Monitoring as an entry point for improving water supply maintenance services in Afar, Ethiopia

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Supporting water sanitation
and hygiene services for life

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Climate and water supply in Afar Region, Ethiopia

Home to highly mobile pastoralists

Arid climate and austere environment prone to recurrent drought

Low improved water source coverage (54% AWIDB report, 2010 E.C.)

Water supply is mostly deep wells (motorized boreholes), water trucking

General lack of asset management practices or data collection

Asset management for improved water supply

In partnership with the Afar National Regional State Water, Irrigation and Energy Bureau (ARWIEB)

USAID Sustainable WASH Systems Learning Partnership and USAID Lowland WASH Activity has supported operationalizing an Asset Management System (AMS) to improve the coordination and management of maintenance services

Focus on ensuring data is available, accessible and useful for operational response

Operationalising tools and processes for asset management, including establishing water supply inventory, data updating mechanisms, remote sensors and a management information system

Provide continuous capacity development for ARWIEB through trainings, learning visits and through an embedded focal person

Learning through action research

How monitoring can be effectively strengthened at different contexts and scales?

To what extent is monitoring an effective entry point to advocate for and support investment in the provision of maintenance services?

Data sources include:

- Process documentation
- Data within the Asset Management System
- Documentation of system adoption and use
- Stakeholder interviews
- Other data including budgets and expenditures at both regional and district level
- Interrupted time series study compares project activities to scheme functionality data

Asset Management System

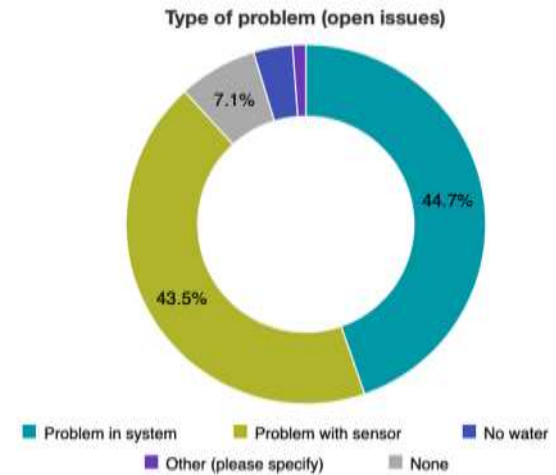Web portal and mobile app customised in mWater

Scheme inventory data accessible to technicians in the field

Integrated with sensor reports

Ticketing system for reporting issues

Mapping and customised data analysis

Data used at operational level

Type of problem (open issues)

- Problem in system
- Problem with sensor
- No water
- Other (please specify)
- None

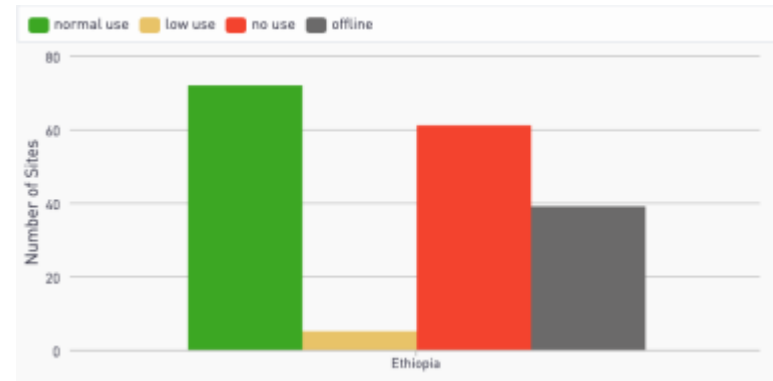# Daily reports on borehole use
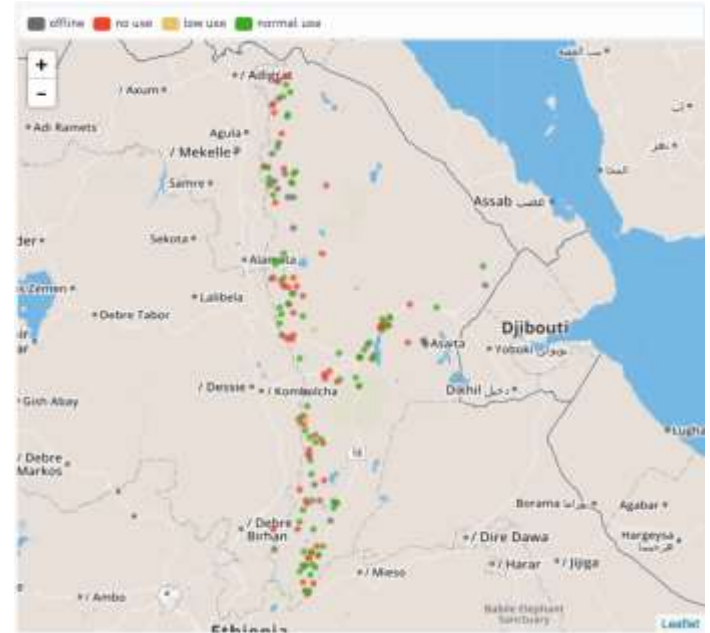
SweetSense sensors

Devices fitted to 180 boreholes

Daily reports of pump runtime

Algorithm determines an 'expert status' based on historical pumping records

Alert generated for pumps which are likely to have failed

Data informs functionality tracking and in turn O&M response activities

2019 Developments -
Significant focus on operationalizing the system

Key tasks:

- Embedded focal person began in the region to work side by side with O&M and other teams

- Continual design and feedback on system processes within the ARWIEB to utilize the system within existing structures

- Multiple trainings with management, O&M team, and Zonal Focal Persons on using the AMS application

- Review and redesign of surveys and dashboard

Documentation on system uptake and use -
Key Takeaways

Recent uptake since August's O&M training, and particularly since December following further engagement with management, is encouraging but had expected uptake sooner.

Issue tracking has been the most utilized system component with a large uptick in use since August. Issues are being documented but resolution of the issues lags significantly with very few issues being resolved to date.
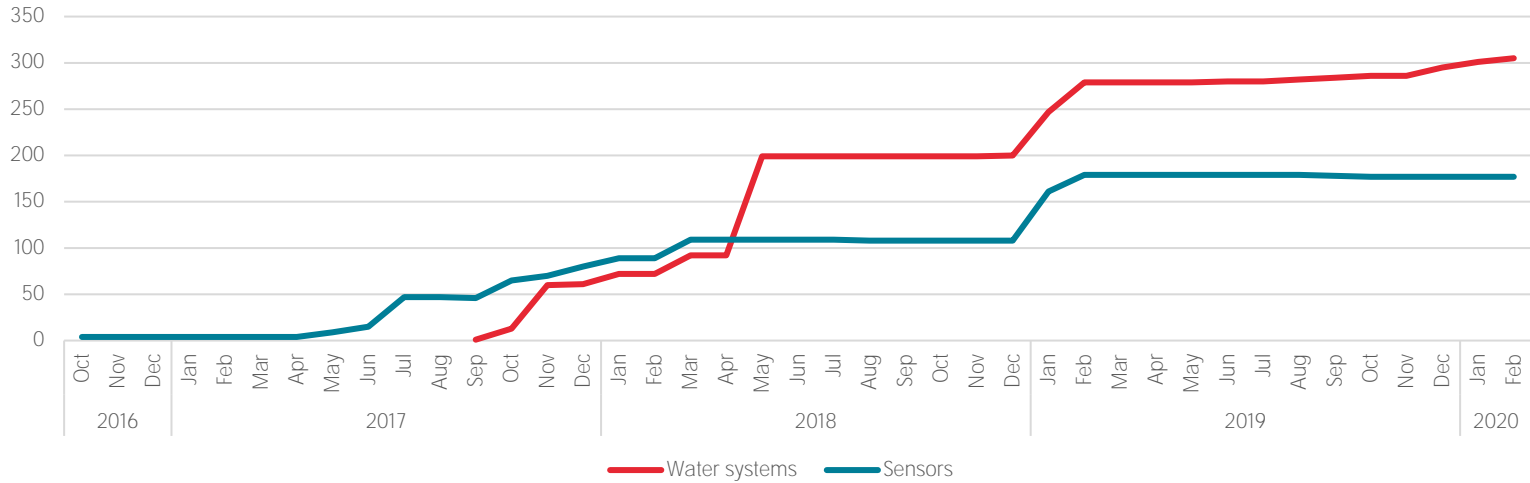
Functionality status updates increased following a Zonal Focal Person (ZFP) structure being put in place by ARWIEB management following training for the full management team in November. This structure has been key in designating responsibility for using the system, but more work is needed to improve uptake beyond the ZFPs and utilization of data.

Regional maintenance director is reporting the photos and other information captured in the system is very helpful in planning for maintenance and organizing his crew before sending them out.
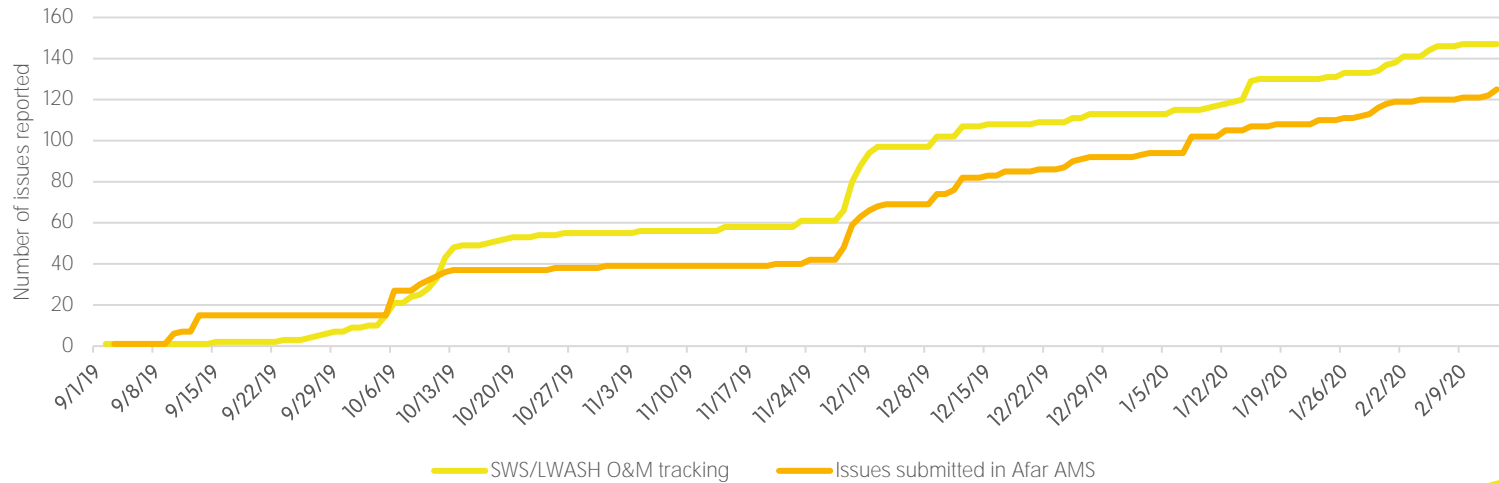
Component tracking and use of that component data is the least utilized aspect of the system with system functionality and system issues being the most used

MONITORING AS AN ENTRY POINT FOR IMPROVING WATER SUPPLY MAINTENANCE SERVICES

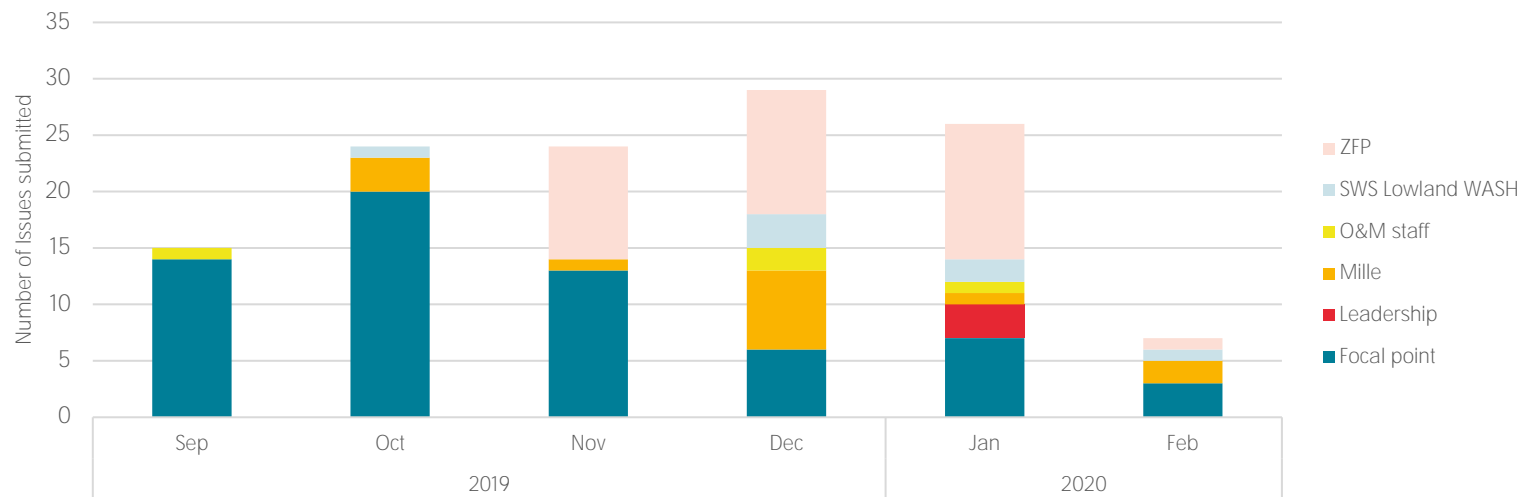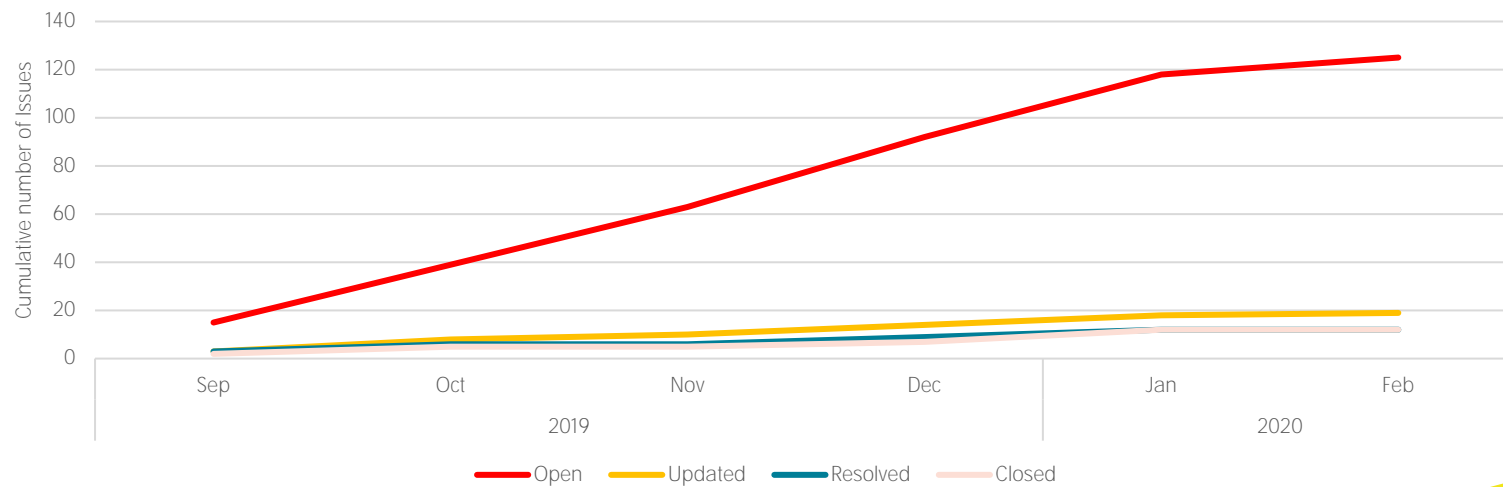## Water Systems and Daily Sensor reports added to AMS

Legend: Water systems, Sensors

O&M issues tracked and reported in AMS

Legend: SWS/LWASH O&M tracking, Issues submitted in Afar AMS

Issues submitted by AMS user groups

Legend:
- ZFP
- SWS Lowland WASH
- O&M staff
- Mille
- Leadership
- Focal point

Tracking Issue process in AMS

Legend:
- Open
- Updated
- Resolved
- Closed

Functionality and condition status updates per user group
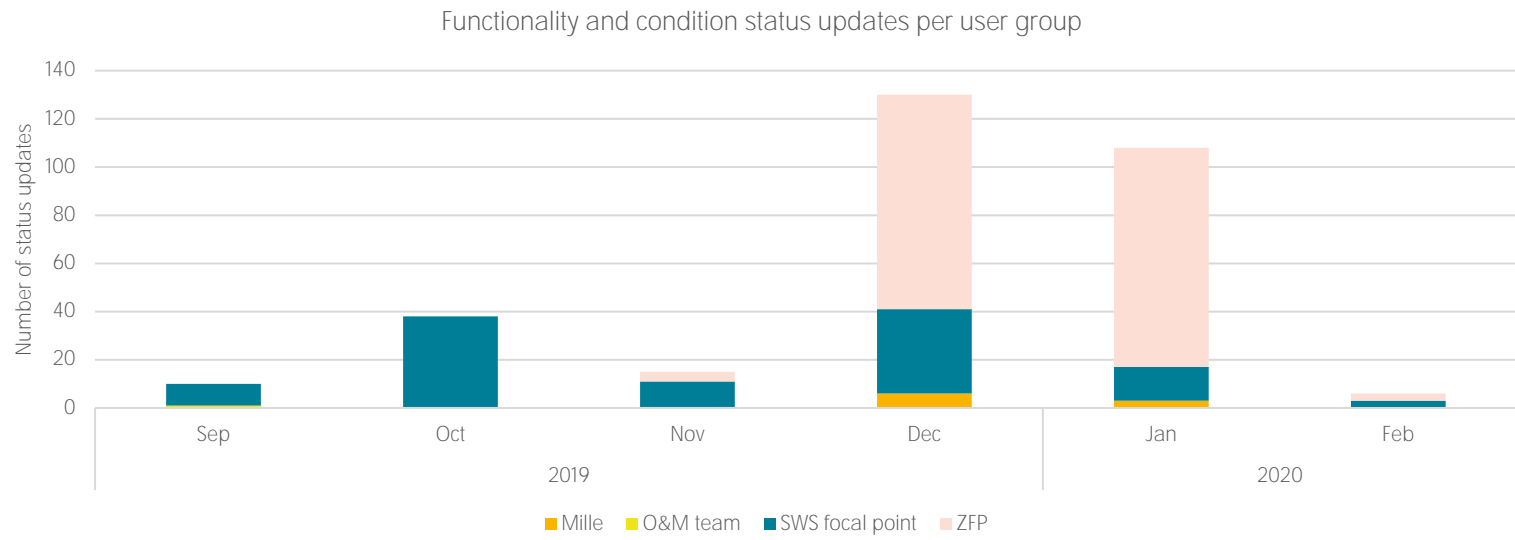
Documentation on system uptake and use –
Key Challenges

Fitting the AMS into existing processes and regional systems. Processes such as the ZFPs has helped, but items such as site approvals by IT are still not working as expected, and paper processes still drive action.

Internet speed is a challenge to accessing the dashboard but does not seem to be a huge challenge for the app.

Devices were provided by the project. Less than 50% of regional staff had smartphones and some staff that did have smartphones did not have one capable of handling the application.

More problems are systematically documented, but responding is a major challenge.

Impact on budget and expenditure

With limited use, it is a bit too early to draw firm conclusions, but so far we are not seeing major changes in financing or regional budgets. We will be working to gather more data this year to better understand this aspect and use of the system.

Additionally, more understanding of how the data can be applied to planning is needed.

Examples so far are limited to budgeting for hardware related to the system including more laptops, smartphones, and other equipment used for measuring data at boreholes.

Conclusions on monitoring as an entry point for improving water supply maintenance services

Still working to understand…

- Sensors and utilization of sensor data

- Impact on downtime

- Use of data by regional departments for planning and budgeting

- Continued learning on how the system fits into regional processes and why the O&M team is not using the system as expected

IRC

Thank you!

Special thanks to USAID Lowland WASH Activity, mWater, and other partners.

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