

Managing health supply chain risk through strategic outsourcing in low- and middle-income countries

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Ségolène d'Herlincourt is the Deputy Country Director for Operations for GHSC-PSM in Zambia. Her focus is on the management of subcontracted activities designed to support the Zambia Medicines & Medical Supplies Agency (ZAMMSA) and the Zambian government with improvements in the warehousing and distribution of public health commodities. This includes infrastructure improvements for warehousing and storage of public health commodities and multiple last-mile, third-party logistics (3PL) distribution subcontracts servicing up to more than 2,000 facilities countrywide. Prior to joining GHSC-PSM in Zambia, Ségolène worked as a Country Director in Haiti and Afghanistan, where she encouraged economic growth by connecting small- and medium-sized enterprises to supply chains and investment opportunities as well as working with local governments on

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Abstract

This paper explores how strategic outsourcing of public health supply chain functions to private sector companies in low- and middle-income countries (LMICs) is a catalyst to reduce operational risks and achieve agility and efficiency. Private sector engagement in public health supply chains increases market competitiveness, improves efficiency and allows for cost reduction, while enabling ministries of health to focus on their core competencies and become stewards of their supply chain operations. The paper highlights best practices on strategic outsourcing for contracting entities and third-party logistics (3PL) to minimise risk. Strategic outsourcing has become increasingly common across LMIC contexts as emerging economies take advantage of private sector growth; however, outsourcing does not automatically mean increased efficiency or transparency, unless it is done properly. Recommended best practices include ensuring transparent and fair competition; understanding market capabilities and geographical constraints, as well as available infrastructure; setting up key performance indicators; improving service agility; and creating the best distribution network for higher efficiency. The paper also presents three case studies, including lessons learned and results from strategic outsourcing in Zambia, Angola and the Democratic Republic of the Congo.

Keywords

private sector engagement, strategic outsourcing, risk management, supply chain for health, in-country logistics for health

OVERVIEW OF PRIVATE SECTOR ENGAGEMENT AND STRATEGIC OUTSOURCING

Well-functioning health supply chain systems are an essential prerequisite for universal health coverage and timely access to life-saving commodities in humanitarian and public health emergencies, such as natural disasters and epidemics. Traditionally, governments or parastatal agencies, with the support of multilateral and bilateral donors, have operated public health supply chains in low- and middle-income countries (LMICs). Recently, however, donors are increasingly envisioning the private sector as an important adviser, executor, innovator and financier for governments, donors and implementing partners to achieve sustainable health outcomes.¹

Private sector engagement is a strategic approach to international development: donors and country governments consult, strategise, align, collaborate and implement with the private sector for greater scale, sustainability and, ultimately, to strengthen capacity of local actors to create self-reliant supply chains.²

Governments become stewards of supply chain operations instead of executors. For this approach to thrive, the public and private sectors must not only build strong relationships based on trust, but also learn to leverage their respective comparative advantages.³ Strategic outsourcing is a foundational type of private sector engagement. It occurs when functions of the supply chain, such as procurement, warehousing and inventory management and transportation

management, are contracted to private sector services such as third-party logistics (3PL) companies. There are significant benefits to outsourcing supply chain functions to 3PLs, including cost savings, improved efficiency, more even distribution of risk, private sector expertise and improvement in overall supply chain performance.⁴ Examples include applying a vendor-managed inventory approach to optimise inventory management or using delivered duty paid incoterms to ship health commodities to the destination; most of the responsibility relies on the manufacturer or seller, de-risking the procurer organisation.

The decision to outsource complete or partial functions of the supply chain depends on: 1) the country context, including political and economic stability and government contracting capacity; 2) the local private sector's technical and organisational capacity and geographic scale; and 3) overall health supply chain maturity.⁵ Resources such as the African Resource Center's Outsourcing Toolkit for African Healthcare Supply Chains and Global Health Supply Chain Program-Procurement and Supply Management's (GHSC-PSM) Contracting for Transportation of Public Health Commodities to the Private Sector expand on the benefits and challenges of outsourcing, share insights on when and what to outsource, and provide guidance on how to procure and manage private sector contracts.^{6,7}

BEST PRACTICES IN STRATEGIC OUTSOURCING TO MITIGATE RISK AND ENSURE CONTINUOUS ACCESS TO HEALTH COMMODITIES⁸

Signing a contract with a 3PL to outsource a supply chain function

such as warehousing or transportation is necessary but not sufficient to see improved efficiencies and reduced risk. In an agreement between a ministry of health (MOH) or implementing partner (contracting entity) and a 3PL (contracted entity), all hold responsibilities and must continually work to carry out their sides of the contract. Otherwise, products may not be delivered on time, and damages, shortages or overages could occur in a warehouse setting. If registration, insurance and financial management prerequisites are not met, the ability to problem solve or deal with emergencies and unknowns is lessened.

Understand the market capabilities, geographical context and available infrastructure that will affect the ability of 3PLs to respond to the supply chain needs

The contracting entity must write the request for proposals and scope of work and carry out a competitive search for 3PLs based on answers to relevant contextual questions. Otherwise, the contract and scope that is agreed upon may fall short when the contract begins, and product safety and delivery will be affected. For example, where do health commodities need to go, and in which season? What security and infrastructure concerns are there? Are there regulatory and registration norms by which 3PLs must abide? Are there 3PLs with reach into the last mile of every corner of the geographical region served? What is the prevalence of informal versus formal 3PLs in some areas? Do the 3PLs work with sophisticated contracting mechanisms and do they have the required tracking, warehousing and temperature monitoring technology?

Use relevant contracting mechanisms and provide needed product information

The contracting entity, such as the MOH, should be able to execute framework or umbrella contracts, sometimes called indefinite quantity subcontracts (IQSs), often with multiple 3PLs at a time. Under those ceilings and larger scopes of work, the contracting entity should then be able to issue purchase orders or task orders and provide the needed information quickly so that the 3PL can do its job. For example, if on-time delivery is to happen, the MOH needs to provide verified and accurate distribution plans or standard routes and lanes that allow the 3PL to depart with lorries on time. If warehousing space is to be managed properly by the 3PL and product is to be received via proper protocols, the 3PL needs shipment paperwork early and updated information about arrival time; shipments coming into the country need to clear customs rapidly with the appropriate paperwork filed early. If the MOH is ready to manage performance-based contracting and base payment — not just on deliverables but on performance and indicators, with both quality and quantity of indicators verified — this can be another contract mechanism that decreases risk and drives successful operations.

Once the contract is executed, the contracting entity should:

- *Ensure all parties are on the same page:* Once the hard work is done of finding and contracting 3PLs, the contracting entity needs to continually manage expectations, set key performance indicators (KPIs) and determine the human resources needed to manage the contract, crunch KPI data and provide feedback to 3PLs in a timely fashion. If the contracting entity

does not pay invoices on time, this can have an impact on resources for 3PLs and their ability to quickly turn around the next purchase order or provide the required warehouse conditions. Furthermore, it is critical for the contracting entity to respond quickly and effectively to reports from 3PLs of damages, shortages and overages or other incidents. For example, an MOH or government entity may have information or solutions with regard to security situations and must provide 3PLs with on-the-ground guidance as needed. Another example is loss of product, for which the MOH must work with other parts of the supply chain to rectify the shortage and possibly replace product, while concurrently seeking repayment, restitution or an insurance claim from the 3PL;

- *Invest in increasing 3PL capacity:* This starts at the request for proposal stage, where in some cases the private market for providers may be constrained or local providers may not be familiar with complicated health supply chain requirements and contract clauses. In such cases, the risk is that there will not be enough competition or adequate bidders to carry out the work being requested. Further down the line, increasing capacity may mean requiring technology such as global positioning system (GPS) trackers in lorries and training for drivers and assistants. In other cases, it may mean requiring training on warehouse and inventory management systems. Without capacity improvement on the part of the private sector, the quality of the deliverables can be affected. Furthermore, transparency, accuracy and accountability are key when managing functions of a health supply chain. The contracting entity holds

responsibility for reducing stock-outs and overstock and managing expiration of products and waste disposal of commodities. It is also responsible for communicating stock levels to multiple stakeholders and responding to the population's health needs, as well as to public health emergencies. If 3PLs cannot provide accurate and reliable real-time data such as the position of lorries, verified delivery notes (preferably electronic) and real-time stock availability, all those deliverables are at risk.

Once the contract is executed, 3PLs should:

- *Strive to improve service agility, not just capacity:* It is not just about increasing the quantities 3PLs can carry at once, but about being agile and flexible, executing distributions with speed and finding efficiencies, and improved management and transparency in warehouse management;
- *Look for efficiencies:* It is difficult to combine health products with consumer goods and many times contracting entities will not allow mixing of products. But depending on the contract, some regional managers could look at efficiencies of scale. Their work in one sector could help bring scale to the health sector;
- *Create a distribution network:* When appropriate for the context, 3PLs can engage in second-tier subcontracting. This can be risky but increases reach and capacity if managed properly;
- *Understand client requirements and execute them:* This begins with reading the contract and paying close attention to all requirements — administrative, registration and technical — and executing, without biting off more volume or geographic regions than 3PLs can manage. It also means communicating requests and suggestions for improvement back to the client, as well as communicating any incidents, damages, shortages and losses, and following protocols to mitigate and address them;
- *Both parties should strive for clear and constant communication to ensure timely problem solving:* When there is an incident such as loss of product or a temperature excursion from an agreed-upon range, it is key for the MOH and 3PL to quickly resolve the issue based on the clauses of the contract and the parameters of the issue;
- *Mitigate their own risk when negotiating contracts:* 3PLs must ensure profitability for themselves while also weighing the benefits of working for the government sector, which can serve as a long-term and sustainable partner;
- *Carry out their side of the contract, and work as an active partner:* When it comes to performing parts of the health supply chain, 3PLs need to understand that their actions in upholding the contract have an impact on the health of populations in areas which they service.

Successful contracting relationships will require active involvement from the contracting entity, as well as continual improvement. When working with the private sector to outsource supply chain functions, the responsibility is on all contract signatories. Contracts must be built with an eye to context and must include clauses that drive visibility and require performance. Stakeholders across these entities may prefer to maintain the status quo and existing partnerships and pricing structures. The contracting entity must actively manage performance,

gather KPIs, provide feedback and pay verified invoices on time. The contracted 3PL must respond with clarity to the needs of the public health supply chain and the contract requirements, keep their performance tightly within the required indicators, and invoice on time with all needed deliverables.

Outsourcing has become increasingly common across LMIC as emerging economies take advantage of private sector growth. Executed appropriately, the use of strategic outsourcing in health supply chains in LMIC significantly improves health supply chains performance at the last mile, increases transparency, mitigates risk, and improves health outcomes for all.

Strategic outsourcing in Zambia

Improving supply chain performance at the last mile⁹

Overview

Zambia Medicines & Medical Supplies Agency (ZAMMSA), with the support of the Chemonics-implemented

GHSC-PSM project, signed a tripartite contract with two 3PLs for the transportation of ambient health commodities from the main ZAMMSA central warehouse to seven provincial hubs and 2,000 health facilities within four provinces situated in remote and hard-to-reach places. At the time, those provincial hubs and facilities were either dependent on self-collection or ZAMMSA's fleet.

The tripartite subcontracts allowed knowledge transfer on subcontractor management and easy information exchange among parties, strengthening local capacity. During the period of performance, on-time delivery for last-mile distribution increased from 57 per cent to 99 per cent. Figure 1 shows the on-time delivery rate for multiple deliveries at the Mongu hub point of origin.

During the same period, the distance covered by the 3PLs against ZAMMSA lorries increased from 7 per cent during the first quarter of subcontract implementation to 76 per cent in the last quarter of 2022. The volume distributed followed the same trend, in which self-collection went down from 18 per cent to less than

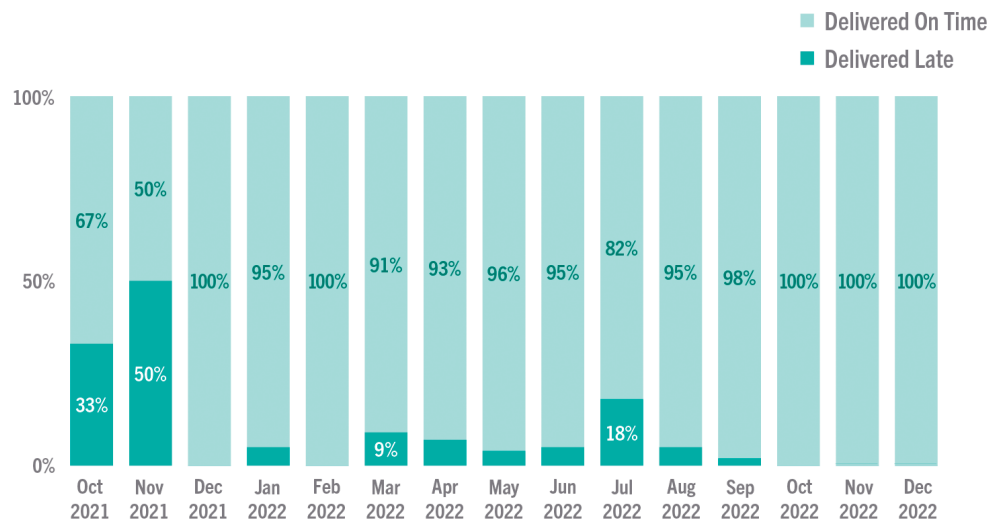


FIGURE 1 On-time delivery rate

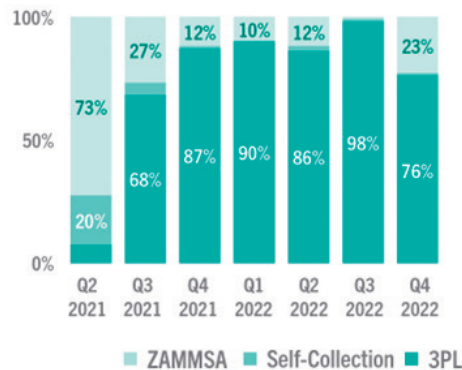


FIGURE 2 Total km (one-way) by distribution centre

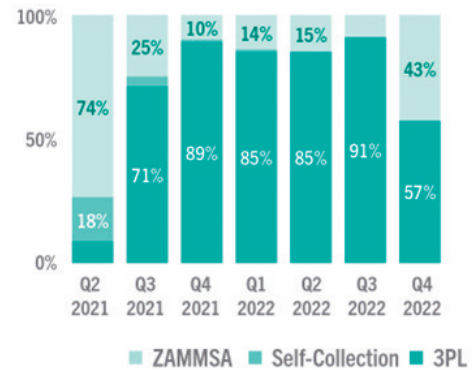


FIGURE 3 Percentage estimated cubic metres by distribution category

1 per cent while 3PLs increased their share of the distributions from 8 per cent to 57 per cent. Figures 2 and 3 reflect the Mpika hub point of origin.

Almost two years after implementation and active management, the availability of lorries made stock transportation more fluid and stock-outs less likely. Emergency orders decreased and service agility increased (lorries must be mobilised within 48 hours of pre-alert sent, but in many instances, lorries are mobilised in less than 24 hours). The results demonstrated that outsourcing transportation services to the private sector brought positive and measurable outcomes to the national supply chain, contributing to building a stronger, more reliable and sustainable health supply chain in Zambia.

Building on this success, ZAMMSA is scaling up its outsourcing strategy and plans to bid warehousing and distribution services for a large-scale 2023–4 campaign to distribute long-lasting insecticide-treated nets. The request for proposal will split the work into six lots by geographic area, allowing 3PLs to bid on one to six lots depending on their capacity and size of fleet. By doing so, smaller Zambian 3PLs will be able to compete, promoting a more equitable market.

Lessons learned

Ensure all levels of government understand the business case of outsourcing

Initially, the presence of 3PL subcontractors was perceived as a competition to government jobs, specifically in the provinces, where jobs are scarce. This led to conflicts between government staff and 3PL drivers. 3PLs experienced delays in loading and offloading the lorries, and on occasion they were rejected for unsupported reasons. It took a few months of negotiations and significant communications for the provincial hub staff to be supportive of the effort and take stock of the benefits generated.

Align expectations within a performance-based subcontract

Government staff sent pre-alerts to 3PLs, but when lorries mobilised, commodities were not ready to be loaded. This led to conflicts between the government and 3PL staff. To mitigate this issue, ZAMMSA, GHSC-PSM and 3PLs agreed on daily meetings to exchange information on distribution schedules, route planning and picking and packing procedures. Similarly, a lack of understanding from 3PL drivers of the necessity of getting proof of delivery stamped at

every facility led to delays in invoice payments. This in turn jeopardised service quality as 3PL subcontractors would end up without funds to pay their drivers and not mobilise their lorries, which in turn would disrupt the distribution cycle. ZAMMSA and GHSC-PSM trained both drivers and staff in the health facilities to ensure stamping happened whenever a delivery was made. The 3PLs also embedded staff members at provincial hubs who would collect and verify every proof of delivery before sending them to Lusaka.

Leverage data to build the business case

Thanks to data collection and KPI meetings once per quarter, ZAMMSA and GHSC-PSM were able to demonstrate how on-time delivery had improved in the provinces and last mile. Anecdotally, it was recognised that the use of 3PLs brought additional flexibility when a lorry broke down and a replacement was needed for transferring commodities to another lorry.

Strategic outsourcing in Angola

Creative contracting to improve supply chain performance and health outcomes¹⁰

Overview

The USAID GHSC-PSM project in Angola implemented competitive contract bidding for in-country distribution between multiple vendors starting in July 2020 using indefinite quantity subcontracts (IQS). This exercise resulted in GHSC-PSM expanding its in-country logistics footprint in Angola to lower levels for essentially the same cost or less, which became especially key during the COVID-19 pandemic. Today, the project procures and distributes medicines and

supplies to provincial and municipal warehouses across six provinces supported by the US President's Malaria Initiative and four provinces supported by the US President's Emergency Plan for AIDS Relief.

GHSC-PSM's design and management of the IQS has driven continued cost lowering and efficiencies with improved performance thanks to ongoing market competition and modified KPIs. The single award versus the IQS mechanism has further resulted in an estimated US\$300,000 in cost savings when comparing bids among award holders across the life of the IQSs over a two-year time period.

Outsourcing approach and results

- Beginning in July 2020, GHSC-PSM in Angola awarded concurrent IQSs to two vendors who met the stringent criteria to warehouse and distribute commodities for the programme. The main objective of changing the contracting mechanism from a single IQS with a single vendor was to stimulate continuous competition within the market of qualified providers while maximising process efficiency;
- First, a brief request for task order proposals (RFTOP), which are essentially mini requests for quotations (RFQ), is issued to the vendors with a signed IQS prior to commodities arriving in-country. This ensures that goods are distributed as quickly as possible once they arrive in-country and reduces central storage time and, by extension, 3PL costs overall. Responses from offerors are evaluated by the country office using either the 'lowest price technically acceptable' or trade-off approaches. The successful vendor is selected, and a fixed price sub-task order awarded;

- Critical to the success of the updated IQS RFTOP is the inclusion of a new standardised cost template in which vendors must provide unit cost break-downs in an 'open book' format to enable evaluators to compare offerors' submissions using the same unit measure. While 3PLs, like all private sector vendors, may desire to keep their pricing methods private, GHSC-PSM in Angola specifically requires vendors to share detailed information to ensure clear comparison of proposed prices among prequalified vendors and enable a complete understanding of the submitted cost components, known as the cost build-up;
- The full in-country logistics process is country driven, including distribution planning and 3PL management;
- Modified KPIs and templates were added to the IQS to ensure high-quality service over the life of the project. The GHSC-PSM Angola team first tested these KPIs on four distribution cycles from July to November 2020. The testing phase was crucial for the Angola project to ensure the set KPIs were realistic, measurable and achievable. Moreover, the project solicited feedback from 3PLs to incorporate into future KPIs to ensure that 3PLs understood project expectations and how their services would be measured and scored. After testing the KPIs, the team worked with headquarters to update the RFTOP and the IQS clause to reflect lessons learned. KPIs are utilised by the country office to manage 3PL providers actively and consistently, and the project continues to hold feedback sessions with 3PLs to foster a continuous improvement process;
- The project initiated over 20 RFTOP competitions between the IQS holders since implementation in July 2020

through to approximately March 2022, the time period covering this case study. As 'lowest price technically acceptable' has been the dominant evaluation approach for RFTOPs, the project is able to compare cost variability over time for identical distribution scopes of work. The average cost savings from competition is 36 per cent between the highest and lowest received offer from the two 3PL providers for identical scopes of work. By maintaining competition across the life of the subcontract, GHSC-PSM in Angola has saved US\$300,000 in distribution costs since IQS inception through approximately two years of implementation. Moreover, competition throughout the life of the IQS has witnessed vendors lowering their subsequent bids after a loss for similar scopes of work in a (presumed) effort to win work.

Through effective contract design and close 3PL management over the past two years, GHSC-PSM in Angola was able to consistently deliver to the last mile, in addition to provincial levels, for essentially the same cost previously. GHSC-PSM is leveraging lessons learned from Angola across country offices and continually improving its KPI process with the vendors.

Strategic outsourcing in the Democratic Republic of Congo

3PLs contracting using commercial best practices¹¹

Overview

In the Democratic Republic of Congo, the national drug supply system centralises drug purchases through the Federation of Centers for the Distribution of Essential Medicines (FEDECAME) purchasing

coordination offices and decentralises distribution through regional distribution centres. Actors involved in distribution include regional distribution centres (CDR), private transport services (3PLs), central offices of health zones (BCZS), registered nurses, community distributors and technical and financial partners. Currently, the distribution circuit is fragmented, involving several actors and various transit or storage sites. Storage sites such as the BCZS depots, and other transit depots that were set up to bring the stock of products closer to the service points, have become bottlenecks in the availability of inputs to end users. Distribution delays range from lengthy product processing times to poor planning, inefficient controls and, at times, inaccessibility to health facilities. Working alongside FEDECAME, the USAID-funded Global Health Supply Chain Technical Assistance Francophone Task Order (GHSC-TA Francophone TO) project implemented by Chemonics has since identified associated operational and financial risk buckets for the project to mitigate through strategic implementation of enhanced contractual and performance management practices with private sector logistics service providers.

Methodology

In support of the initiative, the GHSC-TA Francophone TO implemented strengthened contracts that speak to commercial supply chain best practices. In a significant change to the historic agreements with public sector providers, the new robust contracts drill down to target the identified operational and financial risk buckets and build out performance management aspects of contracting with 3PLs. While the historical contracts had built-in safeguards, there were still challenges

in incentivising improved results from the central medical stores (CMS) as the service provider. In addition, the GHSC-TA Francophone TO invested in engaging 3PLs to generate a competitive market to enhance the value for the project.

Overall, the project engages in a mix between CDR contracts and the new 3PL contracts with new KPIs incorporated. As such, the GHSC-TA Francophone TO conducted a pilot in certain provinces to discern the combined impact of engaging 3PLs through the new distribution contracts. The improved aspects of the contracts include a robust request for proposal process, an improved contract template with enhanced pricing sections and pricing based on volume and actual costs. Financial improvements include transparency in the cost build-up which promotes transparency, decreases costs and increases efficiency. In addition, the project is engaging in strong management and coordination with the MOH and vendors. Outside of contracting, efforts to strengthen performance practices include implementing incident reporting standard operating procedures (SOPs), improved tracking through technology, deliverables that include proofs of delivery (POD)/reports and close monitoring of KPIs (on-time delivery, delivery accuracy and product loss (damage or theft) in transit). To track KPIs, the GHSC-TA Francophone TO technical team set up a new system and SOP to encourage regular feedback on the performance of 3PLs.

Results

The results of implementing the new contracts were seen in the Lualaba province. Using a 3PL in FY21 pilot over three quarters compared to using the Lualaba CDR (parastatal) resulted in a steep reduction in malaria product

LMD costs within the province. Although 3PL costs were initially higher in the second quarter (start of the pilot), there was a reduction and decrease in the third and fourth quarters. The second quarter's higher costs were due to multiple task orders implementing for the first time and additional costs for accompanying persons due to an impassable road. On the other hand, there was a noticeable improvement in quarters three and four due to fewer sites and efficiencies after learning from the first quarter, eg less accompaniment. Overall, the baseline result in quarter one and before was

established at 5 per cent because it was set at 5 per cent of ex-works value of commodities. For the pilot quarters, the trend observed is that with engagement of the 3PL, and the exception of quarter two when the pilot was initiated and costs were higher during start up, there is an overall reduction in quarters three and four due to the efficiencies gained. In particular, the project noted reduced time for deliveries made by the 3PL and use of vehicles according to the volume of products to be transported, avoiding numerous rounds (see Figures 4 and 5).

The project's implementation of new contracts and engagement with 3PLs

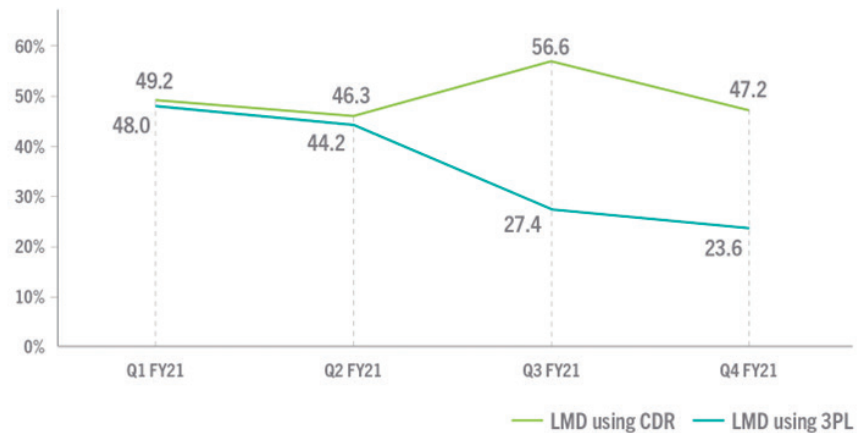


FIGURE 4 Stock-out rate of antimalarials in Lualaba Province during FY21

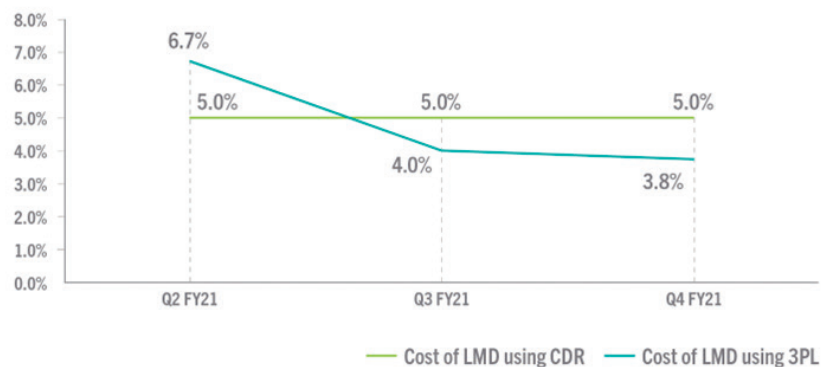


FIGURE 5 Distribution cost using 3PLs versus distribution cost using CDR

brings increased ability to mitigate technical risks.

CHEMONICS INTERNATIONAL INC.

Chemonics International Inc. is a development company with more than 40 years' experience working in more than 150 countries. Chemonics is a trusted implementing partner committed to solving the world's toughest development challenges, with multidisciplinary teams working across sectors. Chemonics' current global health and supply chain implementation portfolio includes projects funded by the United States Agency for International Development (USAID), The Global Fund, Bill & Melinda Gates Foundation and UNICEF. Most notably, Chemonics and partners lead the implementation of the USAID Global Health Supply Chain Program—Procurement and Supply Management (GHSC-PSM) project and the USAID Global Health Supply Chain Technical Assistance Francophone Task Order. Through these projects, Chemonics has worked in 72 countries across Africa, Asia, Latin America and the Caribbean. Chemonics works alongside ministries of health and supply chain management professionals to strengthen countries' capabilities to optimise public health supply chains, thereby increasing access to life-saving health commodities.

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