

STRENGTHENING THE SUPPLY CHAIN IN ZANZIBAR TO SAVE LIVES



Supply Chain
Accomplishments

2010-2016

SCMS

The Supply Chain Management System (SCMS) was established to enable the unprecedented scale-up of HIV/AIDS prevention, care and treatment programs in the developing world. SCMS procures and distributes essential medicines and health supplies, works to strengthen existing supply chains in the field, and facilitates collaboration and the exchange of information among key donors and other service providers. SCMS is an international team of 16 organizations funded by the US President's Emergency Plan for AIDS Relief (PEPFAR). The project is managed by the US Agency for International Development.

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USAID | DELIVER PROJECT, Task Order 4

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USAID | DELIVER PROJECT, Task Order 7

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Abstract

This report describes key investments of USAID-funded logistics projects, managed by John Snow, Inc. (JSI) and the Partnership for Supply Chain Management (PFSCM), in Zanzibar. From 2005-2016, USAID, in partnership with JSI, PFSCM, and others, worked with the Revolutionary Government of Zanzibar to improve access to medicines and medical supplies for the population of Zanzibar by strengthening the public health supply chain.

Cover photo: Central Medical Stores delivery truck preparing for distribution.

All photos in this document are credited to the USAID | DELIVER PROJECT, unless otherwise stated.

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ACRONYMS

ARV	antiretroviral
CDC	Center for Disease Control and Prevention
CMS	Central Medical Stores
CPO	Chief Pharmacist's Office
CTC	care and treatment center
DANIDA	Danish Institute for International Development
DP	District Pharmacist
eLMIS	electronic logistics management information system
EUV	end-use verification
HIV	human immunodeficiency virus
ILS	integrated logistics system
LMIS	logistics management information system
LMU	Logistics Management Unit
LTWG	Logistics Technical Working Group
PEPFAR	President's Emergency Plan for AIDS Relief
PMI	President's Malaria Initiative
RGOZ	Revolutionary Government of Zanzibar
R&R	report and requisition
SCAP	supply chain action plan
SCMA	Supply Chain Monitoring Advisor
SCMS	Supply Chain Management System
UNFPA	United Nations Population Foundation
USAID	United States Agency for International Development
WHO	World Health Organization
WMS	warehouse management system
ZFDB	Zanzibar Food and Drug Board
ZILS	Zanzibar Integrated Logistics System
ZMOF	Zanzibar Ministry of Finance
ZMOH	Zanzibar Ministry of Health
ZP	Zonal Pharmacist

ACKNOWLEDGEMENTS

The Supply Chain Management System (SCMS) and USAID | DELIVER PROJECT express our gratitude to health commodity supply chain stakeholders in the Pharmaceutical Sector for their support and collaboration in the successful implementation of supply chain interventions for a strengthened logistics system for the past six years. We acknowledge the high degree of commitment, collaboration, and support from all our partners in the different levels of governance of health commodity security.

We express special appreciation to the management and staff of the Zanzibar Ministry of Health (ZMOH) for identifying strategic supply chain areas that require technical assistance, helping to maximize the impact of proposed interventions in the public health sector and on the patient at the health facility. Our sincere gratitude is extended to the leadership of the Chief Pharmacist's Office and the Central Medical Stores (CMS) for driving the performance of the supply chain.

We would like to mention the involvement of complementing ministries, programs, and agencies beyond the ZMOH, whose involvement in supporting the development of the Zanzibar Supply Chain Action Plan resulted in a conducive environment for implementing activities at all levels of the supply chain. Special thanks are extended to the Zanzibar Logistics Technical Working Group (LTWG) members, the Ministry of Finance, and the Zanzibar Food and Drug Board (ZFDB).

The extensive work in advocacy, capacity building, financing, procurement, and distribution of lifesaving commodities to health facilities by the Revolutionary Government of Zanzibar (RGOZ) and its development partners throughout Zanzibar has further cemented partner engagement and continuation of best practices introduced by the projects. Special thanks to all the health care workers in Zanzibar who have diligently worked to improve commodity availability at the last mile. Their devotion has been exemplary.

Our legacy as detailed in this report has been supported through funding from the United States Government through the United States Agency for International Development (USAID), President's Emergency Plan for AIDS Relief (PEPFAR), and President's Malaria Initiative (PMI). Additional funding supporting SCMS and the USAID | DELIVER PROJECT's initiatives from the World Health Organization (WHO); Global Fund for AIDS, Tuberculosis and Malaria (GFATM); Centers for Disease Control and Prevention (CDC); United Nations Population Fund (UNFPA); and Danish International Development Agency (DANIDA) has enabled the successful implementation of interventions led by the two projects.

This report is a dedication to all who have worked tirelessly to ensure that every Zanzibari citizen has the opportunity to live a healthy, productive life.

Supply chain strengthening interventions have accelerated improvements in public health supply chain performance in Zanzibar.

- Implemented a well-functioning integrated logistics system for managing a wide range of public health commodities.
- Collaborated with supply chain stakeholders in Zanzibar to establish a Logistics Technical Working Group (LTWG) as a forum to facilitate resource mobilization, plan interventions, and monitor performance of the supply chain.
- Developed the first Zanzibar Supply Chain Action Plan (SCAP) for public health supply chains, valued at more than \$25 million.
- Optimized distribution routes by 40 percent, reducing distribution costs by 28 percent.
- Created a Logistics Management Unit (LMU) to increase ownership and sustainability of supply chain interventions, with 13 new staff positions established to focus on supply chain activities.
- Supported the Central Medical Stores (CMS) with enhancements, including security, storage, and the warehouse and management system, mSupply.
- Rolled out the electronic logistics management information system (eLMIS) across the region, resulting in significant increases in reporting rates from 65 percent to 100 percent.

Zanzibar; a semi-autonomous government within The United Republic of Tanzania, comprises two main islands—Pemba and Unguja. The region has about 145 health facilities that provide preventive care and treatment services.

Until 2012, most public health supply chain activities in Zanzibar were implemented on an ad-hoc basis, without any structured workplan to follow. The CMS was a small store located on the Zanzibar Ministry of Health (ZMOH) premises, with insufficient space for maintaining the required inventory of drugs. However, there was interest among staff at the ZMOH to strengthen their existing health system, including logistics management information system (LMIS); procurement; and storage and distribution of family planning, malaria, and HIV commodities. ZMOH staff and leadership have consistently demonstrated commitment to and appreciation for supply chain system strengthening initiatives with the development partners operating in Zanzibar.

Through support from numerous development partners, including DANIDA, the Global Fund, and USAID, the USAID | DELIVER PROJECT and SCMS undertook various initiatives that created synergy



Healthcare workers delivering commodities to the last mile via canoe.



CMS staff analyzing facility ordering forms.

The USAID | DELIVER PROJECT and Supply Chain Management System (SCMS) trained approximately 360 health care workers on the ZILS and 19 health care workers on the Zanzibar Hospital Logistics Information System.

to strengthen the public health supply chains in Zanzibar, including design and rollout of the Zanzibar Integrated Logistics System (ZILS); infrastructure enhancement for CMS warehouses, including implementation of mSupply, a warehouse management system (WMS); distribution system optimization for commodity delivery to health facilities; introduction of an eLMIS, an electronic management system used to collect, organize, and manage logistics data; strategic review of the supply chain; ongoing supervision visits; and creation of the LMU.

Introduction of the Zanzibar Integrated Logistics System (ZILS)

In 2003, the first standardized health supply chain system—a kit system—was introduced in Zanzibar. Health facilities received standard quantities of essential medicines on a quarterly basis, without considering actual needs of the facilities, which can result in overstocks, understocks, and/or expiries.

In 2013, the ZMOH, in collaboration with the USAID | DELIVER PROJECT, designed and implemented the ZILS, an inventory control system modeled after the mainland's Integrated Logistics System (ILS). With the ZILS, staff manage commodity storage and distribution using a single set of procedures, with health facilities ordering quantities according to their needs, stock on hand, and consumption using a report and requisition (R&R) form. In 2015, a similar system was set up for hospitals known as the Zanzibar Hospital Logistics Information System. The ZILS was rolled out in three phases from September 2012 to November 2013. The USAID | DELIVER PROJECT and Supply Chain Management System (SCMS) trained approximately 360 health care workers on the ZILS and 19 health care workers on the Zanzibar Hospital Logistics Information System.

Zanzibar Logistics Technical Working Group (LTWG)

The Zanzibar LTWG is an advisory body mandated to support ZMOH and development partners in implementing logistics systems, developing supply chain workplans, building capacity, and coordinating supply chain-related technical assistance from relevant stakeholders. It has been instrumental in streamlining communications, reducing duplication of interventions, facilitating effective resource mobilization, moving the supply chain agenda forward with ZMOH and development partners, fostering a data-driven culture, and aligning objective across partners. It serves as the mechanism through which implementation of the Zanzibar SCAP will be monitored. The LTWG meets quarterly and its participants include the ZMOH and associated programs, Zanzibar Ministry of Finance (ZMOF), Zanzibar Food and Drug Board, CMS, UNFPA, USAID | DELIVER PROJECT, SCMS, DANIDA, and USAID.

Enhancements to the Central Medical Stores (CMS)

In 2010, SCMS conducted an infrastructure assessment for CMS, which at the time operated from a store in the ZMOH. The assessment recommended moving to an alternative modern location for warehousing and distribution of health commodities and implementing a WMS.

In 2012, SCMS supported the installation of new racks and shelves, a security system, and computers, and provided training. SCMS provided subsequent support for knowledge and skills transfer to ensure continuity and expand CMS's organizational and operational capability to meet the increasing demands of the ZILS.

The technical support from SCMS, combined with the warehouse assembly provided by DANIDA and USAID, was pivotal in reaching the goal of making CMS a fully operational and modern warehousing and distribution center with over 500 pallet positions. The President of Zanzibar officially inaugurated the new warehouse in January 2013.

Distribution Optimization

In October 2013, the USAID | DELIVER PROJECT and CMS conducted a transportation optimization pilot, using LLamasoft's Transportation Guru software, to evaluate the cost savings of running optimized routes for monthly deliveries in Pemba and Unguja. The team identified the list of health facilities and their respective geocodes, volume throughput, and route plans for monthly deliveries from CMS, then built new optimal routes using Transportation Guru.

The results showed reduction in the number days required for distribution by 40 percent, from five days to three days, and a reduction in driving distance and time by approximately 20 percent, creating a cost savings of 28 percent. Lessons learned from Zanzibar were replicated in Mtwara and Mwanza zones in mainland Tanzania.

Strategic Review and Planning

Public health supply chains in Zanzibar receive support from various development partners for implementation of supply chain strengthening activities. To fully leverage this assistance, in November 2013, the ZMOH conducted



Commodities in the Zanzibar CMS warehouse.

The President of Zanzibar officially inaugurated the new warehouse in January 2013.



Former Minister of Health, Hon. Rashid Seif Suleiman and members of the Zanzibar LTWG.

CMS staff examining orders in the WMS, mSupply.



a strategic review of the national supply chain for health commodities, with technical assistance from USAID | DELIVER PROJECT, SCMS, and the Global Fund. The review examined and synthesized broader systems issues affecting the availability of commodities, the performance of the supply chain, and CMS's ability to fulfill its responsibilities. Supply chain partners and stakeholders proposed interventions in five key areas: financing, policy, and planning; warehousing, inventory management, and distribution; system design and the LMIS; procurement and the private sector; and human resources.

Upon completion of the strategic review, the LTWG identified the need to cost all proposed supply chain interventions to better leverage the limited pool of financial resources to implement the proposed recommendations. The projects supported development of the Zanzibar Supply Chain Costed Action Plan that outlined a range of supply chain activities, with associated costs, to improve the public sector supply chain. The Chief Pharmacist's Office (CPO) manages a corresponding workplan that is renewed on an annual basis. The costing process was also used to identify financial gaps to garner support from other partners.

This first-ever costed Action Plan developed in Zanzibar calculated the total cost for implementing the supply chain interventions for three years at more than \$25 million. Development partners, including USAID, CDC, the Global Fund, DANIDA, WHO, and UNFPA, expressed interest in supporting the ZMOH to fund interventions outlined in the action plan. As of early 2016, after three years of implementation, the workplan is being implemented and generating improved supply chain management operations for the Zanzibar health sector.

Formation of an LMU

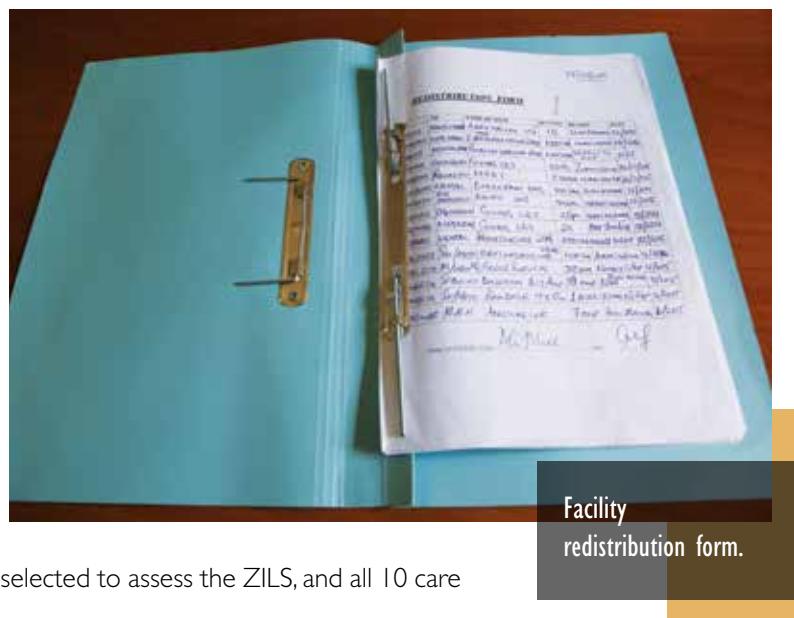
In September 2014, USAID | DELIVER PROJECT and SCMS conducted a human resources (HR) for supply chain assessment to determine the state of human resources and identify opportunities to build organizational and human resource capacity for Zanzibar's public health supply chains. One of the key recommendations was to establish an LMU.

In November 2014, the ZMOH established the LMU and identified 13 positions to provide support across different supply chain functional areas, including logistics data management, quantification, monitoring and evaluation, coordination and collaboration, supply chain intervention planning, training and capacity building, and supervision. Similar to the LMU in mainland Tanzania, formation of Zanzibar's LMU has resulted in improved coordination of supply chain strengthening activities

by overseeing the implementation of the action plan in addition to strengthening quantification, improving reporting, and fostering data driven decision making facilitated by enhanced data visibility.

End-Use Verification (EUV)

Introduced by SCMS and the USAID | DELIVER PROJECT in October 2014, the EUV survey is conducted quarterly to assess the performance of the public health supply chain system, focusing on the ZILS and antiretroviral (ARV) logistics system. A statistically significant sample of approximately 115 sites is randomly selected to assess the ZILS, and all 10 care and treatment centers (CTC) are selected to assess the ARV logistics system.



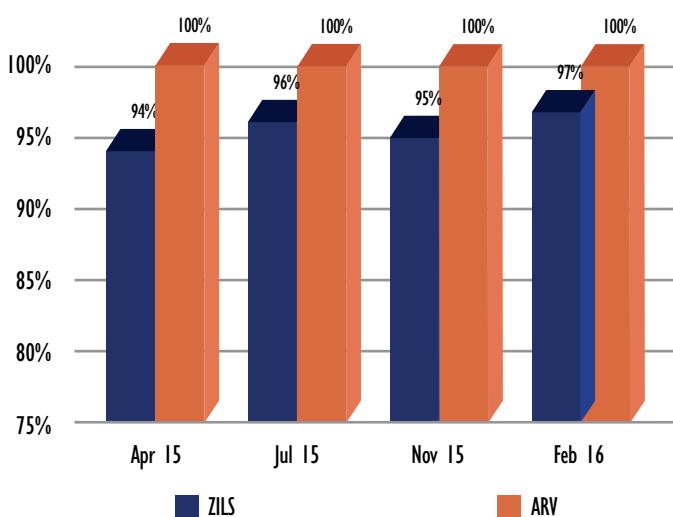
Facility redistribution form.

EUV results are used to determine the availability of tracer products on the day of the assessment team visit and over the previous three months; provide on-the-job training to health care workers on proper logistics management of health commodities; guide commodity redistribution to ensure effective stock management; and empower key stakeholders in data-driven decision making.

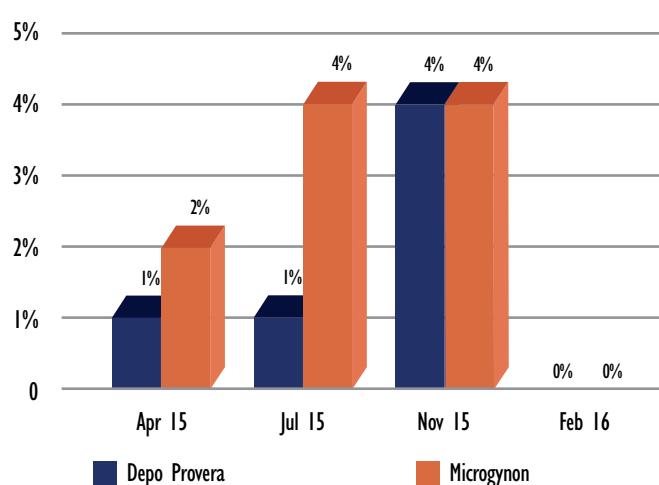
Stock availability of key family products has remained low, with the February 2016 EUV revealing no stockouts for Depo Provera and Microgynon. For HIV commodities, stockout rates have remained under 10 percent for all ARVs from April 2015 to February 2016. Finally, over the same time period for anti-malarial commodities, stockout rates have fallen from 62 percent to 28 percent for Artesunate Amodiaquine Adult, 89 percent to 46 percent for Artesunate Amodiaquine Child, and 8 percent to 0 percent for malaria rapid diagnostic tests.

Additionally, EUV surveys demonstrate that over 90 percent of facilities consistently have up-to-date stock management tools.

Percentage of Facilities with Appropriate Storage Conditions on Day of Visit



Stockout Rate of Family Planning Commodities on Day of Visit





USAID Senior Supply Chain Advisor Ms. Kelly Hamblin handing over motorcycles to the Minister of Health, Hon. Mahmoud Thabit Kombo and Deputy Principal Secretary Halima Maulid Salum.

In 2013, before eLMIS implementation, reporting timeliness was at 65 percent. In the three years since implementation, on-time reporting has consistently reached 100 percent.

Former Minister of Health, Hon. Rashid Seif Suleiman, addressing the audience at the

Additionally, EUV surveys demonstrate that over 90 percent of facilities consistently have up-to-date stock management tools, and an increasing number of facilities, up from 94 percent to 97 percent for the ZILS and 100 percent for the ARV logistics system, have appropriate storage conditions on the day of the assessment team visit.

Supportive Supervision

Routine supportive supervision visits are one of the key interventions in health system strengthening. With the introduction of the supervision

checklist in December 2014, the methodology for conducting supervision visits was standardized with support from SCMS and the USAID | DELIVER PROJECT. Every quarter, 10 primary health centers receive supervision visits, during which supervision teams verify record keeping, proper up-keep of the storeroom, and physical inventory of commodities. The teams also provide on-the-job training to further develop staff skills. Upon completion of the visits, supervisors can also recommend redistribution of slow-moving and/or commodities near expiry to other facilities where they are more likely to be consumed.

Zonal Pharmacists (ZP) and District Pharmacists (DP) meet every two weeks to discuss issues identified during supervision visits. Supply Chain Management Advisors (SCMAs) from the LMU are also part of the meetings and provide guidance on quality improvement measures that the teams can make in order to improve supply chain performance.

In April 2015, the USAID | DELIVER PROJECT procured 10 motorcycles (one for each district) for ZPs and DPs to use for supervision and redistribution visits. The motorcycles have allowed supervisors to easily access sites and address pressing issues without having to borrow vehicles from the CMS. From October 2015-March 2016, ZPs and DPs have performed two facility-to-facility redistributions and 162 supervision visits to improve commodity management practices.



Evolution of eLMIS in Zanzibar

Following SCMS- and USAID | DELVIER PROJECT-supported eLMIS development and initial rollout in Mainland Tanzania, the ZMOH and CMS wanted to expand the system and implement in Zanzibar. As a web-based LMIS, the eLMIS allows users to place more timely orders, view data in real time, and automate numerous time consuming and error prone calculations. With the introduction of the eLMIS in 2015, the errors on submitted forms have remarkably reduced. The eLMIS has

eliminated most calculation errors normally seen on paper-based forms, and DPs are now able to easily spot errors on the completed R&R forms in far less time than on paper-based forms.

The eLMIS serves as an alert mechanism for program managers of stock challenges, such as when products are at risk of expiry. ZMMs and DMMs prefer the streamlined data entry process of using the eLMIS, which allows them to electronically submit data as opposed to physically bringing forms to the CMS. Prior to the eLMIS, it took a week to review the R&R forms for 16 health facilities; it now takes three days. In 2013, before eLMIS implementation, reporting timeliness was at 65 percent. In the three years since implementation, on-time reporting has consistently reached 100 percent.



CMS staff loading commodities for distribution.

Implementation of the mSupply WMS

Initially procured by DANIDA and installed at the CMS for ZILS operations, mSupply improved CMS's warehouse operations and expanded its organizational and operational capability. In part due to the rollout of ZILS, system requirements changed, and logistics operations in Zanzibar grew; therefore CMS required greater functionality and usability from mSupply.

Along with DANIDA and the ZMOH, SCMS supported customization and additions to mSupply functionality and built the ZMOH's capacity in using mSupply and its various reports. To create an information exchange system that links logistics data to the business processes at all levels of the supply chain, SCMS, in collaboration with mSupply manufacturer SUSSOL, created an interface between eLMIS and mSupply. Beginning January 2016, CMS was processing 34 orders per day, triple the number that used to be processed manually by two customer service officers.

Way Forward

Commitment from the Zanzibar MOH, coupled with active engagement from development partners, has significantly strengthened public health supply chains in Zanzibar. The interventions discussed in this report demonstrate the success achieved in a short timeframe. Zanzibar's rapid scale-up of these critical interventions has led to greater commodity availability and an enabling environment for effective public health supply chains.

Growth and further institutionalization of the Zanzibar LMU will help maintain the important supply chain interventions introduced under the USAID | DELIVER PROJECT and SCMS. With continued commitment from the ZMOH and support from its development partners, Zanzibar can continue strengthening the health system to ensure high quality care and product availability for all patients.

Beginning January 2016, CMS was processing 34 orders per day, triple the number that used to be processed manually by two customer service officers.

