



# Use of Incentives in Health Supply Chains

## A Review of Results-Based Financing in Mozambique's Central Medical Store



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## **USAID | DELIVER PROJECT, Task Order 4**

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## **Health Finance & Governance Project**

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## **Abstract**

This report reviews progress with a results-based financing (RBF) program in Mozambique aimed at strengthening the supply chain, specifically the performance of the Central Medical Store. Introduced in 2013 by USAID, the performance-based government-to-government grant conditions payment of quarterly tranches of funds to the Central Medical Store, (*Central de Medicamentos e Artigos Medico* [CMAM]), on results related to planning, distribution, and warehouse management.

Cover photo: Packaging of malaria commodities to be distributed to health centers and community health workers. Adil warehouse in Matola, Mozambique, October 2012. Photo Credit: Arturo Sanabria.



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# Acronyms

CMAM	<i>Central de Medicamentos e Artigos Medicos</i> (Central Medical Store)
DAF	<i>Departamento de Administração e Finanças</i> (Department of Administration and Finance)
DFID	Department for International Development
DNAM	<i>Direcção Nacional de Assistência Médica</i> (National Directorate of Medical Aid)
DPC	<i>Direcção de Planificação e Cooperação</i> (Directorate of Planning and Coordination)
E-SISTAFE	<i>Electrónico - Sistema de Administração Financeira do Estado</i> (Electronic - State Financial Administration System)
FARA	Fixed Amount Reimbursement Agreement
FORSSAS	<i>Fortalecimento dos Sistemas de Saúde e Acção Social</i>
GTM	<i>Grupo Técnico de Medicinas</i>
HFG	Health Finance and Governance project
M&E	monitoring and evaluation
MACS	warehouse management system (brand name)
MEDIMOC	<i>Empresa Estatal de Importação e Exportação de Medicamentos</i>
MISAU	<i>Ministerio de Saúde</i> (Ministry of Health)
MOH	Ministry of Health
PFMRAF	Public Financial Management Risk Assessment Framework
RBF	results-based financing
SCMS	Supply Chain Management System
SKU	stockkeeping unit
SOP	standard operating procedures
UNFPA	United Nations Population Fund
USAID	U.S. Agency for International Development
USG	U.S. Government





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The findings in this report are based on their contributions.



# Executive Summary

Supply chains are the foundation of any health system. For health supply chains to work—for the right goods to be received and delivered in the right quantities, in good condition, to the right place, at the right time, for the right cost—countless actors working in different locations with different responsibilities need to be motivated to do their part. They must be held accountable for doing so. These actors—from central-level planners and procurement specialists, to regional warehouse and transportation teams, to local storekeepers and service providers—depend on each other for timely and accurate information and a reliable supply of goods. One break in the chain, one delay, can have repercussions throughout the system, ultimately determining if families can access life-saving medicines and commodities.

The Central Medical Store—*Central de Medicamentos e Artigos Medicos* (CMAM)—manages Mozambique’s public health supply chain—their mandate is to manage the procurement, importation, central-level warehousing, and distribution to provinces for the medicines and commodities used by the public health system. For many years, CMAM has received assistance from multiple donor partners, for both commodities and operational investments. While the capacity of CMAM has been strengthened, measureable results have been limited because good quality data on performance is not available; and a sense that, despite investments, CMAM’s performance may not be improving as expected.

In this context, in January 2013, USAID entered into a year-long, government-to-government grant arrangement, a Fixed Amount Reimbursement Agreement (FARA or FAR agreement). The FARA links payment of quarterly tranches of funds to specific performance results at CMAM, which are related to the functional areas of planning, distribution, and warehouse management. The aim of this results-based agreement is to spur innovation and efficiency, and improve supply chain performance—improving the effectiveness of these investments, and strengthening the autonomy of CMAM to manage funds.

This qualitative review of the first year of the agreement is based on a conceptual framework and theory of action that suggests the incentives associated with this program will improve supply chain practices and supply chain performance, through three principal pathways: (1) improved staff motivation—leading to improved attendance and job performance; (2) improved collaboration and cooperation; and (3) increased investment in supply chain infrastructure.

The review was carried out in March 2013, through a series of in-depth interviews and focus group discussions conducted with key informants in Maputo, Mozambique. The review explores the effects of introducing performance incentives at the central level of the supply chain, highlights elements of the approach that appear to be working, key factors that enabled it, and recommendations for improvements.

## Year One Results

Results during the first year of the agreement showed that CMAM consistently achieved performance targets related to planning and distribution functions; they also made progress on

indicators related to warehouse operations functions. In all cases, CMAM's performance improved over the baseline measures collected, prior to implementing the agreement.

The introduction of performance incentives at the central level contributed to improved teamwork dynamics and better adherence to processes and the use of tools. The review found examples of staff working harder for longer hours to ensure that tasks and reports were completed, as well as examples of increased collaboration and coordination within and among teams. Standard operating procedures (SOPs) were given more attention, and the short-term deadlines and quarterly reporting and payment cycle encouraged productivity. Notably, the use of software, data collection tools, and reports increased, particularly the warehouse management system (MACS); the data collection and documentation that were required to report performance results for the agreement encouraged more frequent use of tools and regular maintenance of information.

## **Summary of Key Findings**

Findings indicated at least three crucial elements contributed to results: smart program design; effective program implementation; and a virtuous cycle of accountability and empowerment, which was introduced because of the incentive.

The program was designed collaboratively, incorporating opinions and priorities of management and staff at CMAM, as well as national partners. Each element of the agreement, including terms and indicators, was carefully and specifically defined to establish a solid foundation, wherein all the stakeholders involved understood and agreed on who was accountable for what. In addition, relevant supply chain indicators were selected with targets that represent an achievable challenge, bound by a repeated near-term deadline that continuously renews the opportunity to achieve the target.

Successful implementation of the agreement required rigor, but also flexibility; resulting in a program that was relevant, well communicated, and generally perceived as fair. Although specificity is an important element of the indicator design, upon implementation, stakeholders agreed to modify one of the indicators that appeared feasible on paper, but was not executable as it was written. Nonetheless, all agreed criteria for (non)payment was strictly followed, providing an important lesson early on: No performance, no payment. This and other key points of the program appear to have been disseminated broadly throughout the organization, including the point that all staff would benefit from the payment, not just those directly responsible for the functional area results.

CMAM management used a participatory process to determine how to allocate the funds between the institution and the individuals, and how to spend the institutional portion of the funds. This created transparency within the organization and helped highlight where investments that may not be easily apparent are being made to improve working conditions and productivity.

The FAR agreement allows CMAM full discretion over how to spend the payments it receives. By allocating funds to individuals and to the institution, positive behavior was influenced on both levels. For individuals, a review against the salary scale suggests that, if CMAM achieves the targets for all indicators in a quarter, the amount paid to individuals in that quarter may represent as much as one month's salary. The risk associated with non-performance seems to be a strong motivating factor for staff, resulting in greater accountability within and among teams. For the institution, CMAM has been able to take care of small, ad hoc needs, reducing its dependence on external sources; thereby strengthening CMAM's autonomy and allowing the organization to demonstrate fiscal responsibility.

For both CMAM management and sector heads, taking part in decisionmaking for the funds also contributes to morale.

## **Summary of Recommendations**

As with any incentive program, unintended negative consequences are possible; elements meant to motivate can sometimes have the opposite effect. While the agreement aims to motivate CMAM staff, elements of the design or implementation may demotivate or may create perverse incentives. Of note, there is some evidence that the program's approach in sharing the reward equally among all staff, regardless of individual effort, may be causing frustration and backlash. This is an area that should be monitored to minimize any negative impact on morale.

For possible future iterations of the agreement, stakeholders should learn and revise the design—indicators, targets, verification—to reflect new and changing realities; results-based programs are not and should not be considered static. However, changes to the program should aim to consider characteristics of the system as it improves and matures so the program remains challenging; yet, also, maintains elements of consistency. The evolution toward continuous quality improvement should also be considered, incorporating a closer evaluation of results against quality criteria and providing feedback when the criteria are not met. Moreover, CMAM will want to continue to build a culture of quality improvement and data use more generally. Access to data, and sharing or publishing periodic results within CMAM, may further support morale and performance improvements.

Overall, our review suggests that with careful attention to program design and effective implementation, results-based financing (RBF) in the public health supply chain can be a catalyst for system-wide changes and can have great promise as a tool for policymakers and program managers to build on and leverage existing investments. To better understand the impact of RBF strategies, such as the one described in this report; countries should consider a more robust program evaluation, including an explicit analysis of the costs and benefits of the RBF approach.



# Introduction

## Finding New Ways to Strengthen Supply Chains

Results-based financing (RBF) initiatives are multiplying all over the world (Eichler et al. 2009). Referring to “any program that rewards the delivery of one or more outputs or outcomes by one or more incentives, financial or otherwise, upon verification that the agreed-upon result has actually been delivered” (Musgrove 2010), RBF programs aim to strengthen elements of the health systems by giving people the incentives to take action that would lead to better health. Many RBF programs aim to enable patients to access health services and to motivate providers to increase the quantity and quality of services they provide. But even those that have been successful often confront the challenge of interrupted supplies of medicines and health commodities.

Supply chains are a foundation in any health system, encompassing “the planning and management of all activities involved in sourcing and procurement...and all logistics management activities. [This] also includes coordination and collaboration with ... suppliers, intermediaries, third party service providers, and customers.”(CSCMP 2011)

For health supply chains to work—that is, for the right goods to be received and delivered in the right quantities, in good condition, to the right place, at the right time, for the right cost—the countless actors working in different locations with different responsibilities need to be motivated to do their part, and they must be held accountable. These actors—from central level planners and procurement specialists, to regional warehouse and transportation teams, to local storekeepers and service providers—depend on each other for timely and accurate information and a reliable supply of goods. One break in the chain, one delay, can have repercussions throughout the system, ultimately affecting whether families can access life-saving medicines and commodities.

Public sector supply chains in many low-income countries suffer from poor forecasting, late payments to suppliers, and badly managed stock, among other weaknesses. A key contributor is the often misaligned incentives at work in highly centralized public sector bureaucracies, where responsibility for many essential, but disparate, tasks are delegated down many layers to individuals who may face weak incentives to perform (Eichler et al. 2012). Misaligned incentives include low compensation for public sector supply chain staff, whose pay is based on seniority, irrespective of performance; poor communication, coordination, and accountability arrangements; and insufficient resources for management to invest in the necessary infrastructure and other investments that would support long-term success. RBF programs aim to address some of these issues by providing performance payments, autonomy over how to spend them, focused attention on data and reporting, and increased accountability and supervision.

Various strategies have been attempted to strengthen supply chains, including training and capacity-building projects, organization strengthening and process improvement, among others. Use of performance incentives is an approach that has been tried infrequently. Until recently—few, if any—RBF programs are known that directly target the supply chain. Most supply-side health RBF programs have targeted incentives at health facilities and managers at district and provincial levels; where they exist, indicators that relate to the supply chain are embedded as part of larger programs usually focused on maternal and child health and infectious disease services, and timely reporting.

Momentum is growing, however, to develop RBF approaches that specifically target health supply chains. By linking a supply chain worker's performance with rewards, RBF is increasingly viewed as a way to motivate the supply chain workforce; focus attention on—and provide demonstrable evidence of—measurable results; strengthen information systems; build local capacity to manage the supply chain; and, ultimately, improve health. Contributions in this area from USAID's implementing partners include drawing on lessons from the commercial sector (Serumaga, Rosen, and Smith 2012), and a guide on options for applying such approaches (Eichler et al. 2012). At the same time, interest in applying these approaches is also growing, with recent RBF situational assessments carried out in Rwanda (Rosen 2012) and Ghana (Rosen 2013).

The USAID | DELIVER PROJECT and the Health Finance and Governance (HFG) project jointly carried out this review. The review forms part of a learning agenda that the two projects, with other USAID-funded health systems strengthening projects, are carrying out to encourage successful application of RBF principles to supply chain improvements.

## **Background: The Changing Role of Mozambique's CMAM**

In the decades following the end of a prolonged civil war, Mozambique has made important strides in health; including, for example, a decrease in under-5 mortality rates: from 219 per 1,000 live births in 1990 to 97 in 2011 (*Instituto Nacional de Estatística* 2012). Nonetheless, serious gaps persist. The maternal mortality ratio remains high, at 480 deaths per 100,000 live births (World Bank 2013). Prevalence of modern contraceptives is only 7 percent in rural areas (MISAU 2011), and both HIV and malaria are hyper-endemic: the national HIV prevalence is 11.5 percent (*Instituto Nacional de Saúde* 2009). Mozambique also faces challenges related to low human resource capacity, insufficient infrastructure to meet the needs of highly dispersed rural populations, and weak information and governance systems.

Mozambique's health supply chain is managed by the Central Medical Store—*Central de Medicamentos e Artigos Medicos* (CMAM)—whose mandate is to manage the procurement, importation, central-level warehousing, and distribution to provinces of medicines and commodities used by the public health system. A government of Mozambique institution, managed by the National Directorate of Medical Aid (DNAM), CMAM was established in 1975 and was endowed with legal personality and administrative autonomy. Procurement and distribution of supplies were contracted, on a monopoly basis, to *Empresa Estatal de Importação e Exportação de Medicamentos* (MEDIMOC), a public company that was privatized in 1999.

In 2005, CMAM lost its administrative autonomy; in 2008, the activities of MEDIMOC were absorbed into CMAM; however, it did not have a corresponding change in staff, assets, and processes needed to carry out the new set of activities. Informants who worked for CMAM at that time described a chaotic environment, with the many responsibilities of the larger MEDIMOC falling on CMAM's 45 to 60 staff. Support came from USAID in the form of warehouse rental space; however, the skill and manpower gap still had to be filled.

The loss of autonomy, coupled with increased scope, created operational challenges that hindered CMAM's ability to respond to both emergencies and routine needs, which requires significant flexibility and control over operations. The reliability of medicines and medical supplies became a serious problem in the country. An assessment of medicines procurement and supply chain management system, undertaken in February 2011, found multiple shortcomings: poor information accuracy and flow between the central, provincial and district levels; ad-hoc distribution of medicines from provinces to districts and health facilities; fragmented management responsibility;



and inflexible financing (World Bank 2011). The result: inaccurate information about stock levels, expiries, and delayed and inefficient distribution.

The Ministry of Health and its partners responded by developing the Supply Chain Logistic Plan of Action 2012 (MISAU 2012) and a longer-term vision in a new Pharmaceutical Logistics Strategic Plan 2013 (MISAU 2013). A performance indicator framework and monitoring plan were also developed. The strategic plan and action plans aim to address several key issues:

- Improved quality and timeliness of information flow between districts, provinces, and CMAM and better use of this information for planning and procurement purposes.<sup>1</sup>
- Better planning for distribution from provincial warehouses to the districts.
- Stronger supervision and internal audit of province/district stores by CMAM.

Meanwhile, CMAM has received assistance from multiple donor partners for many years. Most recently, this has included technical assistance and commodities from the U.S. Government (USG); operational funding and commodities from the World Bank; and commodities from the Global Fund to Fight AIDS, TB and Malaria. The USG alone invests, on average, U.S.\$10–15 million<sup>2</sup> annually on technical assistance to CMAM through such projects as the Supply Chain Management System (SCMS), the USAID | DELIVER PROJECT, and *Fortalecimento dos Sistemas de Saúde e Ação Social* (FORSSAS).

These investments have resulted in many improvements. A warehouse management system, known as MACS<sup>3</sup> was introduced, providing tools to better control and manage stock and data. A monitoring and evaluation (M&E) framework was developed and a dedicated M&E unit created within CMAM to routinely track performance. In addition, an electronic payment system—e-SISTAFE—has enabled CMAM to pay some suppliers and manage limited funds independently of the Ministry of Health’s Department of Administration and Finance (DAF). These and other investments have strengthened the capacity of CMAM; however, until recently, there has been a dearth of measureable results because of a lack of good quality data on performance; and a sense that, despite investments, CMAM’s performance may not be improving as expected.

## Mozambique’s Experiment with RBF for Supply Chains

In this context, in January 2013, USAID entered into a one-year government-to-government grant arrangement that conditions payment of quarterly tranches of funds on specific performance results at CMAM related to planning, distribution, and warehouse management. The aim is to spur innovation and efficiency, and improve supply chain performance; thereby improving the effectiveness of these investments, and strengthening the autonomy of CMAM to manage funds.<sup>4</sup> As the performance agreement (FARA)<sup>5</sup> between USAID and the Ministry of Health (MISAU) states, one of the goals “is to provide greater access and control over finances to CMAM in order to improve its operations and create greater efficiencies, which will directly support and benefit

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<sup>1</sup> At present, Mozambique has three Central Medical Stores, one warehouse for each of the 10 provinces, and one warehouse for each of the 128 districts.

<sup>2</sup> All dollar amounts in this document are U.S. dollars.

<sup>3</sup> MACS is the brand name of the system; it is not an acronym.

<sup>4</sup> At \$500,000 for the first year, the FARA represented only about 5 percent of total USG funding for supply chain technical assistance, which includes funding for SCMS, USAID | DELIVER PROJECT, FORSSAS, and other support, such as warehouse rental.

<sup>5</sup> This contract is not available.

MISAU and USG programs and goals.” Results during the first year of the agreement show that CMAM has consistently achieved performance targets related to planning and distribution, and has also made progress on indicators related to warehouse operations.

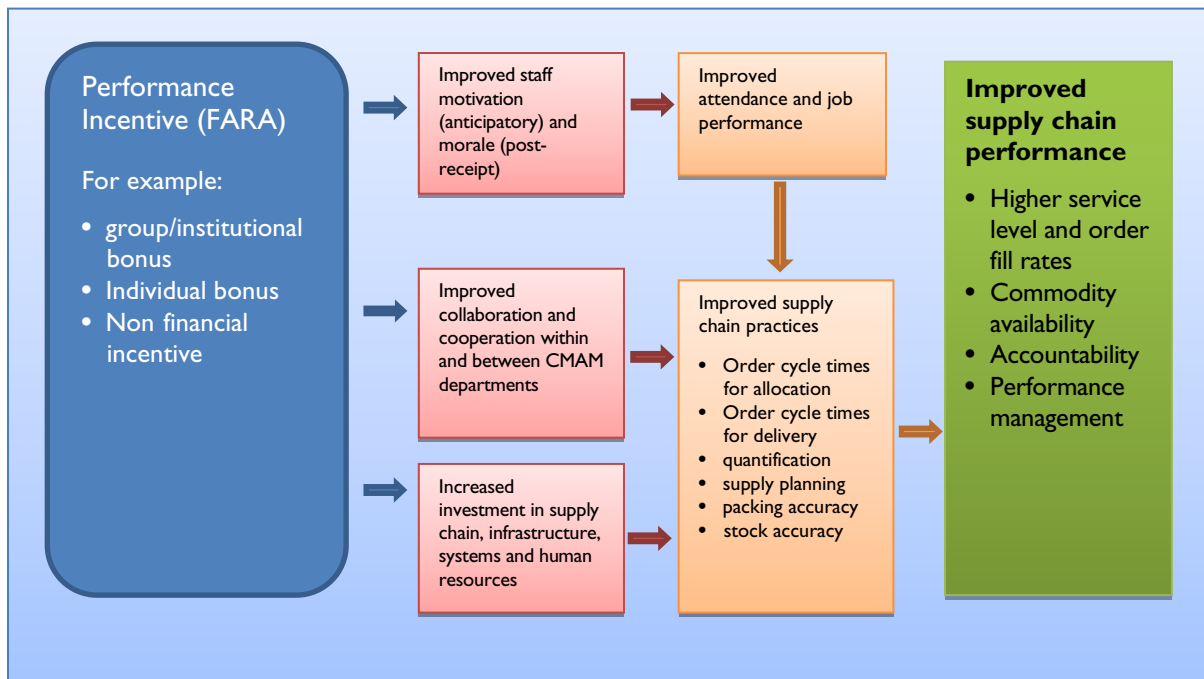
But, what underlies these positive results? This qualitative review of the first year of the program explores the effects of introducing performance incentives at the central level of the supply chain; and highlights elements of the approach that appear to be working, as well as areas that could improve. It discusses key areas to strengthen the approach, key factors that enabled it, and administrative issues related to implementing the program.

This report is organized as follows: first, it provides background on the Mozambique health sector, with a particular focus on the role and history of CMAM. Then, it discusses the mechanics of the RBF program, including details about design elements, such as indicators, targets, payment cycles, and the process of verification. This is followed by analysis and key findings from stakeholder interviews. The report concludes with reflections and recommendations on how to strengthen future results-based agreements for supply chains—in Mozambique and elsewhere.

## Methods

This qualitative review is based on the conceptual framework and theory of action presented in figure 1. The incentives associated with the program are expected to improve supply chain practices—and, therefore, supply chain performance—through three principal pathways: (1) improved staff motivation—leading to improved attendance and job performance; (2) improved collaboration and cooperation; and (3) increased investment in supply chain infrastructure.

**Figure 1. RBF Monitoring and Evaluation Conceptual Framework for Mozambique**



In-depth interviews and focus group discussions were conducted with 33 informants in Maputo, during March 3–14, 2014. Research was conducted jointly with representatives from the USAID |

DELIVER PROJECT and USAID's HFG project. Using a semi-structured interview guide, which was created with inputs from the , SCMS<sup>6</sup>, and HFG, consultants interviewed a range of stakeholders involved in the program, including representatives from CMAM, USAID, SCMS, and donor agencies—the World Bank, DFID, and UNFPA (see appendix A for a list of informants).<sup>7</sup> The limitations include a small number of interviews with mid- and lower-level staff at CMAM—i.e., CMAM interviews were confined, with the exception of the warehouses, to CMAM's sector heads<sup>8</sup>. Thus, our understanding of how lower-level CMAM workers perceive the program is incomplete.

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<sup>6</sup> SCMS is a project managed by the Partnership for Supply Chain Management, which also holds the contract for the Global Fund's Voluntary Pooled Procurement project (<http://pfscm.org/pfscm>).

<sup>7</sup> Consultants could only confirm interviews with one representative from the MOH programs.

<sup>8</sup> Sector refers to the various organizational departments or divisions within CMAM, including, but not limited to Finance, Administration, Procurement, Planning, and Distribution.



# RBF Design

## Rationale for RBF in Mozambique

The idea of applying RBF in the Mozambique public health supply chain was first proposed in 2010, following a situational analysis that examined weak points in the health system that might benefit from better alignment of incentives (Connor et al. 2011). As one of its recommendations, the analysis concluded that RBF could be introduced in CMAM's supply chain to improve the supply of drugs and other goods, as a complement to other interventions that target improving health outcomes. The analysis found several examples in the health sector of incentive arrangements similar to RBF, making the concept a familiar one, both legally and culturally feasible. Further, the analysis recommended that RBF in Mozambique should aim to motivate the many relatively low-paid workers in the supply chain to improve performance and system efficiency, rather than reduce cost or spending, given the low levels of health spending and population coverage, and high rates of unmet need.

Initial discussions suggested funding such a program with a fixed price contract, including an award fee that would be linked to specific supply chain performance indicators. Ultimately, USAID stakeholders agreed to use a Fixed Amount Reimbursement Agreement (FARA or FAR agreement), funding mechanism. Although CMAM was familiar with the concept of incentive programs, uncertainty about how it would be implemented at CMAM delayed initiating the design of the program.

It was not until spring 2012 that a design workshop was held, where CMAM management and operational staff, USAID, SCMS, the USAID | DELIVER PROJECT, Health Systems 20/20, and the World Bank jointly agreed on the initial areas of focus. Outputs from the one-day workshop included a preliminary list of performance indicators and definitions, preliminary performance targets, data sources, frequency of reporting, and those responsible for reporting. Additional work would be done to finalize the indicators and complete the documentation requirements of the funding mechanism described below.

## Overall Framework for the RBF Program: the FARA Mechanisms

A FARA is a form of USAID assistance in which disbursements for a fixed-amount are made for outputs rather than inputs—outputs are the physical completion of a project or subproject, or a quantifiable element (*milestone*) of the project. The output must meet previously agreed-upon specifications or standards *before* reimbursement is made to the host country. The amount of reimbursement is fixed in advance, based on reasonable cost estimates to complete the outputs, which USAID reviews and approves. To ensure compliance with agreed-to plans and specifications, the mission is required to conduct periodic inspections of the project, as well as to certify, upon completion, compliance with agreed-to plans and specifications (USAID 2011). The structure and application of the FARA closely align with Musgrove's definition of RBF presented earlier, with payment being contingent on completing and verifying an agreed-to result.

Mozambique’s supply chain FARA is the first time this type of mechanism has been used in the supply chain to drive improvements in operational performance. Moreover, rather than rewarding the completion of subprojects—such as infrastructure improvements or data collection activities—it rewards the achievement of specific, time-bound, target-based supply chain performance results.

## **Contractual Agreement or Mechanism**

A FAR agreement is a financing mechanism whereby USAID agrees to pay a host government entity a fixed amount after a determination by USAID that specified stages of a project or activity have been completed and verified, in accordance with the terms and conditions in the FAR agreement, as previously approved by USAID and the host government entity. The FAR agreement details the terms and conditions to finance an agreed-to activity on a reimbursement basis, and includes two important components: (1) an estimate of the total cost of the activity; and (2) a schedule of stages of completion of the activity (*milestones*) and the associated reimbursement amounts and, if applicable, dates. See appendices B and C for examples of these two components.

FAR agreements often replace or complement cooperative agreements, and they represent a change in approach that is meant to reflect the goals of USAID FORWARD Implementation and Procurement Reform<sup>9</sup>, which commits USAID to “strengthen partner country capacity to improve aid effectiveness and sustainability by increasing use of reliable partner country systems and institutions to provide support to partner countries.” Use of reimbursement agreements is also expected to drive innovation and efficiency, because recipients can decide how best to meet the agreed-to result, and are free to decide how to spend the reimbursement.

When compared to assistance agreements that make disbursements based on cost inputs, a fixed-amount reimbursement type of agreement reduces risks for USAID, an important consideration with funding agreements. With a FARA, the recipient is not reimbursed until subprojects or milestones are completed; and the amount paid to the host government is fixed, limiting exposure to rising costs for the agreed-to activity.

To be eligible to enter into government-to-government agreements, such as a FARA, USAID missions must first undertake a Public Financial Management Risk Assessment Framework (PFMRAF) with the host country; it has two stages:

- Stage 1: Macro-level investigation into all aspects of financial management in the country, including financial flows, transparency, Ministry of Finance (MOF) accounts, relation to politics, etc.
- Stage 2: Focus on financial management of specific entities and in-depth tracing of funds through the organization (ministry level).

In Mozambique, USAID initiated the PFMRAF, with support from an external audit firm in 2011; they finalized stage 2 in the summer of 2013, which included a review of 12 entities, including CMAM. The report looks in-depth at the strengths and weaknesses of particular ministries, what the risks are for channeling money through them, and how those risks can be mitigated. At the time of this review, under guidance for FARA, missions are not required to do a stage 2 assessment for amounts less than \$10 million. (In anticipation of changing FARA guidance, the USAID mission in Maputo did a stage 2 assessment of CMAM.)

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<sup>9</sup> <http://forward.usaid.gov/>

The FARA was signed on December 6, 2012, between USAID and the Directorate of Planning and Coordination within MISAU, with a performance period beginning in January 2013 and ending in December 2013.<sup>10</sup>

## **Selection of Indicators, Performance Targets, and Reimbursement Amounts**

Program designers worked closely with CMAM management, sector heads, and advisors to agree on a set of indicators that measured the performance of the main central level supply chain functions. Although discussed, a measure of overall supply chain performance was not agreed to. The functional area, or *sector* staff felt strongly that each indicator should measure the performance of an individual sector, rather than multiple sectors; sectors did not want their own results to be affected by the performance of another sector.

The agreement specifies five performance indicators, which focus on known points of underperformance within the functional areas of supply planning/forecasting; distribution planning, and warehouse operations (see table 1). Working groups for each functional area debated possible options and agreed on indicators that represented key activities for the functional areas; in some cases, they were *core* supply chain performance indicators, e.g., measuring and improving inventory accuracy is needed before other inventory related data, such as product leakage or expiry rate, can be measured. The groups agreed that targets should be set based on historical performance data so as to present a reasonable challenge, but also be within CMAM's control to achieve—and that could be measured and verified. Data sources and reporting mechanisms were later validated or created for each indicator; and targets were set, based on current documented performance.

With the indicators, a budget or estimate of the total cost to achieve the targets was also developed. As the FARA is a reimbursement mechanism, payments for completing activities and achieving milestones must have specific costs associated with their achievement. After establishing the set of indicators, consultants worked closely with CMAM and their technical assistance partner, SCMS, to identify applicable direct and indirect costs associated with the activities. Table 2 summarizes the set of indicators, the targets, the total cost of the activities, and the agreed-to payment or reimbursement schedule.

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<sup>10</sup> The DPC coordinates other national directorates. At the time of this review, the MOH had five national directorates and, from a management perspective, CMAM sat under DNAM. In April 2014, CMAM was promoted to the level of national directorate.

**Table 1. Indicators, Targets, and Payment Amounts**

<b>Functional Area</b>	<b>Milestones to Be Completed Each Quarter of Calendar Year 2013</b>  <i>USAID will reimburse CMAM the value specified as USAID's contribution, as noted below, upon certification by DPC and approval and acceptance as certified by USAID of the following milestones at the end of each quarter of calendar year 2013.<sup>11</sup></i>	<b>USAID's Contribution (Fixed Reimbursement Amount) per Quarter</b>
<b>Supply Planning/ Forecasting</b>	(a) Annual quantification plan that meets 3 predetermined criteria, for each product group, OR (b) Quarterly updated supply plan that meets 3 predetermined criteria, for each product group <sup>12</sup>	\$25,000
<b>Distribution Planning</b>	Order cycle time for <u>distribution</u> planning is 15 calendar days or less for Via Clássica orders to the 18 central + provincial clients	\$25,000
<b>Warehouse</b>	Order pick/ pack accuracy for distribution to the 18 central + provincial clients is 84% for Q1, 86% for Q2, 88% for Q3, and 90% for Q4	\$25,000
<b>Warehouse</b>	Order cycle time for <u>dispatch</u> is 35 calendar days or less for Via Clássica orders to the 18 central + provincial clients	\$25,000
<b>Warehouse</b>	Inventory accuracy in central warehouses which have implemented MACS is 75% for Q1, 78% for Q2, 81% for Q3, 84% for Q4	\$25,000
	<b>Quarterly Total</b>	<b>\$125,000</b>
	<b>Total for Calendar Year 2013</b>	<b>\$500,000</b>

## Indicator Measurement

For reporting, the M&E department at CMAM gathers all necessary data and checks the timeliness of indicators. FARA performance indicators are already collected as part of CMAM's routine M&E activities. The M&E department then sends reports to the CMAM director, who submits them to the Directorate of Planning and Coordination (DPC), who submits a report outlining achievements, including a payment request to USAID. See annex B for a description of the particular deliverables associated with each indicator.

## Payment Mechanism, USAID to CMAM

Payment is made to CMAM each quarter, following verification of results. The payment to CMAM is off-budget; it is paid directly into a private commercial CMAM bank account.

## How CMAM Uses the Payments

The FARA gives CMAM complete discretion in its use of the reimbursement payment and does not require CMAM to provide proof of how it uses the funds, whether it is invested in institutional

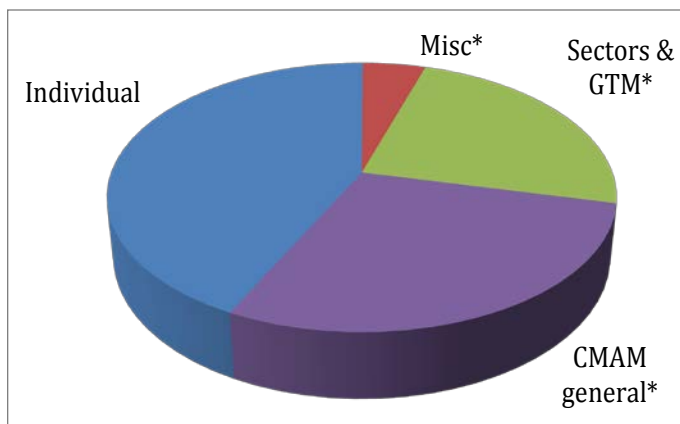
<sup>11</sup> The indicators are weighted equally. Scores for the warehouse indicators are taken in aggregate from all three warehouses, with targets derived from aggregate warehouse performance.

<sup>12</sup> Product groups: HIV/AIDS, Malaria, Tuberculosis, *Medicamentos Essenciais*, *Laboratório*, *Saúde Reprodutiva*, *Vacinação*, *Material Medico Cirúrgico*.



improvements or allocated as employee bonuses. CMAM proposed a plan for allocating the funds, which was approved by the Minister of Health: the majority share of the funds are invested in the institution, with portions reserved for the sectors responsible for the indicators and for the quantification working groups—sub-groups of the *Grupo Técnico de Medicinas* (GTM)—that contribute to the planning indicator; the remaining and still substantial share of funds are shared among all staff as personal incentives, based on an established formula that considers staff rank and category (see figure 2).

**Figure 2. CMAM Allocation of Funds Disbursement**



\* Split of institutional allocation between CMAM general, sectors and GTM, and misc. is approximate.

It is also important to note that CMAM staff have experience with incentive programs; in particular through a benefit commonly called the *monthly incentive*, an internal (not donor-funded) performance incentive that is paid each month to every individual in CMAM. The allocation of the monthly incentive is according to an established schedule that considers certain performance criteria, staff category, and rank.

### Verification of Results

Each quarter, results are verified by a team from USAID; they select a random sample of the five indicators to verify. Initially, the team consisted of two supply chain experts, but it was expanded—beginning in the third quarter of 2013—to include two members of USAID’s M&E team. They use a checklist to give the verification process more structure.



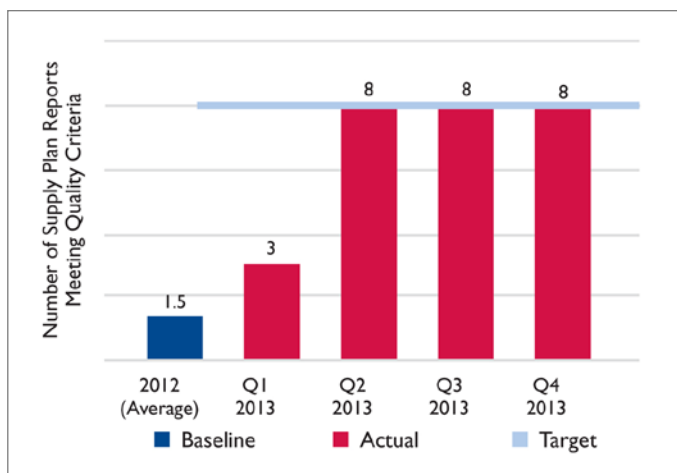
# Achievement of Targets in Year One

Steady progress was made on achieving the indicator targets during the first year of the agreement, particularly the planning and distribution indicators. Progress was not as steady, but it was nonetheless positive for the warehouse indicator targets. It should be noted that data for the fourth quarter was not yet available for all indicators at the time of this review.

## Supply Planning

The supply planning indicator is met by the timely submission of a quarterly report—either an annual quantification report or a supply plan update—that meets specified quality criteria, for each of eight product groups. After a misstep in the first quarter, when only three out of eight reports were submitted, the planning sector consistently achieved its targets. Baseline performance for the year, prior to execution of the agreement, was between one and two reports submitted each quarter (see figure 3).

**Figure 3. Quality of Supply Planning Results**

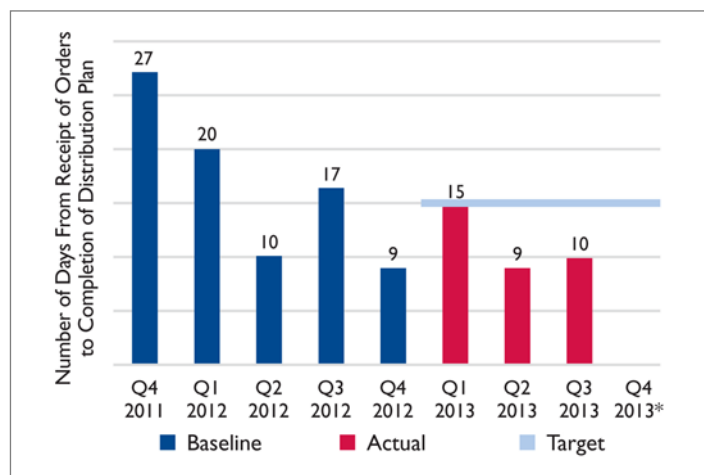


Producing quantification and supply planning reports on time was a break from the status quo. In years past, informants said that annual quantification reports, while typically completed, were not always done in a timely or participatory manner; and, although the work related to the quarterly supply plan updates was often done, with technical assistance from SCMS, it was not usually recorded and shared with all the partners.

## Distribution Planning

To meet its indicator target, the distribution sector must develop and submit a quarterly distribution plan within a 15-day period. Baseline performance for the number of days required to submit the distribution plan was inconsistent, with results as low as nine days and as high as 27. However, the sector consistently met or exceeded the 15-day target during the first year of the agreement (see figure 4).

**Figure 4. Distribution Planning Time Results**



\*Results were not available where no result is given

## Warehouse Functions

It proved more challenging for CMAM to achieve the warehouse indicators, particularly inventory accuracy, and order pick and pack accuracy. In part, this was because of normal, context-specific problems: out-of-service equipment; low staff levels; and Internet connectivity problems, which made it difficult, at times, to connect to the MACS warehouse management system. Some of these problems may be resolved in the future if CMAM uses incentive funds to maintain equipment; but others, such as lack of staff or high staff turnover, require longer term solutions that are not entirely in CMAM's control.

It is important to note that performance improvements were noted for all warehouse indicators, even during quarters when targets were not met, and results varied across the different warehouses. The warehouses are rewarded based on their aggregate scores against targets that were set based on their aggregate performance—this masks the performance variances among them.

The existing conditions at the warehouses seem to have a strong link to the individual warehouse results. Zimpeto central warehouse is the largest and best-equipped warehouse, and is owned by CMAM. Located about 45 minutes outside downtown Maputo, it is well-equipped, well-organized, well-staffed, and well-lit. Zimpeto is, not unexpectedly, the best performer among the warehouses. The Adil warehouse is an hour outside Maputo in the opposite direction. Adil is a rented facility that is only partially equipped with racks, poorly lit and ventilated, and understaffed.<sup>13</sup> Beira warehouse,

<sup>13</sup> At the time of this review, Adil had only three full-time technical staff and a small crew of laborers.

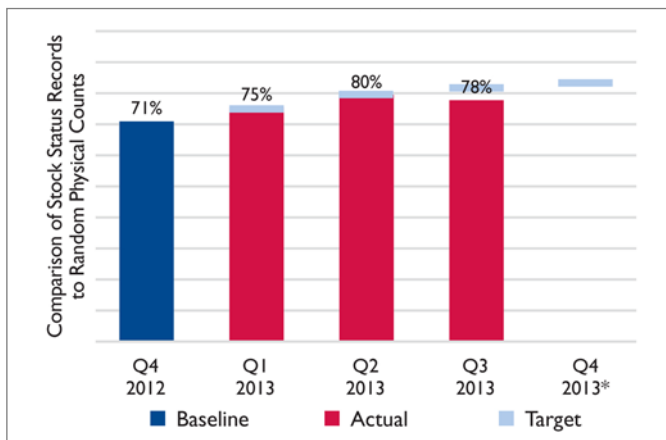
an hour's flight north of Maputo, is similar in condition to Adil; it does not have racking or other features and is generally regarded as the lowest performing warehouse of the three.

Despite the variance among results, warehouse staff mentioned the increased attention to detail that was needed to ensure inventory and order picking accuracy and timely dispatch, and how they were working together more closely to do so. They also offered anecdotal evidence of closer adherence to standard operating procedures (SOPs) in place, suggesting the potential for continued improvement.

## Inventory Accuracy

The warehouse management system, MACS, was being implemented at the three warehouses at different times during 2013. The inventory accuracy indicator was applied to each warehouse as the system came online. The target was set considering MACS implementation, and it was increased, incrementally, each quarter throughout the year. CMAM achieved the inventory accuracy target during the first two quarters, but it did not reach it in the third. Nonetheless, measurable improvement in inventory accuracy was seen throughout the year (see figure 5).

**Figure 5. Inventory Accuracy Results**



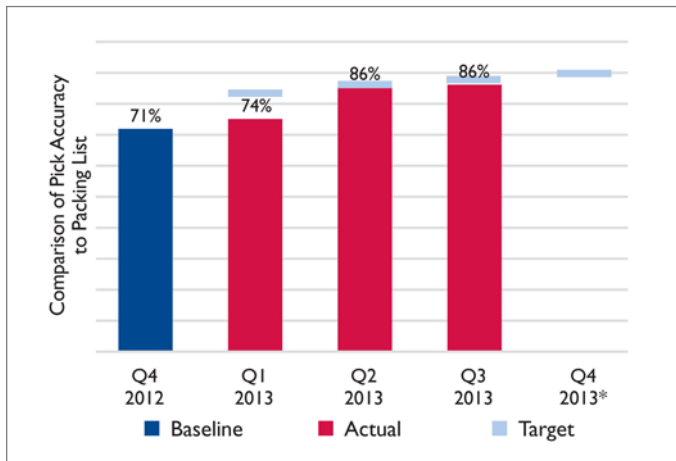
\*Results were not available where no result is given

## Order Pick and Pack Accuracy

The order pick and pack accuracy indicator was also set to increase incrementally each quarter. The target was achieved only in the second quarter—fourth quarter data was not yet available. This is one example of the different performance levels among the three warehouses, where one location achieves the target while others do not. The target for the third quarter of 2013 was 88 percent, and the aggregate score was 85.9 percent, meaning this indicator was not met for that quarter (see figure 6). However, a look at their individual scores shows a large variance:

- Zimpeto: 94.4 percent
- Beira: 65.8 percent
- Adil: 47.8 percent.

**Figure 6. Order Pick and Pack Accuracy Results**



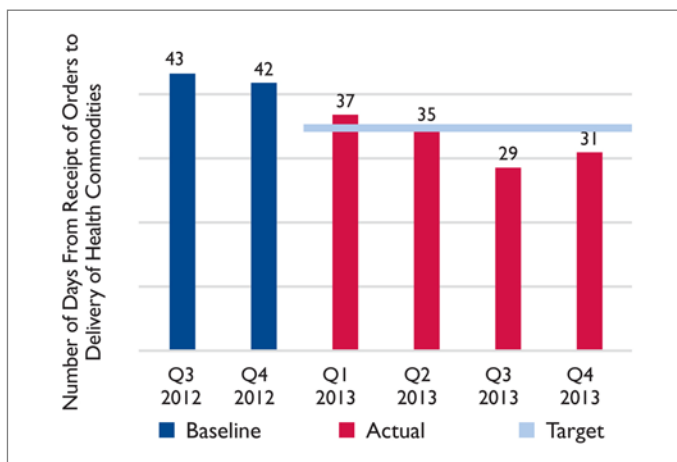
\*Results were not available where no result is given

Again, although the targets were not met every quarter, performance continued to improve throughout the year. As one example of how this was done, staff at Adil described how they started to double-check order packing accuracy by having one person pick the product and another confirm that it is the correct product and quantity, even though there was no dedicated staff was available for this purpose.

## Dispatch Cycle Time

The dispatch cycle time indicator is achieved when quarterly shipments of Via Classica orders are received within 35 calendar days of the warehouse receiving the distribution plan. Baseline performance for this activity was around 42 days, with marked improvements during the first year of the FARA. While the target was not met in the first quarter, it was met or exceeded in subsequent quarters (see figure 7).

**Figure 7. Dispatch Cycle Time (Receipt of Distribution Plan to Delivery) Results**



# Changes in CMAM Associated with the RBF Program

To achieve the results described earlier, what changed within CMAM? The conceptual framework and theory of action suggests improved supply chain performance through improved staff motivation, improved collaboration and cooperation, and increased investment in supply chain infrastructure.

Informants spoke of changes in teamwork dynamics, adherence to processes, and use of tools. Staff repeatedly mentioned working harder, longer hours—staying late and coming in on weekends to make sure tasks and reports were completed. Staff also recounted working more closely together—increasing collaboration and coordination within and among teams—and described being proactive in seeking out data that was not forthcoming; for example, reminding provinces to send requisitions on time and reminding the programs to complete their reports before the deadline.

The information above is important because meeting the planning and distribution indicator targets depends on the coordination and cooperation of actors from outside the responsible sectors. For example, the planning indicator requires that the GTM subgroups for each product group convene quarterly to share and analyze data, and to agree on quarterly commodity supply plans or annual quantification reports. Outputs are used to inform decisions related to commodity supply and funding needs. Similarly, to prepare the distribution plan before its deadline, the distribution sector relies on timely order submission from the provinces each quarter. The distribution plan becomes the basis for dispatching orders to the provinces. For these two indicators, success depends not only on completing the required activity, but on completing it by a specific date.

Warehouse staff spoke of paying more attention to detail and following SOPs more closely. The short-term deadlines were also reported to be helpful, as was the quarterly reporting and payment cycle: deadlines were too close for staff to lose sight of them or delay carrying out their activities.

Notably, the use of software, data collection tools, and reports increased, particularly the use of MACS, the warehouse management system. While a number of tools and reports were already available to CMAM staff, the data collection, measurement, and supporting documentation that were required to report performance results for the FARA encouraged the regular use of tools and regular maintenance of information.

## Factors Underlying Changes Associated with the RBF Program

What were the underlying factors that led to the changes in CMAM described earlier? Analysis reveals at least three crucial elements that contributed to achieving results: smart program design, effective program implementation, and a virtuous cycle of accountability and empowerment that was introduced because of the incentive.

## Smart RBF Program Design

The design of the RBF program displayed several *smart* design characteristics.

**Careful and deliberative design:** Stakeholders involved in Mozambique’s FAR agreement took the necessary time to design the agreement carefully and to establish a solid foundation, wherein all the stakeholders involved understood who was accountable for what.

**Collaboration:** *The FAR agreement design was a collaboration between USAID and CMAM, which ensured indicators were not imposed, but agreed-on together.* The design was an iterative, consultative process with CMAM, Health Systems 20/20 (the USAID project that preceded HFG), SCMS, USAID, the USAID | DELIVER PROJECT, and the World Bank. Participants noted their opportunity to discuss the indicators at length and to give their input and opinions on the implementation.

**Specificity:** *The FAR agreement clearly describes each element of the agreement, including deadlines, precise indicator definitions and targets, and data sources for verification and reporting mechanisms.* This ensured that expectations and requirements were clearly defined and agreed on.

**Achievable challenge:** *The indicators selected were the right mix of being challenging without being too difficult; and, conversely, were within CMAM’s reach to achieve without being too easy.* Moreover, they are relevant metrics, based on standard supply chain performance indicators, and they were rigorously defined and tested during the design process.

**Frequency of payment cycle:** *The quarterly payment cycle is frequent enough to be motivating and it has helped create routines among CMAM staff.* Staff are constantly working toward *new* near-term deadlines and targets; quarterly payment keeps the goal well within sight and reach, and constantly renews the opportunity to achieve the desired results or lose the benefit. Contrast this with many input-based approaches where there is no immediate pressure, and, if funds cannot be spent up front, it could be several years before the possibility of losing it.

## Effective Implementation

The design of a program is only a template—a theory. Impact depends on how innovations are implemented. In this, the RBF FARA was also strong, in several important ways.

### Openness to learning and revision

While every effort was made in the original design to ensure that data collected for each of the indicators would accurately represent CMAM’s performance, some flexibility with the indicator definitions was required to successfully implement the agreement. For example, after testing data collection and reporting for the stock accuracy indicator in late 2012—before the program launched in January 2013—the implementation team proposed to change the precise definition of the stock accuracy indicator to allow for a 1 percent margin of error in stock accuracy; USAID agreed to it. Without this revision, the indicator, as it was originally defined, would have been unachievable; openness to learning and revision resulted in a relevant and achievable indicator.

The process for verification also evolved—going from a two-person supply chain team to a larger team that includes both supply chain and M&E experts. As the verification process has evolved, the time from the submission of quarterly results to the time when USAID disburses funds has been reduced from 50 days to about 30 days.



## **Rigid enforcement of indicator success criteria**

Initially, there was a strong belief among CMAM as a whole that they would receive a payment regardless of whether or not they met the performance targets. Early on in the program, it was important for CMAM to realize the consequences of non-performance and for USAID to strictly follow through with (non)payment, as specified in the FARA. This was a change from typical aid mechanisms, where disbursements may be made when agreed-to targets are not met, but effort is shown by some degree of improvement.

## **Effective sensitization by CMAM**

Prior to the start of the performance period, CMAM management shared the final details of the agreement with the sector heads and made them responsible for communicating the program and expectations to their respective teams. No formal communication plan was set up, but the key points appeared to be well disseminated throughout the organization.

Three important messages were conveyed:

- Specific targets had to be met by specific dates.
- The benefit would only be paid for targets that are met; there would be no benefit for targets that were not met.
- All staff would share the benefit for achieving the results, not only those directly reporting on the indicators.

It should be noted that it is unclear at what point during implementation that the precise details of how the payments would be allocated among staff were communicated to CMAM staff.

## **All staff benefit and decisions on use of funds is participatory**

Although only a few sectors are *directly* responsible for achieving targets and reporting on the indicators, it is widely recognized that all staff have supporting roles, even if they are indirect. The decision by CMAM management to share the FARA payment among all employees reflects this recognition and has contributed to improved team dynamics.

Sector heads also value having a voice in the spending decisions for the portion of FARA funds allocated to institutional investment and seeing tangible results, such as upgrades and equipment for shared conference rooms. The participatory process creates greater transparency within the organization on how the institutional portion is spent and it highlights where investments that may not be easily apparent are being made to improve working conditions and productivity.

Overall, support for the FARA appears strong, both among CMAM management and staff, and among its development partners. SCMS, the primary technical assistance partner for CMAM, agrees almost unanimously that the FARA has improved CMAM's performance, as do USAID stakeholders. In short, there is broad-based enthusiasm for the approach. According to Kevin Pilz of USAID, "Everyone from the cleaners up knows about the FARA."

## Performance Incentives Created a Virtuous Cycle of Accountability and Empowerment

Perhaps the most obvious motivator in any RBF program is the money. As noted earlier, funds paid as a result of achieving performance targets were split by CMAM—a portion was allocated to staff as individual payments, and a portion to CMAM for institutional reinvestment.

For individuals, the FARA payment is significant: a review against the salary scale suggests that, if CMAM achieves the targets for all indicators in a quarter, the amount paid to individuals in that quarter may represent as much as one month's salary. As noted earlier, in addition to salaries, CMAM staff receive an internal performance incentive that is paid each month to every individual in CMAM, as well as per diem and allowances for travel. The quarterly FARA payments are much smaller than the monthly internal performance incentive, but are, nonetheless, described by informants as motivating.

Though staff have an opportunity to earn *money in our pockets*, as it was described, the impact of the FARA on workplace norms was not immediate. It took the first quarter's failures and near misses—CMAM receives zero payment for the targets that are not met, regardless of the reason—to illustrate both what the staff stood to gain personally and what was possible for CMAM to receive as a whole. Results at the end of the first quarter showed that by meeting only two of the five indicators, CMAM would receive only about 40 percent of the possible payment. Although the formal submission of results and subsequent verification and payment steps would require several months to complete, CMAM staff saw that performance results played an important role in determining the amount they would receive. In the second quarter, with a better grasp of the program and what was at stake, CMAM achieved all its FARA targets.

Initially, the time from submission of results to receipt of the FARA payment was three to four months. However, once CMAM received its first incentive payment, it was able to invest in the supply chain infrastructure, including such things as—

- infrastructure/security improvements and materials for warehouses
- purchase of office equipment, supplies and materials, including computers and other information technology equipment
- travel costs and quantification group operational costs
- workforce environment improvements: curtains and chairs; coffee, tea, and snacks for meetings.

Staff members repeatedly praised these investments as contributing to their workplace satisfaction, making the office space more comfortable and appealing, particularly those at headquarters in Maputo, and bringing a sense of professional pride. These investments and the related improvements in morale directly link to the principal causal pathways described in the conceptual framework presented earlier; they are expected to contribute to improvements in supply chain practices.

Overall, respondents describe the FARA as contributing, not only to achieving specific indicators, but also to a positive change in the approach to work at CMAM.

When results from the first quarter indicated that only three of the indicator targets had been met, reasons for non-achievement were put forth, with the expectation that payment for all the indicators would be made. However, the terms of the FARA were strictly followed, and payment was made

only for the three targets that were achieved. In subsequent quarters, greater effort was made to collect the data to meet more of the targets. In other words, CMAM initially felt they had to justify their failure; they were thinking in terms of traditional support. However, the message from USAID was simple: No performance, no payment. This meant that success was in the hands of CMAM staff.

CMAM's national partners and technical advisors also noted a similar positive influence since the FARA was implemented, particularly given the experience of *losing* money by missing an indicator by a small margin. It is becoming common for CMAM staff to identify problems and look for solutions that will enable them to complete their activities.

Although the FARA payment amount is only about five percent of the total operational investment and support CMAM receives, there are two crucial characteristics of the RBF money that set it apart from traditional support. First, with the FARA RBF funds, CMAM has full discretion over how to spend it. When CMAM received money in the past, they could not plan independently what to do with it. With control of FARA funds, CMAM has been able to take care of small, ad hoc needs, such as purchasing distilled water for the forklift batteries or packing materials, which has reduced dependence on its technical assistance partner, SCMS, for some of these items. This strengthens CMAM's autonomy and provides a context within which the organization can demonstrate fiscal responsibility. Moreover, both CMAM management and sector heads spoke enthusiastically about CMAM being empowered to direct FARA funds to priority areas, rather than being entirely dependent on externally managed budgets or approvals. Interestingly, although the FARA does not require CMAM to report the use of funds to USAID, CMAM elected to share the details of how they spent the funds with USAID after the first tranche was paid. For both CMAM management and sector heads, taking part in decisionmaking for the funds also contributes to morale. Discretion and autonomy are empowering and motivating in themselves.

Second, unlike the monthly performance incentive that is based on an individual's performance, the FARA payment is based on *team* performance. The amount every individual receives ultimately depends on the performance of the group. Interdependency to get things done is not new at CMAM, but it has been given more weight because of the FARA, because it stimulates staff to encourage each other to do better, more timely work; and translates into a tangible, personal benefit.

The shared nature of the payment appears to be enhancing intra-CMAM accountability—that is, accountability both within and between sectors. Intra-department accountability has increased, with staff members within sectors nudging, reminding, cajoling, and helping each other do their jobs so they all achieve their targets. This is particularly evident at the warehouse, where performance depends on the team working together to receive goods, organize and store them, and then pick and pack them for shipment. Staff at Zimpeto warehouse recounted the positive *pressure* among the team members to work together to ensure they meet their targets. When another team or sub-sector encounters delays, they work together to complete the tasks. In the same way, RBF is driving accountability between sectors. It is common knowledge among the sectors which activities are tied to the FARA, and with them comes pressure to meet the targets.

In addition, the FARA is increasing accountability between CMAM and its upstream and downstream supply chain partners, something particularly important in the distribution and planning sectors. In one example, the distribution sector head noted how, because her sector's ability to complete distribution plans on time depends on the timely receipt of provincial requisitions, she notified provinces that if their requisition was late, they would receive lower priority during the distribution planning process. While the actions of the province are outside the control of CMAM,

the promise of reward has spurred creativity in problem solving on the part of the distribution sector, thereby influencing change externally.

In another example of increased accountability, the head of planning at CMAM noted that, because of RBF, he is more empowered to demand regular and timely reports from the GTM sub-groups. In the past, the groups did not regularly submit reports. Now, supply information for the programs is updated and documented regularly, providing a useful resource for decisionmakers.

# Design of the 2014 FARA

Based on the experience to-date in year one, development of a new FARA was initiated in October 2013 for the January–December 2014 period. As part of the design of the 2014 FARA, CMAM was asked to propose performance indicators. To begin the discussions among CMAM senior staff, the director of CMAM encouraged all sectors to propose indicators. Senior management considered the feedback from staff, and the newly proposed indicators were sent to USAID in November. A team from USAID worked with CMAM to agree on targets and develop the relevant costs to achieve the targets.

In the end, seven indicators were proposed; out of these, two were dropped, leaving CMAM with five performance indicators for 2014 (see table 2). Key changes included the following:

- The 2013 distribution indicator was dropped because it was consistently achieved, and, from the perspective of CMAM, it was institutionalized.
- The criteria for the planning indicator were revised to consider concerns that, to meet report deadlines—quality, in terms of participation—had been neglected. Thus, the criteria by which the reports are assessed were expanded to include a clear and detailed supply plan, MISAU leadership, and relevant partner participation.
- The targets for order packing accuracy were increased and the number of days for order cycle time for dispatch was reduced; both changes create more challenges for CMAM.
- The targets for inventory accuracy were also made more challenging.
- A new procurement and financing indicator related to custom clearing time was added; it measures the time period from when shipments arrive in port until they arrive at the CMAM warehouse, including all donations and purchases where CMAM has responsibility for customs clearance at the port.

In addition, the total amount of funds available for disbursement upon meeting the targets increased from \$500,000 to \$700,000.

**Table 2. 2014 FARA Performance Indicators**

<b>Functional Area</b>	<b>New Indicator?</b>	<b>2014 FARA Indicators</b>	<b>USAID's Contribution</b>
<b>Planning/ Forecasting</b>	No	a) Annual quantification plan that meets 5 predetermined criteria, for each product group, OR (b) Quarterly updated supply plan that meets 5 predetermined criteria, for each product group.	\$35,000 (\$3,889 per report, total of 9 possible reports)
<b>Procurement</b>	Yes	Average number of days to clear shipments from customs is 36 days in Q1, 34 days in Q2, 32 days in Q3, and 30 days in Q4.	\$35,000
<b>Warehouse</b>	No	Order packing accuracy for distribution to CMAM's direct clients is 91% for Q1, 92% for Q2, 93% for Q3, and 94% for Q4.	\$35,000
<b>Warehouse</b>	No	Order cycle time for dispatch for Via Clásica orders to CMAM's direct clients is 33 days for Q1, 32 days for Q2, 31 days for Q3, and 30 days for Q4.	\$35,000
<b>Warehouse</b>	No	Inventory accuracy in central warehouses which have implemented MACS is 84% for Q1, 86% for Q2, 88% for Q3, 90% for Q4.	\$35,000
		Quarterly Total	\$175,000
		Total for Calendar Year 2014 for Quarterly Payments	\$700,000
<b>Indicators Proposed by CMAM but Ultimately Dropped</b>			
<b>Financing/ Family Planning</b>		% of government contribution to contraceptive financing is at least 5%, with value of reimbursement dependent on % of financing contributed.	\$60,000 for 6–6.99% \$70,000 for 7–7.99% \$80,000 for 8–8.99% \$90,000 for 9–9.99% \$100,000 for >10%
<b>Strategic Planning</b>		CMAM meets a series of milestones for the development and approval of the implementation plan for the approved Pharmaceutical Logistics Strategic Plan.	\$25,000
<b>Emergency Orders</b>		Number of emergency orders for Via Clásica products sent to the central warehouses for CMAM's direct clients is 15 or fewer for Q1, 12 or fewer for Q2, 9 or fewer for Q3, and 5 or fewer for Q4.	\$25,000

The 2014 FARA closely resembles the 2013 FARA, with four of the five indicators approximately the same; but they are modified to create more challenging or stringent targets. The addition of the new procurement indicator highlights activity in another important functional area at CMAM. Similar to the first FARA, the sectors at CMAM were interested in identifying indicators for key functional area activities, and those where data were available and improvements could be monitored and measured.

It is interesting to note that for 2014, the distribution sector did *not* propose that the 2013 distribution indicator be included in the 2014 FARA. The distribution sector claimed that they did

not need the indicator anymore because they had proven they could easily meet the target; they were ready for a new challenge.

It is also interesting to examine why the final agreement excluded two of the seven proposed indicators. First, although USAID stakeholders supported including an indicator related to family planning, it was rejected because of costing issues. For FAR agreements, each milestone or indicator must have a cost associated with its achievement. For the proposed family planning milestone, this would have had to relate to family planning procurement, but USAID policy does not allow procurement of contraceptives except through USAID's Central Contraceptive Procurement project.<sup>14</sup> Given this policy, USAID cannot reimburse for family planning procurement through a FARA mechanism; therefore, this indicator was eliminated.

The indicator for establishing a timeline for developing CMAM's Strategic Plan for Pharmaceutical Logistics (PELF) was eliminated because stakeholders were concerned that pressure to complete the plan within a certain timeframe could damage the quality of the process.

Finally, an indicator to reduce the number of emergency orders per quarter was proposed because of the way frequent and numerous emergency orders disrupt routine warehouse operations. However, it was eliminated because (1) there was no historical data to establish a baseline; i.e., the distribution database only recently created the functionality to measure emergency orders and it still cannot measure all of them, and (2) stakeholders did not want to create a perverse incentive to reduce responses to emergency orders.

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<sup>14</sup> CCP implements the USAID policy of centralized contraceptive and condom procurement by providing a simplified mechanism for the transfer, obligation, and disbursement of all USAID funds designed for contraceptive and condom procurement.





# Looking Ahead: Recommendations for Strengthening Mozambique's RBF Supply Chain Program

## Continually Monitor and Address Potential Unintended Negative Consequences

As with any RBF approach, unintended negative consequences are possible; elements meant to motivate can sometimes have the opposite effect. While the FARA aims to motivate CMAM staff, are there any elements of the design or implementation that are *demotivating*?

It is possible that jointly rewarding the warehouses has a demotivating effect. The current definition, in essence, penalizes the high-performing warehouse(s) for non-achievement by low-performers; also, it may demotivate staff over time if the performance trend from 2013 persists. It may also drive some unintended distortions, such as gaming of the program, in other words, manipulating results for better outcomes. For example, the stock accuracy indicator for the warehouses requires that 200 products, their quantity and location, be randomly checked. Respondents at one warehouse suggested that they do not always check a random sample of stockkeeping units (SKUs); but instead, they check the products that are easiest to check—for example, those on the lower, easier-to-reach shelves. However, the random sample of SKUs to be checked is generated by MACS, making it difficult to alter the sample; and inconsistent warehouse performance across the quarters does not point to positive results being falsely submitted. To address potential perverse incentives, the program may want to consider configuring the warehouse indicators differently, such as giving each warehouse specific targets against their own baseline.

There also appears to be some evidence that the program's approach in sharing the reward equally among all staff, regardless of individual effort, may be causing frustration and backlash. Any program where incentives are shared can possibly face the *free rider* problem. Some people will inevitably work, or feel they are working, harder than others. Indeed, some CMAM staff were frustrated that they worked overtime to achieve targets, while others in their department did not; but the incentive is shared more or less equally. In theory, this design element is deliberately intended to drive increased accountability within CMAM; and, as noted above, this does appear to be happening, with colleagues encouraging each other to get their work done. However, this is an area that should be monitored to minimize any negative impact on morale. In the future, it may make sense to consider including an individual performance component in the allocation formula.

## **Maintain Design Flexibility in Future Iterations of the Program**

For future iterations of the FARA for RBF, stakeholders should learn and revise the design—indicators, targets, verification—to reflect the new and changing realities. RBF programs are not and should not be considered static. However, as the system improves and matures, any changes to the program should aim to balance the importance of evolving and responding to new realities, to ensure that the program remains challenging and includes elements of consistency. Maintaining core elements or core indicators, while gradually incorporating changes over time, can promote the institutionalization of priority functions or processes and can reinforce routines and good practices. Consistent core elements can also simplify communicating program changes by maintaining a level of familiarity, and can help maintain expectations of participants and practitioners.

## **Maintain Focus on Continuous Quality Improvement**

Many RBF programs in service delivery begin by rewarding healthcare providers for increases in the quantity of services delivered. Over time, programs often evolve to reward measures of quality of care. In the RBF approaches targeted at the supply chain, we may see a similar trajectory. One of the main characteristics of this FARA is the fixed quarterly deadline for the indicators. For the quantification and supply plan indicator, this initially resulted in efforts focused on submitting reports to meet the deadline; later, efforts shifted to focus on the quality of the reports. However, even though reports submitted during the first periods may not have met the quality criteria, there is no evidence that the reports were rejected; and, therefore, the concept of quality was not reinforced. Informants agree that enforcing the quality criteria on reports would have a beneficial impact in terms of report completeness and relevant content.

As part of the process of continuous quality improvement, the USAID verification team, on their part, may consider more closely evaluating the reports against the quality criteria and providing feedback when a report fails to meet the criteria.

Moreover, CMAM will want to continue building a culture of quality improvement and data use more generally. For example, informants at the warehouses did not know either their individual scores on performance indicators, or their contribution to overall warehouse results. Access to data and sharing or publishing periodic results within CMAM, may further support morale and performance improvements.

## **Strengthen M&E and Verification to Detect Distortions**

Verification and M&E are essential components of any RBF program. They are the processes by which programs monitor for gaming and other intended or unintended distortions; they are what ensure that the results that are paid for are real.

USAID has refined the approach to verification, but it could be further clarified and strengthened. For example, all five indicators should be verified each quarter.

CMAM's M&E department is still relatively new; it is responsible for monitoring FARA indicators and all 26 performance indicators in CMAM's M&E plan, in which the FARA indicators are included. It should continue to be strengthened, in part to ensure—through routine monitoring—that non-incentivized indicators are not being neglected in favor of those with money attached. While no evidence suggests neglect of the other indicators, stakeholders expressed concern about the potential for this to happen.

# Conclusion

Results of FARA 2013 are positive—the performance data shows demonstrable, verified achievement of objectives, and findings suggest that CMAM staff are highly motivated by the performance payment. The performance incentive, with the accountability and motivation it brings, seems to have tipped the scales and pushed staff to work harder with the tools and resources they already had. As proposed in the conceptual framework, improvements were noted in terms of staff motivation, collaboration, and cooperation; and investment in supply chain infrastructure.

However, we need to view the findings of this review in light of some important methodological limitations. First, FARA is an attractive mechanism for CMAM and they are eager for it to continue. Many informants thought this review was essentially an audit that would determine whether another FARA would be signed; thus, staff were careful to paint a positive picture of the program. No one had an incentive to describe anything negative about the approach. Therefore, positive findings must be considered, based on reality. Second, this review did not closely examine how CMAM performed on its other performance indicators, those not linked to FARA payments. Were those targets achieved prior to or during the PBF period? Before calling the FARA a success, more information is needed on CMAM's other indicators. Moreover, lacking a control, we cannot say whether other factors may have contributed to the observed changes in behavior within CMAM and the associated achievement of the incentivized indicators.

Despite these limitations, the FARA seems to have made a positive impact, both in terms of operations and morale. Although the RBF payments are relatively modest, the findings suggest that they can encourage staff to make the extra effort to achieve results; and in doing so, leverage the support CMAM receives from partners. Strong high-level leadership has been particularly important in increasing momentum around RBF. The director helped create a sense among staff of shared purpose; his support and push for FARA appears to have had a trickle-down effect.

Our review suggests that, with careful attention to program design and effective implementation, RBF in the public health supply chain can be a catalyst for system-wide changes and it can have great promise as a tool for policymakers and program managers to build on and leverage existing investments. To better understand the impact of RBF strategies, such as the one described in this report, countries should consider more robust program evaluation, including an explicit analysis of the costs and benefits of the RBF approach.



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# Appendix A

## List of Key Informants

### **CMAM**

1. Director of CMAM
2. Heads of Finance and Administration
3. Sector heads (Planning, Distribution, Procurement, Warehouses, M&E)
4. Sector teams
5. Staff at Zimpeto and Adil warehouses

### **USAID Mozambique**

6. Shannon Marsh
7. Alyssa Leggoe
8. Kevin Pilz
9. Benedito Chauque
10. Elias Cuambe
11. Meagan Schronce
12. Rick Burns
13. Patrick Werner

### **JSI / SCMS staff**

14. Tim Rosche
15. Barry Chovitz
16. Dimitri Peffer
17. Julienne Pires
18. Dahlia Soma
19. Angelo Nequice
20. Jose Cavel

### **Other**

21. Saul Walker, DFID

22. Furqan Saleem, World Bank
23. UNFPA, Amir Modan, national program officer, RH
24. Vania Macome, HIV Program and Quantification Sub-group member, MISAU



## Appendix B

# FARA Contract Excerpt – Schedule of Reimbursements and Quarterly Deliverables

USAID will reimburse CMAM up to 25% of the Fixed Reimbursement Amount (equal to \$125,000 U.S. Dollars) upon certification by DPC and approval and acceptance as certified by USAID of all of the following deliverables and milestones by the end of the first quarter (March 31, 2013):

- Deliverable:** (a) Annual Quantification Plan (annual forecast and supply plan) OR (b) an updated Supply Plan developed in the first quarter of calendar year 2013 for the following eight product groups:  
HIV/AIDS, Malaria, Tuberculosis, Essential Medicines, Laboratory, Reproductive Health, Vaccines, Medical Materials.

**Milestone:** The Annual Quantification Plan or Updated Supply Plan shall meet 3 predetermined criteria, as described in the Milestone Table at **Attachment III** and as certified by DPC and verified and certified by USAID.<sup>15</sup>
- Deliverable:** A copy of the email from the Distribution sector to the Armazem with a copy of the Distribution Plan (Ordem de Fornecimento) for Via Classica for the 18 clients attached, and a table with the calculation of the number of days elapsed from the date on which provincial requisitions should be received (currently, the 15<sup>th</sup> of the first month of each quarter).

**Milestone:** Order cycle time for distribution planning, as certified by DPC and verified and certified by USAID, shall be 15 calendar days or less for Via Clássica orders to the 18 clients (3 central hospitals, 5 general hospitals and 10 Provincial Warehouses).
- Deliverable:** A Packing Accuracy Report detailing order packing accuracy (compliance) for shipments to CMAM's 18 clients, utilizing data from the MACS system, with confirmation of the accuracy of MACS data on the quantity to ship using the quarterly Distribution Orders for the Via Classica system. The Report must include a spreadsheet showing the quantity, type and destination of products distributed during the quarter as well as the quantity "to ship". Order packing accuracy is calculated as the number of compliant ("shipped"= "to ship") products sent as a percentage of the total number of products sent.

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<sup>15</sup> Each quarter, each of the 8 product groups will submit either a quantification report OR an updated Supply Plan. Each year, each product group shall submit a total of one Quantification Report and three quarterly Supply Plans updates. In cases where only some of the 8 groups provide the required report, CMAM will receive reimbursement proportional to the number of groups that submitted an appropriate report that quarter (i.e., \$3,125 per group).

**Milestone:** Order packing accuracy, as certified by DPC and verified and certified by USAID, shall be 84% in quarter 1.

4. **Deliverable:** A copy of the email from the Distribution sector sent to the Warehouse unit with the Distribution Plan (Ordem de Fornecimento) attached (i.e., the start date) along with a MACS Order Cycle Report that presents the date when the last Guias de Remessa corresponding to the above Ordens de Fornecimento (excluding products not shipped due to lack of stock, to be shipped later) was created (emitted) for the 18 CMAM clients (3 central hospitals, 5 general hospitals and 10 Provincial Warehouses). Order cycle time for dispatch is calculated from the date the Distribution Plan (Ordem de Fornecimento) is sent by the Distribution sector to the Warehouse unit (Armazens) until the day the last Guia de Remessa corresponding to the Ordem de Fornecimento is produced (emitted) by MACS.

**Milestone:** The order cycle time for dispatch, as certified by DPC and verified and certified by USAID, shall be 35 calendar days or less for Via Clássica orders to the 18 Central + Provincial clients.

5. **Deliverable:** A MACS Stock Accuracy Report presenting stock accuracy resulting from perpetual inventory counts for the quarter at the central warehouses which have implemented MACS. The Report must include all quantity errors and location errors. A minimum of 200 products must be counted each quarter.

**Milestone:** Stock accuracy in central warehouse(s) which have implemented MACS, as certified by DPC and verified and certified by USAID, shall be 75% for quarter 1.

## Appendix C

# FARA Contract Excerpt – Total Estimated Cost and Stages of Completion

Items (Milestones to be Completed Each Quarter)	Payment Stage	USAID's Contribution (Fixed Reimbursement Amount)	Total Estimated Cost
1. (a) Annual quantification plan that meets 3 predetermined criteria, for each product group, <b>OR</b> (b) Quarterly updated supply plan that meets 3 predetermined criteria, for each product group*	Trimester 1 (25%)	\$125,000	\$408,000
2. Order cycle time for <u>distribution</u> is 15 calendar days or less for Via Clásica orders to the 18 Central + Provincial clients	Trimester 2 (25%)	\$125,000	\$408,000
3. Order packing accuracy is 80% for the quarterly distribution cycle	Trimester 3 (25%)	\$125,000	\$408,000
4. Order cycle time for <u>delivery</u> is 35 calendar days or less for Via Clásica orders to the 18 Central + Provincial clients	Trimester 4 (25%)	\$125,000	\$408,000
5. Stock accuracy in central warehouse(s) which have implemented MACS is 80%			
	TOTAL	\$500,000	\$1,632,000



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