foundation, USAID, UN Commission on Life-Saving Commodities, UNICEF, PATH, ThoughtWorks, JSI, VillageReach
Slide of System Functionality (Business Process categories)

- Requisition
- Order Processing
- Receiving
- Inventory Management
- Dispensing
- Treatment
- Forecasting
- Supply Planning
Overview of TZM eLMIS Features

- GIS
- Reporting Dashboard
- Stakeholder Access
- Warehouse Orders and Shipments
- SMS Text Data
- Laboratory Equipment Management
- Web Based Data Entry and Data Uploads
- Stakeholder Access
Login with Facility/Supervisor Account

Site Address:
http://uat.tz.elmis-dev.org/

User Name: manager
Password: Admin123

Sign in

Forgot password?
Admin Menu Related to Equipment Asset Management

Welcome to Electronic Logistics Information Systems

- Home
- Requisitions
- Equipment Inventory
- Administration

- Equipment Types
- Equipment List
- Service Types
- Service Vendors
- Service Contracts
- Donors
<table>
<thead>
<tr>
<th>#</th>
<th>Code</th>
<th>Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>LAB</td>
<td>Analyzer, Laboratory</td>
</tr>
<tr>
<td>2</td>
<td>ANS</td>
<td>Anesthesia Unit</td>
</tr>
<tr>
<td>3</td>
<td>emonc</td>
<td>EMoNC Equipment</td>
</tr>
<tr>
<td>4</td>
<td>Code-001</td>
<td>Name-001</td>
</tr>
<tr>
<td>5</td>
<td>002</td>
<td>Equipment</td>
</tr>
<tr>
<td>6</td>
<td>0013</td>
<td>Equipment5</td>
</tr>
<tr>
<td>7</td>
<td>001</td>
<td>Equipma</td>
</tr>
</tbody>
</table>
### Associate Equipment with Equipment Type

**Table: Manage Equipments**

<table>
<thead>
<tr>
<th>#</th>
<th>Code</th>
<th>Name</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>003</td>
<td>Anaesthesia Unit</td>
<td>ANS</td>
</tr>
<tr>
<td>2</td>
<td>002</td>
<td>CD16 Counter</td>
<td>LAB</td>
</tr>
<tr>
<td>3</td>
<td>001</td>
<td>CD4 Counter</td>
<td>LAB</td>
</tr>
<tr>
<td>4</td>
<td>005</td>
<td>Dialysis Equipment</td>
<td>ANS</td>
</tr>
</tbody>
</table>
# | Name               | Description               
---|--------------------|---------------------------
1  | Cleanup            | Cleanup                   
2  | Change Oil         | Change Oil                
3  | Change Chemical    | Change other chemicals    
4  | Service Listing    | Type                      
5  | Services           | Chart                     
6  | Routine Maintenance| Routine Maintenance       
7  | Service            | Service                   
8  | Service Type       | Service Type              

Add/Update Service Types
<table>
<thead>
<tr>
<th>#</th>
<th>Name</th>
<th>Primary Phone</th>
<th>Email</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Kiolo Refrigerator services</td>
<td>202-123-1233</td>
<td><a href="mailto:kibi@refrigerator.com">kibi@refrigerator.com</a></td>
</tr>
<tr>
<td>2</td>
<td>Xyz Inc</td>
<td>202-120-1323</td>
<td><a href="mailto:xyz@gmail.com">xyz@gmail.com</a></td>
</tr>
<tr>
<td>3</td>
<td>xyz inc</td>
<td>202-120-1323</td>
<td><a href="mailto:xyz@gmail.com">xyz@gmail.com</a></td>
</tr>
</tbody>
</table>
Vendor Detail and Vendor Login Accounts

Edit Vendor

Name
Kilolo Refrigerator Services

Website

Description
Provide service for all kinds of refrigerators.

Phone Number
202-123-1233

Email
kib@refrigerator.com

Specialization
Refrigerators

Geographic Coverage
All over Tanzania, provide 24 hour a day service.

Associated Users

<table>
<thead>
<tr>
<th>Username</th>
<th>Full Name</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>vendor</td>
<td>Service Vendor</td>
<td>Remove</td>
</tr>
</tbody>
</table>

Vendors who were given access to the website to login and respond to the service request/repair ticket.
<table>
<thead>
<tr>
<th>#</th>
<th>Contract #</th>
<th>Description</th>
<th>Coverage</th>
<th>Start Date</th>
<th>End Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>dsfa</td>
<td>dfdd</td>
<td>ffdF</td>
<td>2014-06-04</td>
<td>2014-06-11</td>
</tr>
<tr>
<td>2</td>
<td>Contract 1</td>
<td>This contract is to maintain the refrigerators at</td>
<td>All over</td>
<td>2015-07-05</td>
<td>2015-01-01</td>
</tr>
<tr>
<td></td>
<td></td>
<td>the sites in described</td>
<td>Tanzania</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Service Contract Details

#### Edit Service Contract

<table>
<thead>
<tr>
<th>Vendor</th>
<th>Kilolo Refrigerator services</th>
</tr>
</thead>
<tbody>
<tr>
<td>Identifier</td>
<td>Contract 1</td>
</tr>
<tr>
<td>Start Date</td>
<td>07/05/2015</td>
</tr>
<tr>
<td>End Date</td>
<td>01/01/2015</td>
</tr>
<tr>
<td>Description</td>
<td>This contract is to maintain the refrigerators at the sites in described</td>
</tr>
<tr>
<td>Terms</td>
<td>On call service provided, with a weekly site visit</td>
</tr>
<tr>
<td>Coverage</td>
<td>All over Tanzania</td>
</tr>
<tr>
<td>Contract Date</td>
<td>07/05/2015</td>
</tr>
</tbody>
</table>

**Service Types**
- Change Chemical
- Change Oil
- Cleanup
- Routine Maintenance
- Service
- Service Listing
- Services
- Service Type

**Equipments Covered**
- Anesthesia Unit
- CD16 Counter
- CD4 Counter
- Dialysis Equipment
equip
equip
- Equipment101
- Equipment101
- Examination Bed
- HIV Drugs
- ICU
- Nameis-001

**Facilities Covered**
- D00033 - Kilolo
- DM250210 - Chinyanghuku
- DM610002 - Bahi HC
- DM610003 - Chiroro HC
- DM610004 - Chipango
- DM610005 - Handali HC
- DM610006 - Handi
- DM610007 - Mpwayungu

*Could be a long list if facilities*
<table>
<thead>
<tr>
<th>#</th>
<th>Code</th>
<th>Short Name</th>
<th>Long Name</th>
<th>Donation Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>USAID</td>
<td></td>
<td>United States Agency for International Development</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>UNICEF</td>
<td></td>
<td>UNICEF</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>WHO</td>
<td></td>
<td>WHO</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>101</td>
<td>Donor</td>
<td>Practice Donor</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>da</td>
<td>duh</td>
<td>grgdasfa</td>
<td></td>
</tr>
</tbody>
</table>
### Facility to Manage their Equipment and Request Service

#### Manage Equipment Inventory

<table>
<thead>
<tr>
<th>Equipment</th>
<th>Manufacturer</th>
<th>Model</th>
<th>Source of Fund</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anesthesia Unit</td>
<td>Test</td>
<td>Test</td>
<td>Test</td>
<td>Request Service</td>
</tr>
</tbody>
</table>
Edit Equipment

Facility: Bombo Referral

Equipment: Anostia Unit
Status: Fully Operational
Manufacturer Name: Test
Primary Donor: UNICEF
Purchase Price: 2342342
Energy Source: Electricity
Has Service Contract

Name of Assessor: The Name

Is Active (Not De-commissioned)
Replacement Recommended

Model: Test
Serial Number: Test
Source Of Fund: Test
Year of Installation: 1999
End Date of Service Contract
Date last Assessed: 06/02/2014
Decommission Date

Reason For Replacement

[Save] [Cancel]
Maintenance Request Form

This form can be used to request maintenance for the equipment you selected. The requests will be automatically forwarded to the service contract holder (if any).

Equipment: *Anesthesia Unit*

Model: Test

Serial Number: Test

Maintenance Service Vendor

- Kilolo Refrigerator services

Reason for requesting maintenance

Recommended Maintenance Visit Date

Other Comments

Vendor with service contract for this equipment
## Equipment Maintenance Log

**Equipment History**

Equipment: **Anesthesia Unit**

Model: Test

Serial Number: Test

<table>
<thead>
<tr>
<th>Date</th>
<th>Status</th>
<th>Remark</th>
</tr>
</thead>
<tbody>
<tr>
<td>2014-10-07</td>
<td>maintenance - Please come and fix the broken piece of item.</td>
<td>Test</td>
</tr>
<tr>
<td>2014-10-07</td>
<td>request  - Please come and fix the broken piece of item.</td>
<td>Thanking you much.</td>
</tr>
</tbody>
</table>
Vendor Interface
Site Address:
http://uat.tz.elmis-dev.org/

Sign In

vendor

.........

vendor123

Sign in

Forgot password?
Vendor Login

Site Address:
http://uat.tz.elmis-dev.org/

Electronic Logistics Management Information Systems

Sign In

vendor

........

Sign in

Forgot password?
Welcome to the Vendor Interface of the Electronic Logistics Management Information Systems.

Vendor menu choices:
- Maintenance Requests
- Service Contracts
## Interface to View Service Request/Repair Tickets

These are maintenance requests that have been received in the system. Please register vendors response for each request.

<table>
<thead>
<tr>
<th>#</th>
<th>Facility</th>
<th>Equipment</th>
<th>Request Date</th>
<th>Reason</th>
<th>Recommended Date</th>
<th>Actions</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Bitare</td>
<td>Anesthesia Unit</td>
<td>2014-01-07</td>
<td>Charlizard</td>
<td>2015-12-07</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Consolata Ikonda</td>
<td>CD4 Counter</td>
<td>2014-21-05</td>
<td>This equipment has been acting up, we were not able to perform any test for the past 2 days.</td>
<td>2015-05-10</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Consolata Ikonda</td>
<td>Dialysis Equipment</td>
<td>2014-21-05</td>
<td>My reason is simple. This thing is not working</td>
<td>2015-05-10</td>
<td></td>
</tr>
</tbody>
</table>
WHERE WE ARE WITH eLMIS

• Trained 483 users from 95% of 167 Tanzanian District Councils on eLMIS, with
• Additional sensitization for supply chain managers in progress.
• Piloting for facility level during the next year
• Deployed eLMIS at Central level and trained all District users
• Deployed Facility Edition and provided hardware to 48 facilities in Zambia, with 100 additional facilities planned
WHERE WE ARE GOING WITH eLMIS

- Central eLMIS features being added in next version: Budget import from ERP, Rationing/seasonality calculations, Advanced User Management and Auditing, Customized R&R templates by facility, Stronger Integration with Facility Edition, enhanced GIS features

- Facility Edition features being added in next version: hub feature to report from smaller facilities to hubs; inventory management between bulk store to smaller stores with a facility

- Vaccines management module?
Critical Success Factors

- Country leadership, local ministries driving the process
  - Full engagement by Subject Matter Experts (SMEs) across the supply chain, starting at visioning and project launch
  - Participatory approach through requirements, development, UAT, implementation, and training
    - Ensures solution closely matches the need
    - Builds capacity: software development, training, support
    - Creates ownership

- Applying e-health strategy
  - Minimizes hardware and software redundancies
  - Interoperability
    - Engaging closely with existing systems (e.g. MACS, EPICOR E9, ILS Gateway)

- Collaborative Requirements Development Methodology (CRDM)
- Multi-Donor Support
- Open Source Technology
- Customizable and Adaptable to various Programs’ requirements
Thank You

deliver.jsi.com
AskDeliver@jsi.com
openlmis.org
Questions