Project Last Mile

The Global Fund

USAID FROM THE AMERICAN PEOPLE

Bill & Melinda Gates foundation

The Coca-Cola Foundation

The Coca-Cola Company

HHL Conference July 2019

Route optimization and practical application for sustainable impact

CASE STUDY: NAMPULA PROVINCE, MOZAMBIQUE

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The problem

Project
Last Mile

MILLIONS of people in Africa lack access to critical medicines.
yet, you can get a Coca-Cola product nearly
ANYWHERE IN THE WORLD

What if we came together and shared…

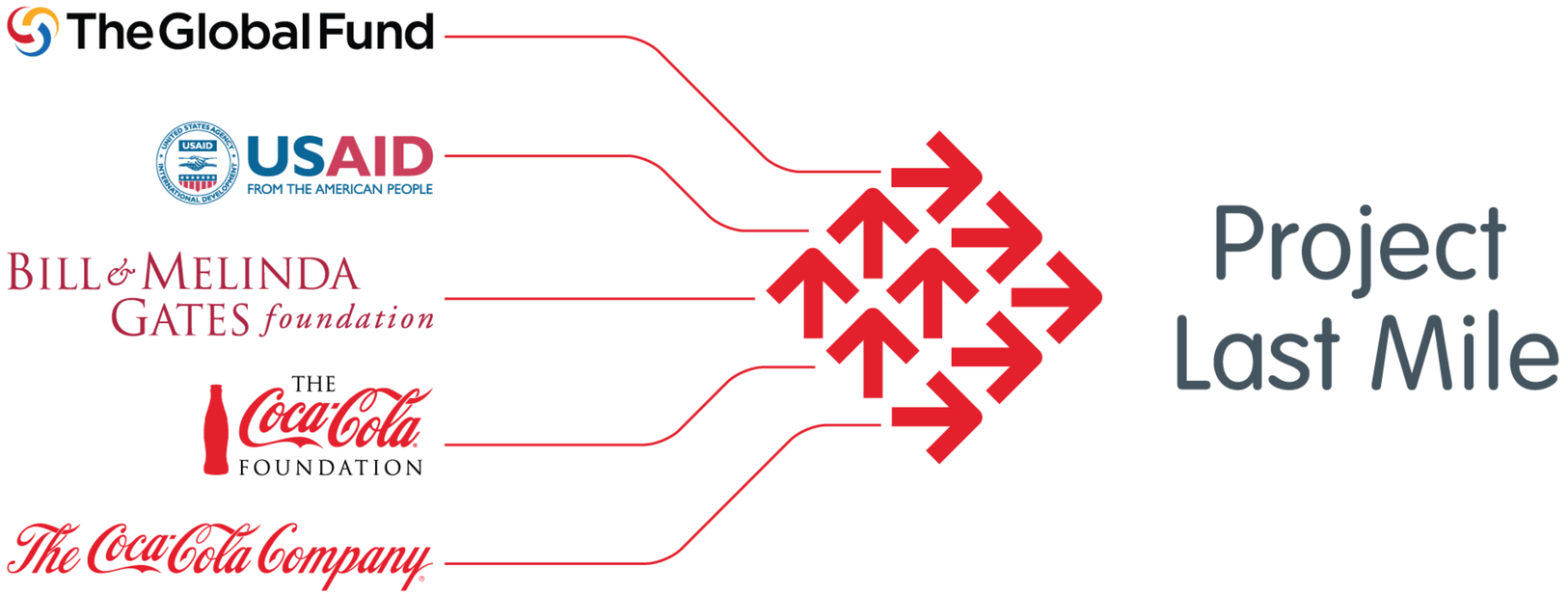
SKILLS AND IDEAS

DISTRIBUTION EXPERTISE, MARKETING SKILLS, BUSINESS BEST PRACTICES,

to help life - saving medicines go the "last mile" to those that need it most?

This is Project Last Mile

A pioneering partnership to improve the availability of life-saving medicines and the uptake of health services by sharing and leveraging the expertise of the Coca-Cola system



Partnership Summary

Project Last Mile is an innovative Golden Triangle Partnership, bringing together public, private and civil society partners to improve the availability of life-saving medicines in Africa.

Launch

Approached in 2009, Piloted 2010-2013, expansion announced June 25, 2014

Core Objectives

Improve availability of life-saving medicines and health services for people in the last mile of the health supply chain

Build health systems capacity in supply chain and marketing by sharing the expertise and network of the Coca-Cola system

Inspire broader private sector involvement through innovative cross-sector partnerships

Program Focus

- Logistics/Distribution
- Marketing
- General Business Skills
- Talent Management
- Cold Chain Equipment Maintenance

Goals

To improve health systems management and supply chain efficiencies in 10 African countries by 2020

Progress

Programs activated in 8 out of 10 countries to date

Just like any Coca-Cola product, life-saving medicines should be within reach of every person in Africa.

Mozambique

Context and Overview

Ravaged by the legacy of war, Mozambique today is ranked as the 7th poorest country in the world where a staggering 80% of the people live in poverty.

Over 70% of the population lives in rural and remote areas, often cut off from essential public infrastructure and health services.

Difficult terrain, poor infrastructure and seasonal route variations make delivering medicines to the last mile extremely challenging.

Improving distribution and storage of life-saving medicines can make big impacts in improving availability for those in need.

Mozambique

Context and Overview

In Mozambique, Project Last Mile partners with the Central de Medicamentos e Artigos Médicos (CMAM) to help advance the Strategic Plan for Pharmaceutical Logistics (PELF) through:

- Network/ Routing optimisation
- Outsourced distribution
- Logistics management capability development

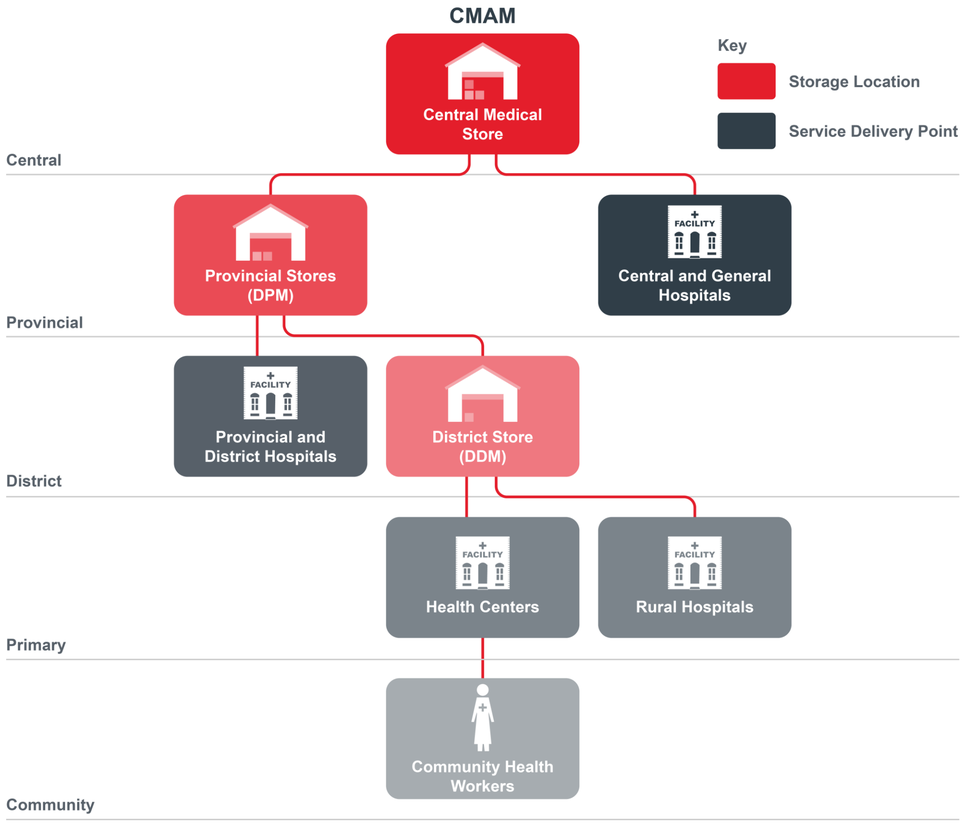
Phase One: 2016/2017
Phase Two: 2018/2020

Driving this work through designing and delivering specific approaches to insights based on private sector expertise and experiences of local Coca-Cola bottler, CCBA and strategic partners.

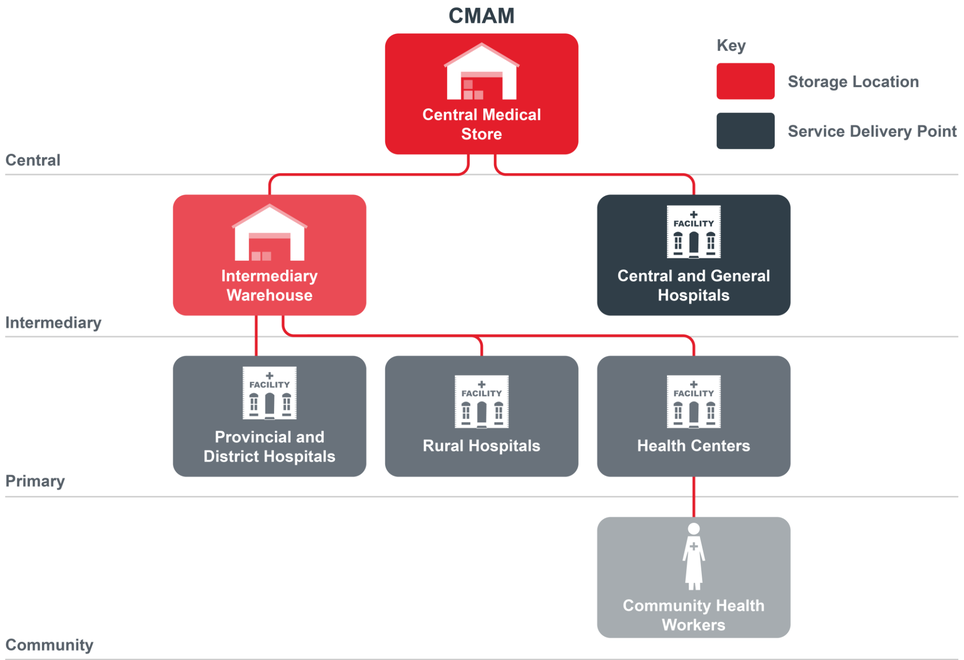
Advancing the Strategic Plan for Pharmaceutical Logistics (PELF)
Moving to IW model

PLM studies used to make a case for change by highlighting the improved efficiencies and potential cost savings by migrating from district depots to the new intermediary warehouse (IW) model.

Current Model

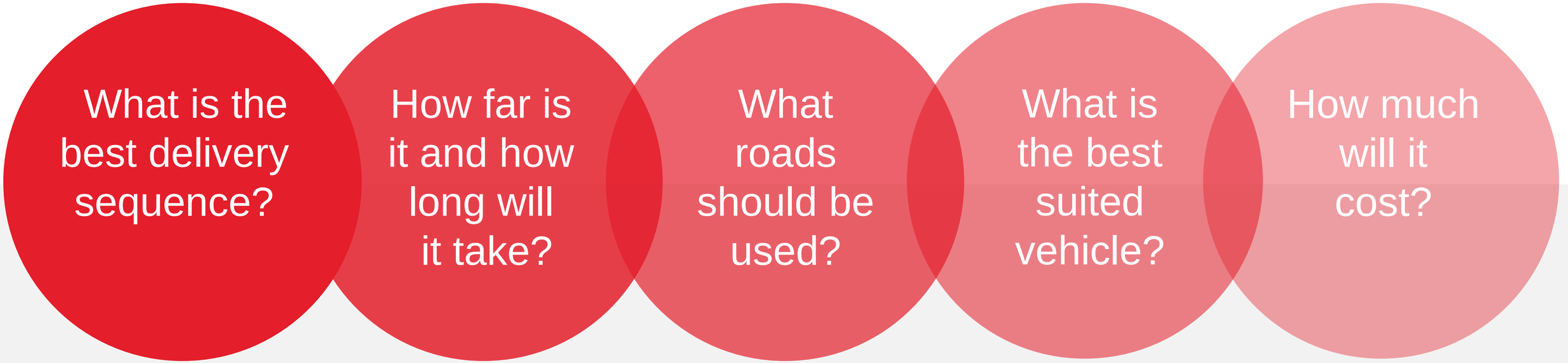


Proposed IW Model



Frequently Asked Questions

Typical challenges for delivery teams/supply chain agencies in the last mile:



Mozambique

A typical challenge for delivery teams/supply chain agencies when it comes to last mile distribution is…

The **rigid nature of routing plans**.

These tend to be set in stone and do not account for changes in:

Demand/ orders

Road conditions and accessibility

Vehicle type and availability

Delivery teams in many cases lack the **capability, tools and information** needed to optimize delivery routes **dynamically** when the changes occur.

PLM response

Good information is essential when designing a last mile distribution strategy.

We are looking to provide the required **information, tools and processes** for CMAM & partners to **improve route planning** and **make more informed decisions** on delivery of life-saving medicines to the last mile.

In Mozambique, this **process starts in the last mile**. Where the product meets the patient.

In each province, PLM conduct a 3-step process to better understand current reality on the ground and then generate optimised distribution models based on our learnings.

Step 1:
Data Capture

→

Step 2:
Setup, Mapping & Analysis

→

Step 3:
Route Optimisation

Three step process in more detail

PLM Response: Good information is essential when designing a last mile distribution strategy.

Step 1: Data Capture

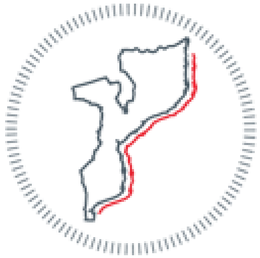
- Validated GPS coordinates for all health facilities
- High risk point of Interest locations recorded
- Accessibility Assessment through Local insight & observations
- Fleet recommendations based on accessibility and demand
- GPS tracking highlighting best roads for access and travel speed

Step 2: Setup, Mapping & Analysis

- Consolidated, checked and validated health facility data and insights
- Integration with existing stakeholder data
- Mapped and Analysed in SpatialXL
- Modified TomTom road network using GPS tracking

Step 3:Route Optimisation

- Accurate and Realistic route Optimisation Results using RouteXL



Mozambique

PLM response

Working directly with CMAM and partners, prepare a fit-for-purpose and user-friendly data set for each province for delivery teams to utilise.

Updated, consolidated master file with validated GPS locations & key health facility information.

Distribution models with territory & fleet design recommendations for both wet & dry season.

A modified, fit-for-purpose road network which prioritises the best roads for future route exercises.

Realistic and accurate time and distance matrix between all storage locations & service delivery points

Optimized distribution plans for both current & proposed IW distribution models

Expected total cost to serve for all distribution models

Good information is essential when designing a last mile distribution strategy.

Project progress

And coverage to date

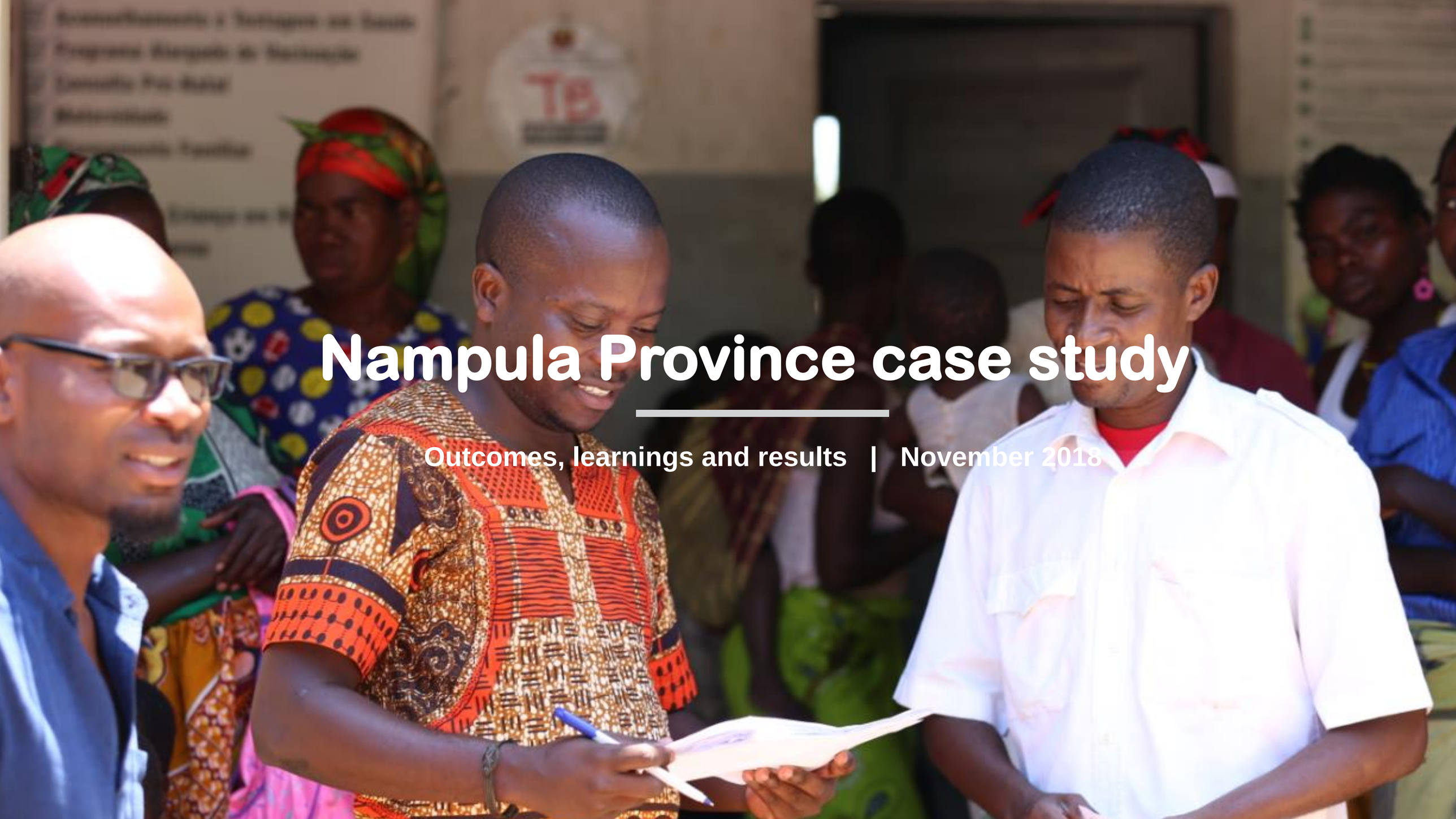
So far this has taken place in 7/ 11 provinces in Mozambique.

Currently in Manica Province and finishing off Sofala province post cyclone IDAI.

Complete

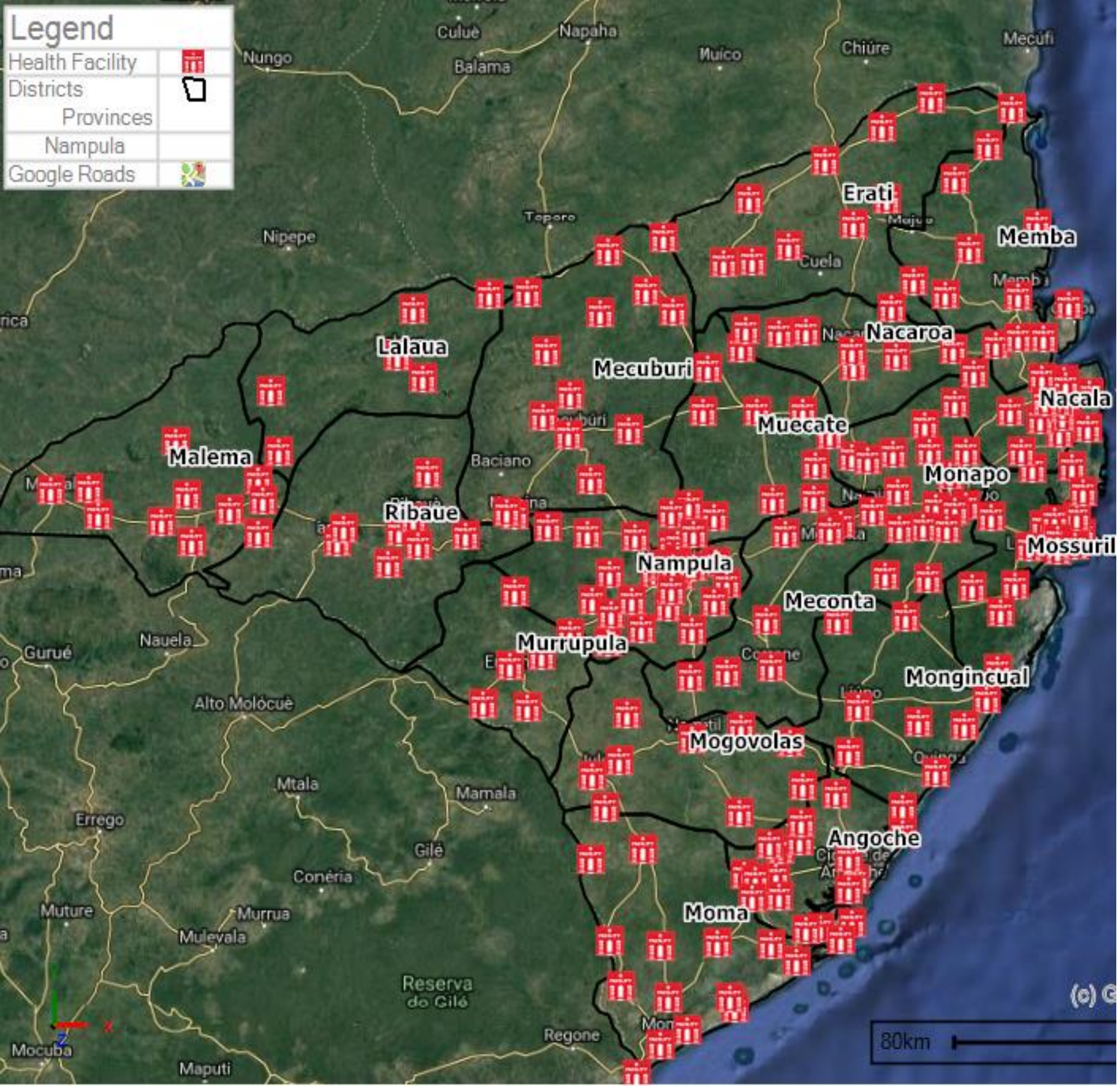
In progress

Still to come



Nampula Province case study

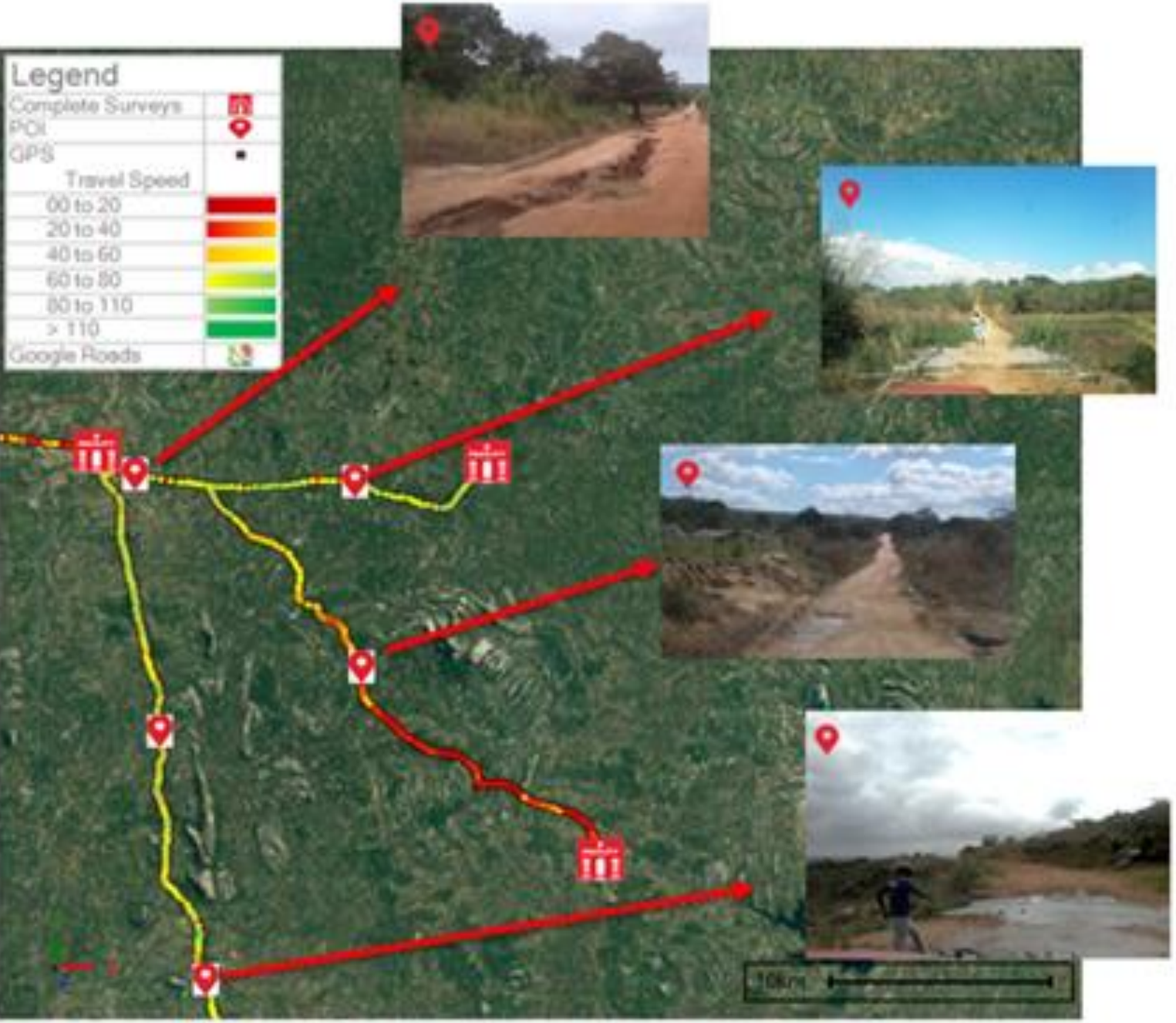
Outcomes, learnings and results | November 2018



What does the distribution environment look like in the last mile in Nampula Province?

Over a 3 month period, PLM (with MoH guides) recorded the following key data points and insights:

- **240 health facility & warehouse locations verified and geotagged**
- 260+ high risk POIs that have potential to disrupt distribution were geotagged with photos
- 20,000km + of GPS tracking data highlighting the best roads and travel speeds.



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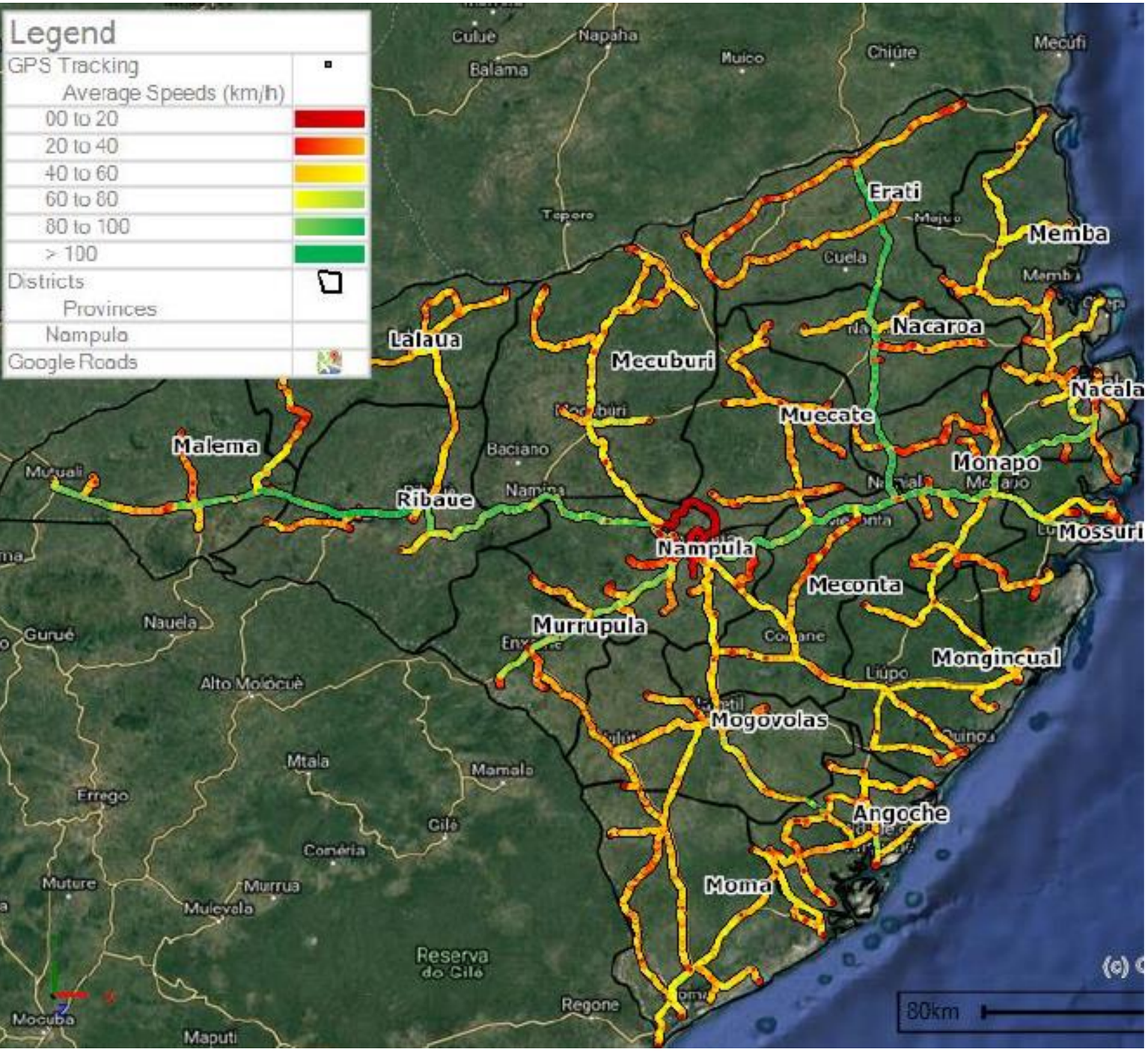

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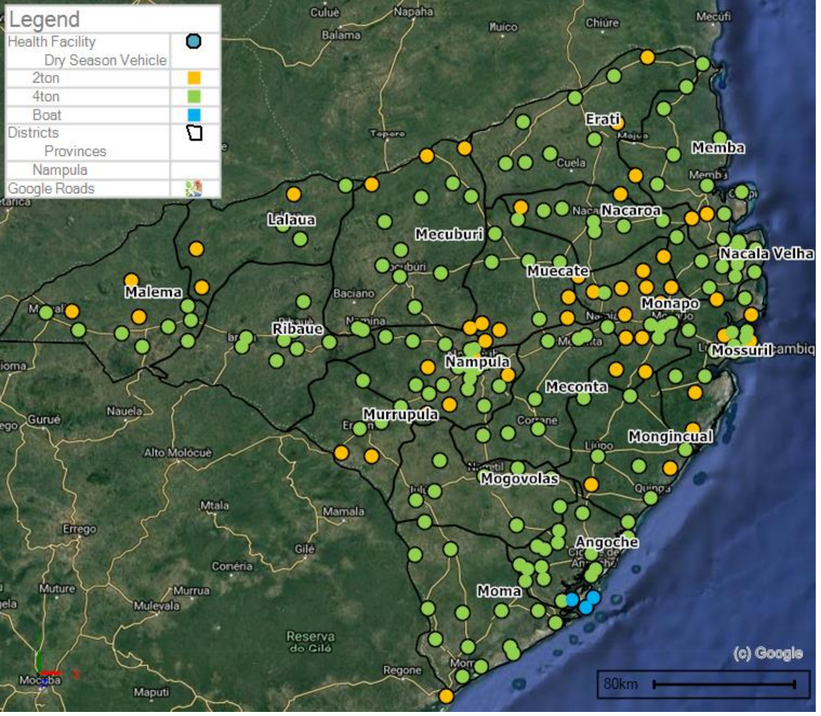
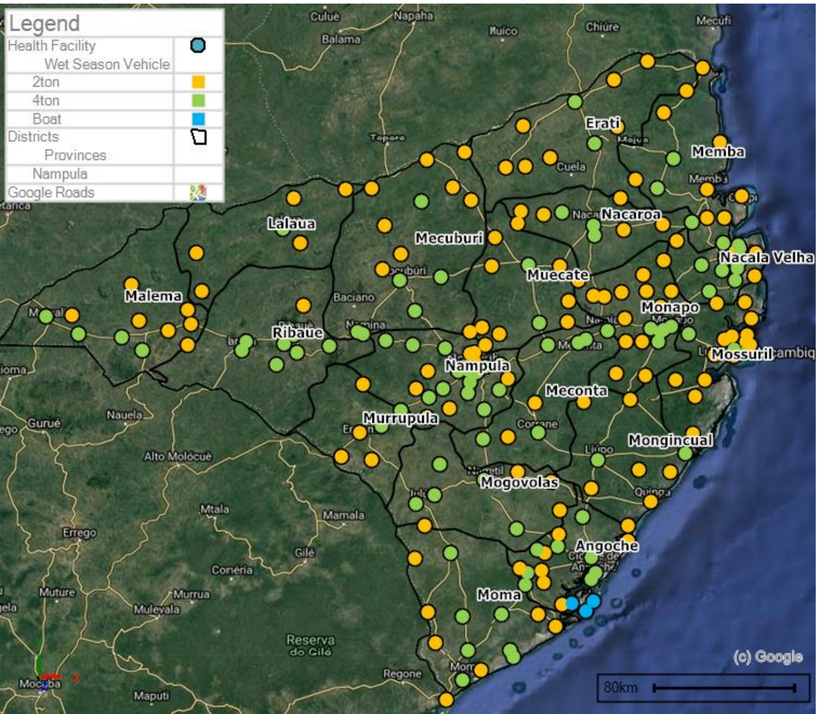




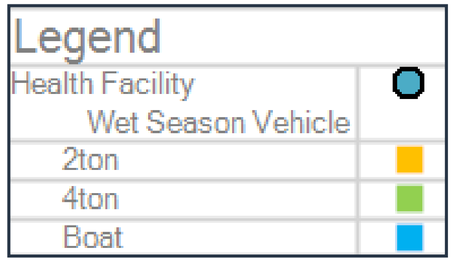
Delivery vehicle recommendations Wet Season vs. Dry Season

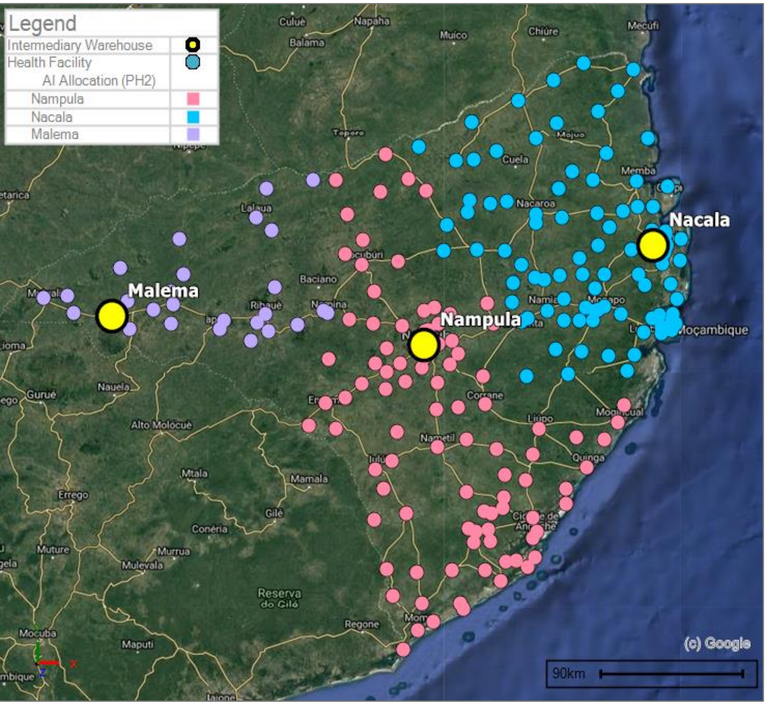
PLM recorded insights on best suited vehicles & most reliable roads to use in both wet and dry season for every health facility.

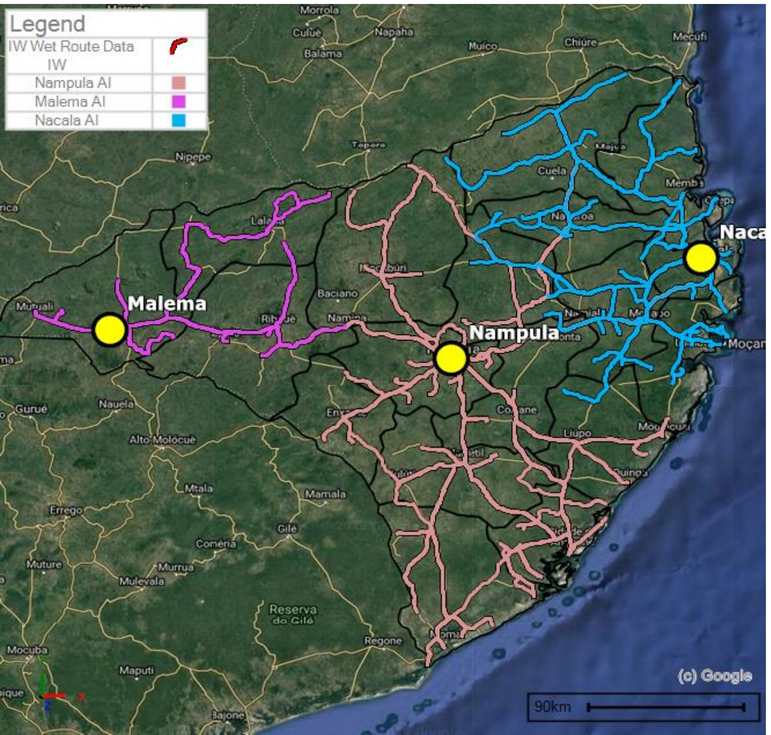
These are based on observations by the team and first hand experience in the region by our local guides from the MoH.

In Nampula we learned that:

- 45% of health facilities are accessible with **4ton vehicles all year round**.
- 52% of health facilities require **2ton vehicles** for access in the **wet season**.







Create optimised distribution plans

Quantify the required delivery vehicles, teams, days, delivery routes, distances and cost for each model for comparative analysis

Wet season vs Dry season:

We established that an additional 4 vehicles, 14 delivery days, and 2,718kms of travel are required in the **wet season** for monthly distribution

Nampula Intermediary Warehouses – Dry Season Route Summary

Intermediary Warehouse	4ton	2ton	10ton	Total Vehicles	Sum of Distance	Delivery Days/ shifts
Malema IW	1	1	0	2	3,309	11
Nacala IW	2	1	0	3	10,453	30
Nampula IW	3	2	1	6	19,636	59
Grand Total	**5**	**2**	**1**	**8**	**33,398**	**100**

Nampula Intermediary Warehouses – Wet Season Route Summary

Intermediary Warehouse	4ton	2ton	10ton	Total Vehicles	Sum of Distance	Delivery Days/ shifts
Malema IW	1	1	0	2	3856	14
Nacala IW	1	3	0	4	12544	40
Nampula IW	2	3	1	6	19716	60
Grand Total	**4**	**7**	**1**	**12**	**36,116**	**114**

Summary of results for current model vs proposed intermediary models

Nampula study shows how cost savings & improved efficiencies are possible when moving to IW model

- Fewer vehicles and delivery teams
- KM per month remaining much the same
- Greater vehicle utilization
- Improved running costs and cost per KM

Description	Current DDM Model	IW Model (Wet)	IW Model (Dry)
Total Running Cost per month	$37,686	$28,647	$26,153
Total vehicles required	21 (2ton)	12	8
Total KM per month	32,351 km	33,116 km	33,398 km
Cost per KM	$1.16	$0.79	$0.78
Average Vehicle Utilisation (10 delivery days)	5 days (50%)	9 days (97%)	9 days (91%)

Other outcomes and learnings from the Nampula study

All data sets shared with CMAM & partners to be used as a **baseline for future modelling, routing and costing exercises** in the province.

Identified improved efficiencies & cost savings by exploring **alternative warehouse locations & cross provincial boundary distribution**.

The **route accessibility ratings** & **high risk POI locations** to assist in managing risk during wet season distribution.

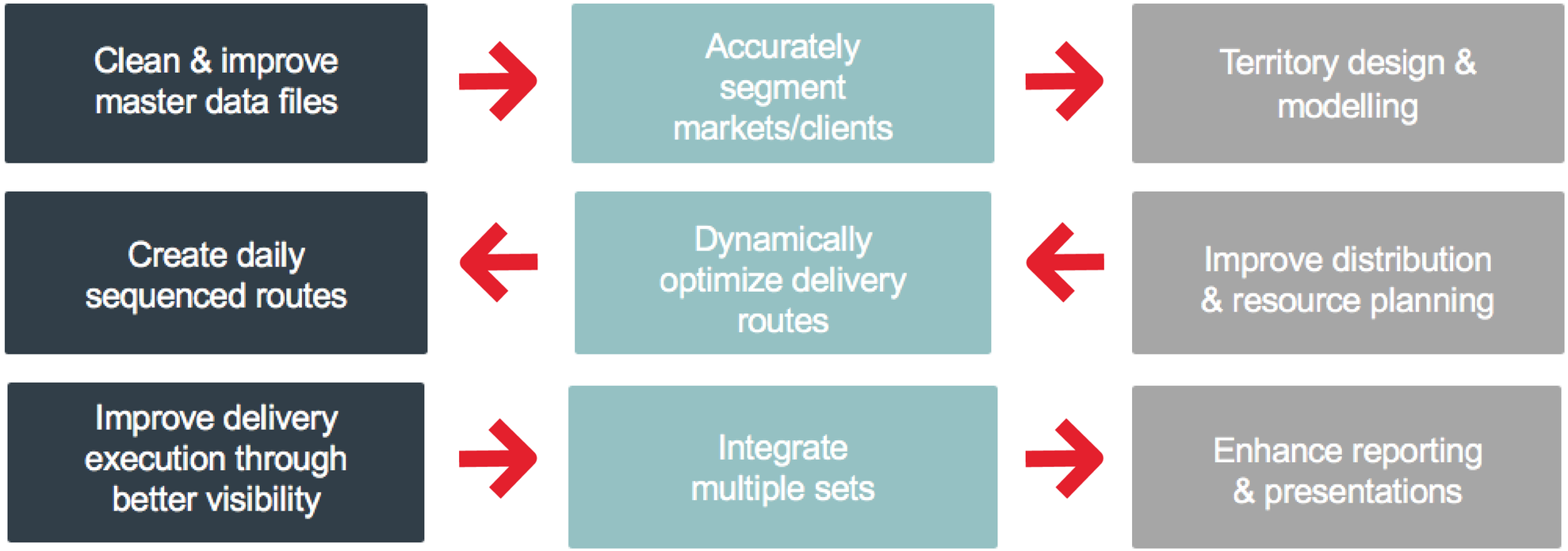
These data sets and distribution plans **helping to build accountability** in supply chain performance.

Set a standard for **outsourced distribution** to the last mile in the province.

Logistics capability development for sustainability

PLM has invested in **building sustainable capacity** by equipping CMAM staff and partners who will continue this work using PLM's tools and processes going forward.

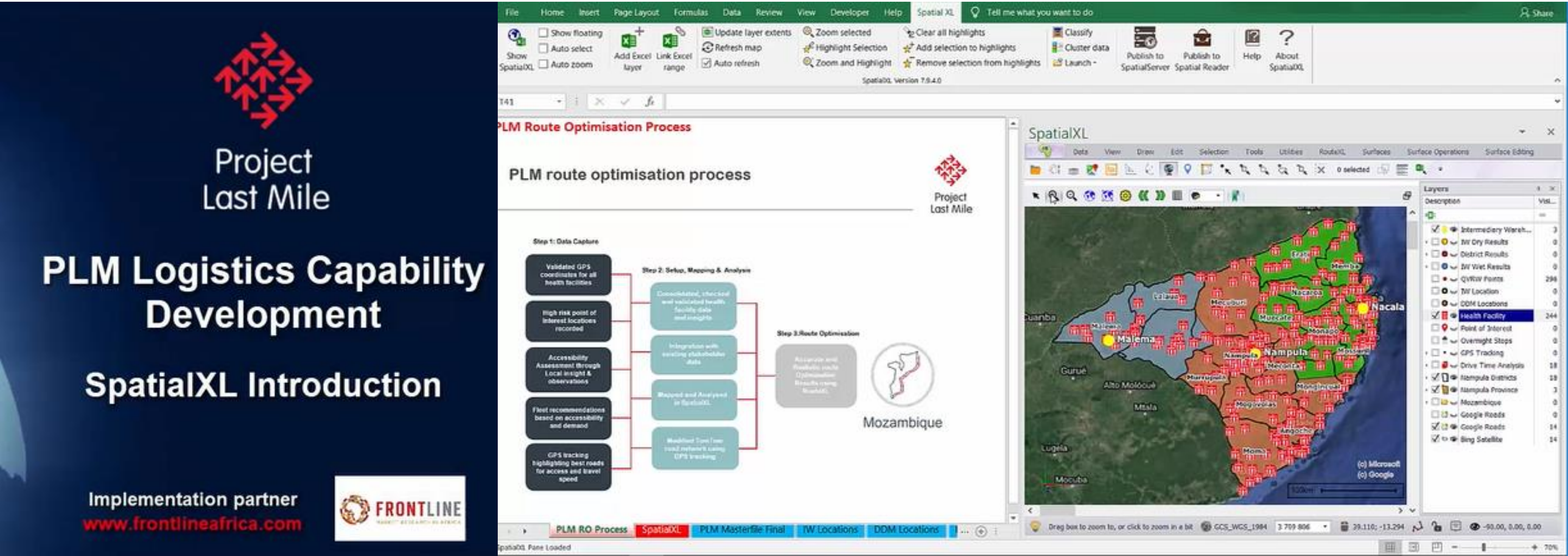
This includes using Excel based geospatial analysis and routing tools to do the following:



Practical training & application of PLM tools, process & Nampula data sets

PLM hold regular workshops with CMAM and partners.

Created a series of training videos which show practical application using CMAM's data.



Data sharing with the development community

PLM and partners continue to explore ways to **streamline the sharing** of these datasets and road network data with the development community through **open source platforms**.

This is support routine **distribution planning** across health and humanitarian projects, and hopefully **aid disaster response.**

Road network data from Sofala province was shared with Humanitarian OpenStreetMaps Team (HOT) after cyclone IDAI hit central Mozambique in April 2019.

This included 70% of the PLM visited health facility locations and high risk POIs to anticipate in relief efforts.

Conclusions

Public-private partnerships that share capability, logistics and routing optimization tools can inform national supply chain operations for efficient distribution of medical commodities

Such tools can inform road network for efficient routes, provide an accountability mechanism for 3PL distribution, and save resources.

Knowledge exchange is achieved with active participation of CMAM and partners through a PLM Steering Committee, routine consultation with local teams, and continuous training.

Such partnerships have unique value:
- Capability-building
- Drive-time analysis
- Data visibility
- Local intelligence
- Ability to plan and update routes dynamically, and
- Opportunities to share data across sectors and partners

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Thank you | Obrigado

IMPLEMENTATION PARTNER: FRONTLINE

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