Data Learning Protocol on DSW Reporting
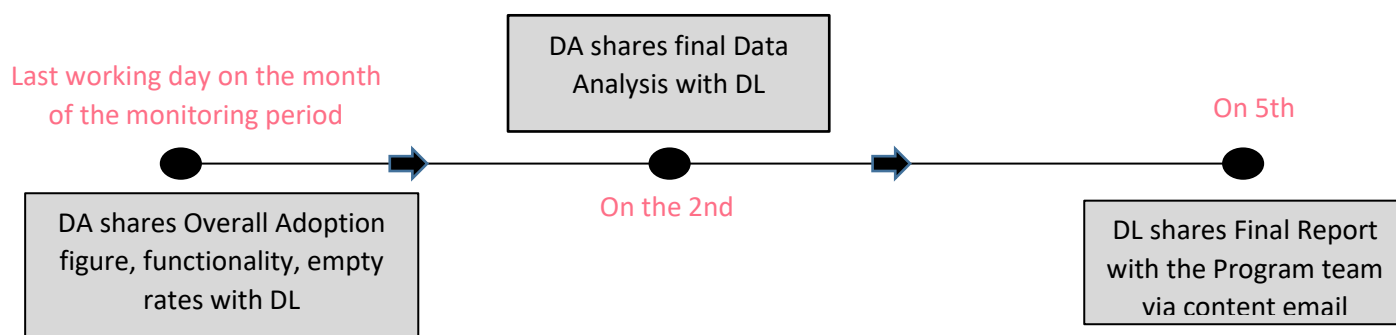
1. Introduction

Adoption is a key performance indicator of the DSW program, and is therefore closely monitored by the MLE team and the program teams. During each bi-monthly monitoring period, M&E Field Officers (FOs) visit a sample 1.5% of all dispensers across Kenya, Uganda, and Malawi, during which they visit and interview households about their knowledge and use of the chlorine dispenser.

Bi-monthly monitoring data collected in ODK by the Field Monitoring Team (FMT) flows to the Data Management (DM) team for entry and cleaning before sharing with the Data Analysis (DA) team for analysis. Once the analysis is complete, DA shares the output of the analysis with the Data Learning team (DL). DL then generates reports and disseminates the findings to the program teams in a useful, innovative and lucid way that translates analysis and research to evidence-based decision making for the DSW program.

This document, therefore, is a step-by-step guide of work processes on how reporting is bi-monthly routinely carried out to achieve efficiency, quality output, and uniformity of performance on the DSW program.

2. Timelines

- **Bi-weekly:** Bi-weekly dashboard with KPIs of adoption, functionality and non-empty rates shared with leads.
- **20th of second MP:** M&E FOs complete data collection with the submission of all collected data to the server.
- **20th of second MP to 2nd of reporting month:** Data cleaning, data analysis and generation of output tables.
- **Last working day of the second month of the MP:** DL shares an update on the overall adoption, functionality, and non-empty rates of the samples.
  - This is done via email update to program leads, coordinators, and members of DSW global.
- **5th of the reporting month** - The final report is generated and shared with the program based on the adoption reporting templates
  - This is via the monthly DSW content email
  - This is based on analysis shared by DA including Adoption *Influencer Analysis, DSW Monthly Adoption* and *t-test* reports
  - DL will work towards availing report a day or two before for internal review

Last working day on the month of the monitoring period

DA shares final Data Analysis with DL

On 5th

DA shares Overall Adoption figure, functionality, empty rates with DL

On the 2nd

DL shares Final Report with the Program team via content email

3. Folders of operation

There are different folders that are utilized during the generation of DSW Reports i.e.

- **'Analysis and Reporting' Folder:** This is where the following folders are housed:
  - **'Adoption & Diarrhea Monitoring' Folder:** This is where we get the *DSW Monthly Adoption_YYYY* Analysis report. There is one file for each program year and it is updated at the end of each MP and at the end of the year with annual figures.

Figure 1: Outline of monthly adoption for every year

- **'Adoption Influencers' Folder:** In this folder we have:
  - Folders herein are named **according to the respective Year (YYYY)** which consist of the following folders:
    - **'Output' Folder** which hosts:
      - Bimonthly **'Adoption influencer Analysis Report'** for all the countries and their respective offices. This report has 3 sections:- *Community Interview, Spot Check and Promoter.*
      - **'T-test Report'** for all the countries and their respective offices. This also shows the significance levels for the different KPI's.

Figure 2: Outline of files under the Output folder

- **'Reporting' Folder:** This folder hosts all the Bi-monthly reports:-

a) **Adoption Brief**
b) **Factsheet**

MLIS > 2. DSW > 4. Analysis & Reporting > 2. Adoption Influencers > 2019 > 04 Jul-Aug > Reporting

Name	Date modified	Type	Size
Archive	9/10/2019 4:34 PM	File folder	
Donor Program-wide Factsheet	9/18/2019 3:29 PM	Microsoft Word D...	111 KB
Donor Program-wide Factsheet	9/18/2019 3:30 PM	PDF File	322 KB
Kenya Adoption Brief Jul_Aug 2019	9/10/2019 4:44 PM	Microsoft Word D...	277 KB
Kenya Factsheet	9/10/2019 3:22 PM	Microsoft Word D...	116 KB
Kenya Factsheet	9/10/2019 4:02 PM	PDF File	391 KB
Malawi Adoption Brief Jul_Aug 2019	9/10/2019 4:50 PM	Microsoft Word D...	283 KB
Malawi Factsheet	9/10/2019 2:43 PM	Microsoft Word D...	116 KB
Malawi Factsheet	9/10/2019 4:16 PM	PDF File	390 KB
Program-wide Factsheet	9/10/2019 4:12 PM	Microsoft Word D...	113 KB
Program-wide FactSheet	9/10/2019 4:13 PM	PDF File	334 KB
Uganda Adoption Brief Jul_Aug 2019	9/10/2019 3:51 PM	Microsoft Word D...	295 KB
Uganda Factsheet	9/10/2019 2:35 PM	Microsoft Word D...	115 KB
Uganda Factsheet	9/10/2019 2:36 PM	PDF File	387 KB

Figure 3: Outline of Bi-monthly reports

- '**Templates**' Folder**:** This folder contains the following templates:
  - **Factsheet Graphs**
  - **Factsheets**
  - **Adoption Brief**
  - **Bubble generation:** This tracks the percentage increase or decrease of the different KPI's as compared to the previous monitoring period.

4. Reporting

As already highlighted above, the DL team generates 4 major forms of outputs/reports for the DSW program.

a. **Adoption Brief Report**
b. **In-country and Program-wide Factsheet Report**
c. **County Factsheets**
d. **Annual Report**
e. **Bi-weekly dashboards**

4.1 Adoption Brief Report

This is a full detailed statistical report that gives the summary of the findings from the current monitoring exercise for each country.

It is divided into sections:

4.1.1 Introduction
This outlines the brief introduction of the report.

4.1.2 Summary of key results
On this section, key summary of results from the current monitoring exercise as compared to the previous one is highlighted which includes among others:

- The Adoption rate
- Promoter engagement with households
- Overall household knowledge
- Dispensers with hardware problems

4.1.3 Percentage changes in key Adoption drivers per office
This section highlights the percentage change in the key Adoption drivers in the current monitoring period vis-à-vis the previous period. This represented in form of a bubble chart which is a variation of a scatter chart. (**Figure 4)**

The bubble varies depending on:

- **Color:** Red bubble represent a percentage decrease while a green bubble represent percentage increase.
- **Size**: Bigger bubble represent bigger percentage change while a smaller bubble represent a smaller percentage change.
- **Color Intensity**: Darker color represents a bigger impact on adoption while a lighter color represent a smaller impact on adoption.

  Note:
    o   Level of significance (which has different scales as seen below) obtained from the **t-test** dictates the color intensity of the bubble. (**Figure 5**)
  *** *P-value less than or equal to 1% (0.01)*
  ** *P-value less or equal to 5% (0.05)*
  *   *P-value less or equal to 10% (0.1)*
    o   No Bubble means that that there is no percentage change in driver.

Color:	RED bubble:	Percentage **decrease** (↓) in driver in current period as compared to previous period
	GREEN bubble:	Percentage **increase** (↑) in driver in current period as compared to previous period
	NO bubble	NO percentage change in driver in current period as compared to previous period
Size:	BIGGER BUBBLE:	BIGGER percent change | smaller bubbles: smaller percent change
Color Intensity:	DARKER COLOR:	BIGGER impact on adoption | lighter color: smaller impact on adoption

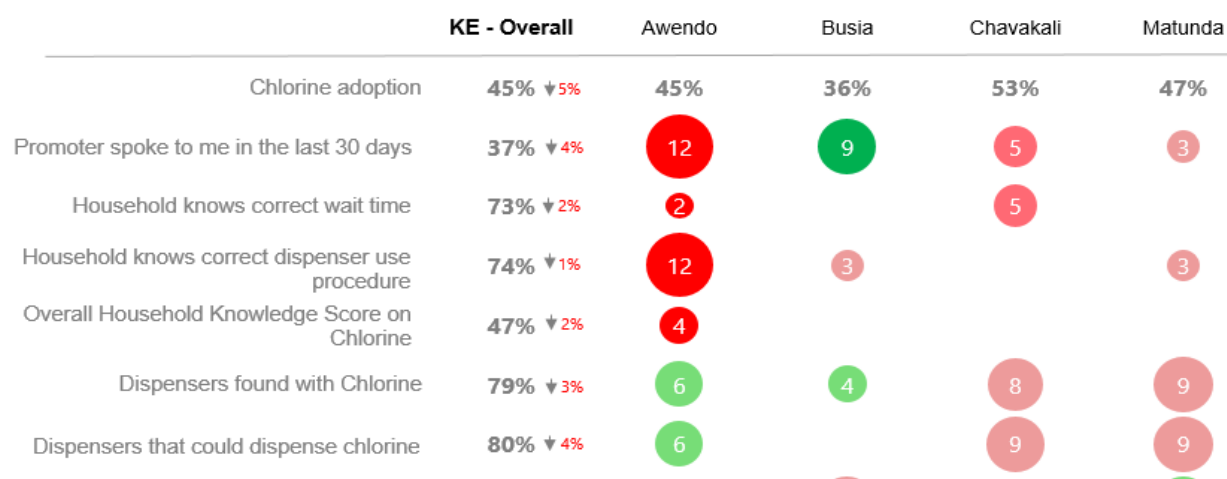|	KE - Overall	Awendo	Busia	Chavakali	Matunda
Chlorine adoption	45% ↓5%	45%	36%	53%	47%
Promoter spoke to me in the last 30 days	37% ↓4%	12	9	5	3
Household knows correct wait time	73% ↓2%	2		5	
Household knows correct dispenser use procedure	74% ↓1%	12	3		3
Overall Household Knowledge Score on Chlorine	47% ↓2%	4			
Dispensers found with Chlorine	79% ↓3%	6	4	8	9
Dispensers that could dispense chlorine	80% ↓4%	6		9	9

Figure 4: Percentage changes in Key Adoption drivers represented in a bubble chart

H23 f_x =IF(F23="","",IF(F23<0.01,"***",IF(F23<0.05,"**",IF(F23<0.1,"*",""))))

	A	B	C	D	E	F	G	H
1							% diff	Sig
2		Mean-MayJune	Mean-JulAug	N-MayJune	N-JulAug	P-value		
3	tcr_adoption	54%	69%	420	413	4.09E-06	15%	***
5	c606_prom_talked_in30days	77%	99%	420	413	7.98E-23	22%	***
9	correct_wait	81%	83%	420	413	5.47E-01	2%	
10	correct_procedure	95%	97%	420	413	1.44E-01	2%	
11	knowledge_perc_score	56%	57%	420	413	6.98E-01	1%	
12		Mean-MayJune	Mean-JulAug	p-value	p-value	p-value		
13	disp_at_wpt	98%	100%	63	62	0.3232	2%	
14	hard_prob	2%	5%	63	62	0.3056	3%	
20	cl_in_tank	83%	87%	63	62	0.4820	4%	
21	cl_dispensed	87%	87%	63	62	0.9729	0%	
22		Mean-MayJune	Mean-JulAug	N-MayJune	N-JulAug	P-value		
23	prom_tcr_adptn	61%	95%	57	56	1.1127E-05	34%	***

Figure 5: Significance level calculation

4.1.4 Specific Hardware Problems

All sampled dispensers are checked for a range of hardware issues as part of a detailed spot check and this is broken down by office.

The hardware related issues include:
- o Tank related problems
- o Valve Related Problems

- o Nuts and Bolts
- o Casing Problems
- o Padlock Problems

On this section DL uses the:

- ○ '**Adoption Influencer Analysis**' report (Spot Check section) to determine the number of water points that were visited for the different offices during that specific monitoring period.
- ○ **'T-test'** to identify the hardware related issues for the specific offices for that monitoring period.

4.1.5 Office Level Recommendations

On this section, DL highlight the findings for each country's offices and draw recommendations for implementation by the program team.

4.1.6 Appendix

On this section, we append the detailed statistics from the current monitoring period exercise i.e. **'Adoption Influencer Analysis'** report.

4.2 Fact Sheet Report

This is an overall country's one pager report for the current monitoring period that outlines performance of the different KPI's that have been known to drive Adoption.

To come up with this report, DL uses both the **'t-test'** and **'Adoption Influencer Analysis'** reports to outline:

- ○ Total Chlorine residual rate (TCR) in sampled households
- ○ Percentage of dispensers found functional during spot-check
- ○ Percentage of dispensers with hardware problems
- ○ Percentage of households that engaged with the promoter about dispenser in past 30 days
- ○ Percentage Total TCR in community promoter water samples

This report also compares the adoption rates for the current year vis-à-vis the previous using a line graph. It also outlines key results as well as draw recommendation for implementation by the program team.

4.3 Annual Report

The annual report is a yearly one-off report that incorporates key KPIs collected per country for the year of consideration. This report provides an office level drilled down performance, across identified monitoring KPIs.

4.3.1 Data analysis

All monitoring data collected from the year's activities is included. The analysis plan is based on key identified KPIs. Community data, spot-check findings, promoter interview and supply chain data are considered. Typical output will be in an Excel file shared by the analysis team

4.3.2 Report Development

Once analysis has been shared, the report is developed by DL following the analysis plan. A general factor in this process is to include key overall KPIs. Additionally, information from the offices is included especially if an office was a noted outlier/key contributor to a noted KPI value.
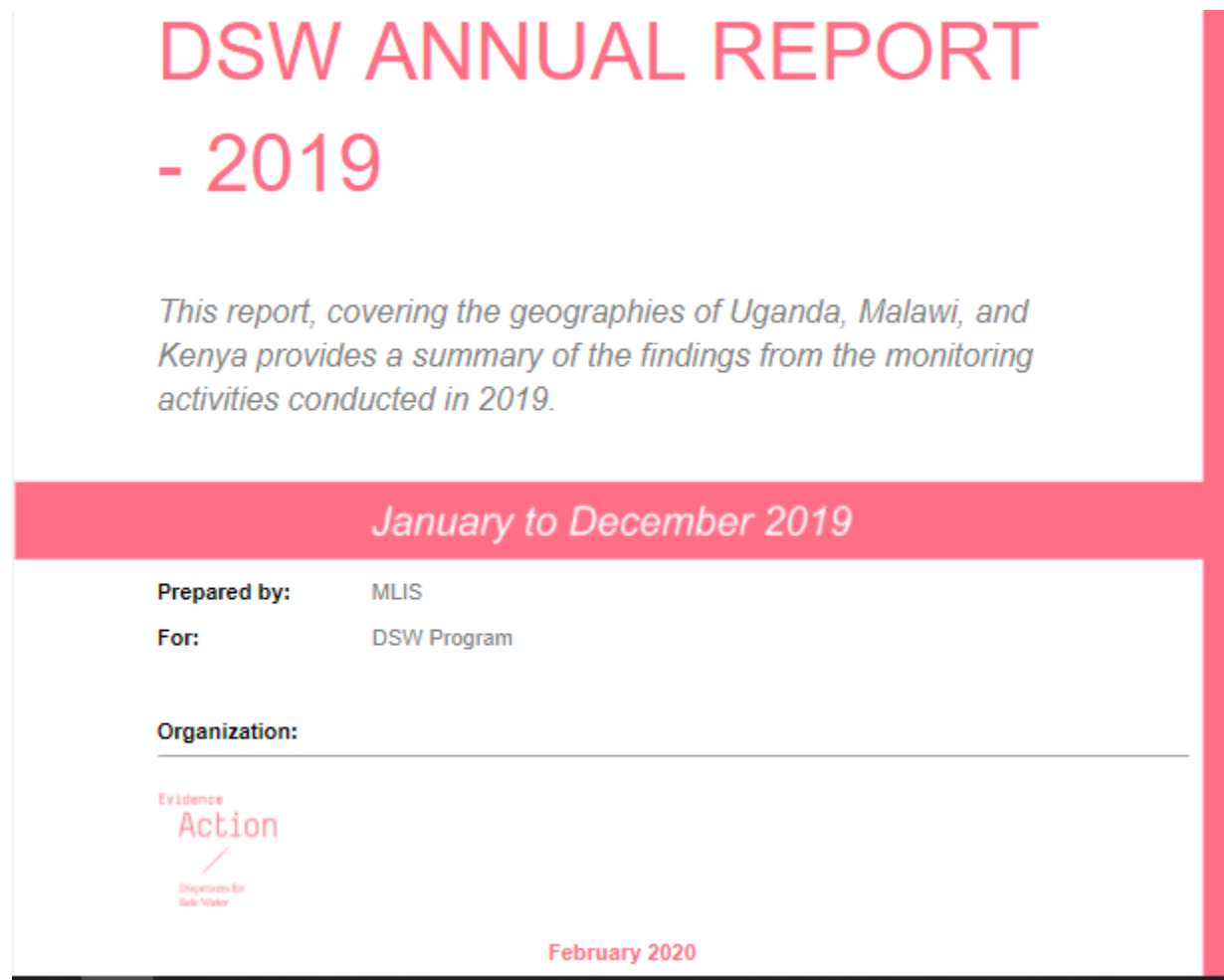

Figure 5: The 2019 Annual report. Link: https://bit.ly/2WkCRNJ

4.3.3 Timelines

The timelines are described below:

- PDA shares analysis with all KPIs as per analysis plan by the second week of January of the following year.
- A draft report is generated by DL by the end of January of the following year. This is through a Google Doc, to ensure real-time collaboration and report edit.
- Internal Review within the MLIS team to ensure accuracy, conciseness and comprehensiveness, by the second week of February.

- The report is then shared with program leads for review and comment by the end of February.
- Debrief sessions with the program leads will be held immediately after sharing the report to gain context, additional analysis or variables to remove. A powerpoint prepared and shared ahead of time will be used to guide this discussion.
- The final report is shared with the Director, Paul Byatta, by the first week of March.
- Report finalization. Comments from the program and Paul are addressed, and the report is marked final in BOX, and disseminated to program and any stakeholders that they identify.