



# USAID GLOBAL HEALTH SUPPLY CHAIN PROGRAM

## TECHNICAL ASSISTANCE, NATIONAL SUPPLY CHAIN ASSESSMENT TASK ORDER

### KPI/CMM Mapping for Results Analysis

NSCA 2.0



## INTRODUCTION

In the event of a key performance indicator (KPI) result below indicator reference level or other benchmarks set by an NSCA steering committee, it may be beneficial to review relevant capability maturity model (CMM) module results that are required for performance on the KPI in question. This paper provides guidance on the linkages between CMM modules and relevant Core KPIs.

The guidance provided in this document is not intended to cover all possible causes or influences on each KPI result; instead it offers insight on likely areas within the system that are influencing the KPI result. Precise causes and influences may also be affected by the policy environment, the country context, and objectives of the NSCA. Moreover, this list is not exhaustive, but rather meant to provide guidance for NSCA data exploration.

The cross-cutting capabilities for Human Resources (HR) and Logistics Management Information Systems (LMIS) will likely affect multiple KPIs as low staff capability or weak, incorrect, or missing data will adversely impact many KPIs. It is noted in this document where HR or LMIS are likely to have a particular impact or influence.

This document does not map the relationships between optional KPIs and CMM modules, as not all NSCA's will use optional KPIs. Further, it will be very rare that an NSCA uses all optional KPIs. However, the guidance does indicate where application of an optional KPI may cast further light on an adverse core KPI result.

## SECTION I – FORECASTING

Data quality, data timeliness, and the availability of appropriately qualified personnel to analyze and interpret the data are the main requirements for accurate forecasting. Any capability weakness in these areas will impact the results. If there are weaknesses in forecasting, another issue to consider is the software that is used to support forecasting: 1) is it current software and 2) is the software specifically designed for forecasting, etc.

A key factor in the maturity of a system is whether forecast accuracy is routinely assessed. If not, it will be almost impossible for the organization to learn lessons and improve on past forecasts. It is also important to revisit the forecast periodically throughout the year, not just as an annual exercise.

Regarding the source of funds KPI, the key issue is whether the Ministry has a plan to track and plan how the budget will be met, by whom and when.

TABLE I FORECASTING KPI, MODULES AND QUESTIONS		
KPI	RELEVANT CMM MODULES	RELEVANT CMM QUESTION GROUPS
I.1 Forecast Accuracy	<p>Forecasting and Supply Planning (FSP)</p> <p>Logistics Management Information Systems</p> <p>Human Resources</p>	<ul style="list-style-type: none"> <li>• FSP-100 Forecasting Structure</li> <li>• FSP-200: Forecasting Methodology</li> <li>• FSP-300: SOPs for Forecasting</li> <li>• FSP-400: Consumption Data</li> <li>• FSP-500: Forecast Accuracy</li> <li>• FSP-800: Hardware and Software Forecasting</li> <li>• FSP-900: Budget</li> <li>• LM-200: Data Tools and Indicators</li> <li>• LM-300: LMIS Standard Operating Procedures</li> <li>• LM-400: Data Quality Assessments (DQAs)</li> <li>• LM-500: Hardware and Software</li> <li>• HR-101: Is there a workforce plan (will need to interrogate the plan to see if it covers FSP need)</li> <li>• HR-205 &amp; 206: To check if FSP is included in supply function job descriptions</li> <li>• HR-304: To check if capacity building sessions cover FSP</li> </ul>
I.2 Source of Funds	<p>Financial Sustainability</p> <p>Strategic Planning and management (SPM)</p>	<ul style="list-style-type: none"> <li>• FS-100: Budgets</li> <li>• FS-200: Budget Reallocation</li> <li>• FS-400: Funding Strategy</li> <li>• SPM-102: Does the Strategic plan include finance?</li> <li>• SPM-205: What actions are taken on results from monitoring the strategic plan – finance &amp; resource mobilization</li> <li>• SPM-301: Funding required for each activity in supply chain plan</li> <li>• SPM-306: have funding gaps been documented</li> </ul>

## SECTION 2 – PROCUREMENT

Achieving a high score for vendor on-time and in full delivery (VOTIF) is, of course, primarily a responsibility of the vendor to adhere to the order/contractual terms, but the procurement team's vigilance in vendor and order management is also key. Therefore, CMM capabilities measured in PRO-700 and PRO-900 are usually the most important areas to examine first. Relevant Optional KPIs are:

- 2.3 Percentage of order Placed as Emergencies, VOTIF performance may be different between emergency and routine orders.

- 2.4 Vendor fill rate, for greater granularity on the full delivery part of the VOTIF measure. This may indicate that either vendors cannot manage the volume within the delivery time; or are having challenges with particular line items, whereas others are delivered on time.

The efficiency and reliability of customs clearance will also impact the timeliness of delivery to the facility for international supplies. If this issue is a likely cause of VOTIF challenges, the NSCA team may want to consider optional KPI 2.7 which measures customs clearance time.

Regarding price competitiveness, the key issue is to assess that not only are the procurement procedures adhered to, but that the procurement team uses the international benchmarking tools that are available on the internet and from other sources to compare prices bid. It is not enough to just assume that the most competitive prices in any given tender or bidding exercise are the best prices available. Post factor audits carried out independently of the procurement team will also highlight outlier prices or adverse trends. Optional KPI 2.5 Procurement methods employed, may be instructive for greater detail on pricing achieved with different procurement methods.

TABLE 2 PROCUREMENT KPI, MODULES, AND QUESTIONS		
KPI	RELEVANT CMM MODULES	RELEVANT CMM QUESTION GROUPS
2.1 Vendor on-time and in full delivery rate	Procurement and Customs Clearance	<ul style="list-style-type: none"> <li>• PRO-100: Procurement Control</li> <li>• PRO-300: Procurement Procedures</li> <li>• PRO-500: Identifying and Qualifying Vendors</li> <li>• PRO-700: Vendor Performance Evaluation</li> <li>• PRO-900: Order and Delivery Management Processes</li> <li>• PRO-1000: Procurement KPIs</li> <li>• PRO-1100: Customs Clearance</li> </ul>
2.2 Percent of international reference price paid	Procurement and Customs Clearance	<ul style="list-style-type: none"> <li>• PRO-600: Fair Competition &amp; Cost Effectiveness</li> <li>• PRO-200: Procurement Audits</li> </ul>

## SECTION 3 - WAREHOUSING AND INVENTORY MANAGEMENT

In analyzing warehousing and inventory management performance it is important to keep in mind that most of the KPIs in this section are inter-related, e.g. a weak performance in stocked according to plan will also impact both stock out rates and order fill rate; equally, stock inaccuracy is likely to impact stock out rates and order fill rate. As a result, related KPI results are likely to be indicative for either a causal problem for low performance results or weak capability maturity scores.

In addition, KPI and CMM results in procurement and forecasting will impact the performance of the warehouse, as weak performance or lower capability maturity in either of these areas can impact the availability and timeliness of commodity delivery into the warehouse.

Although CMM questions WS-100 regarding standard operating procedures (SOPs) is only included in the box against KPI 3.1 stocked according to plan, the existence of strong SOPs is important to all warehousing and inventory KPIs. However, to avoid repetition in the table, it is not shown in every box below.

TABLE 3 WAREHOUSING AND INVENTORY		
KPI	RELEVANT CMM MODULES	RELEVANT CMM QUESTION GROUPS
3.1 Stocked according to plan	Warehousing and Storage Forecasting and Supply Planning Warehousing and Storage Procurement and Customs Clearance Forecasting and Supply Planning	<ul style="list-style-type: none"> <li>WS-100: Warehousing Standard Operating Procedures</li> <li>FSP-600: Supply Plan</li> <li>FSP-700: Supply Chain Modification</li> <li>WS-1300: Inventory Management</li> <li>WS-1600: Warehouse Performance</li> <li>PRO-900: Order and Delivery Management Processes</li> <li>FSP-500: Forecast Accuracy</li> </ul>
3.2 Stockout rate by tracer commodity by level in the system	Warehousing and Storage Forecasting and Supply Planning	<ul style="list-style-type: none"> <li>WS-1300: Inventory Management</li> <li>WS-1600: Warehouse Performance</li> <li>FSP-500: Forecast Accuracy</li> <li>FSP-600: Supply Plan</li> <li>FSP-700: Supply Chain Modification</li> </ul>
3.3 Stock accuracy	Warehousing and Storage Logistics Management Information Systems	<ul style="list-style-type: none"> <li>I002 Warehouse Management System capability</li> <li>WS-1300: Inventory Management</li> <li>WS-200: Commodity Receipt</li> <li>WS-1600: Warehouse Performance</li> <li>WS-1400: Warehouse Audits</li> <li>LM-100: LMIS Policies and guidelines</li> <li>LM-300: LMIS Standard Operating Procedures</li> <li>LM-200: Data Tools and Indicators</li> <li>LM-400: Data Quality Assessments (DQAs)</li> </ul>
3.4 Order fill rate	Warehousing and Storage	<ul style="list-style-type: none"> <li>WS-800: Picking and Shipping Operations</li> <li>WS-1300: Inventory Management</li> <li>WS-1600: Warehouse Performance</li> </ul>
3.5 Wastage from damage, theft and expiry	Warehousing and Storage	<ul style="list-style-type: none"> <li>WM-100: General Waste Management</li> <li>WM-200: Monitoring &amp; Waste Management</li> <li>WS-1300: Inventory Management</li> </ul>

## SECTION 4 – DISTRIBUTION

In addition to the CMM questions shown below, there is obviously a very strong linkage between the warehouse and storage/inventory management performance and capability, and the results from the distribution KPIs. If stock is not available within the warehouse, then this will directly impact the ability to distribute orders on time and in full. This may also, in turn, impact the number of refill orders from facilities that must be placed as emergencies.

The relevance of the LMIS CMM questions will depend on the local process for the generations of refill orders from the service delivery point health facilities. If orders are generated from the LMIS system,

accuracy of the stock records and timelines of the production of orders will be vital. If orders are generated manually from the service delivery point health facilities then this manual process, including experienced HR resource, will be the relevant capability, especially for KPI 4.2 percentage of emergency orders.

In addition to the CMM questions shown below, the optional warehousing and inventory KPI 3.10 order turnaround time may be relevant to KPI 4.1 on time delivery to facility. Extended time to manage the order at the warehouse will likely impact timely delivery to the ordering facility.

TABLE 4 DISTRIBUTION		
KPI	RELEVANT CMM MODULES	RELEVANT CMM QUESTION GROUPS
4.1 On time delivery to facility	Distribution	<ul style="list-style-type: none"> <li>• DIS-100: Distribution planning</li> <li>• DIS-200: Distribution and transportation policies and procedures</li> <li>• DIS-400: Transportation</li> <li>• DIS-800: Product Tracking</li> <li>• DIS-900: Distribution MIS</li> <li>• WS-800: Picking and Shipping Operations</li> <li>• WS-1300: Inventory Management</li> <li>• FSP-600: Supply Plan</li> <li>• FSP-700: Supply Chain Modification</li> </ul>
	Warehousing and Storage	
	Forecasting and Supply Planning	
4.2 Percentage of orders placed by health facilities as emergency orders	Distribution  Logistics Management Information Systems	<ul style="list-style-type: none"> <li>• DIS-100: Distribution planning</li> <li>• DIS-900: Distribution MIS</li> <li>• LM-100: LMIS Policies and guidelines</li> <li>• LM-200: Data Tools and Indicators</li> <li>• LM-400: Data Quality Assessments (DQAs)</li> </ul>

## SECTION 5 – HUMAN RESOURCES

As mentioned in the introduction to this document, the performance and capability maturity of human resource in the supply chain impacts performance of all supply chain functions to one degree or another. Strong HR capability can overcome other deficiencies in the supply chain; conversely weak HR capacity will likely result in performance below that to be expected from the capability maturity in other elements of the supply chain system.

A high rate of staff turnover will almost certainly impact performance resulting from unfilled posts and/or new recruits at multiple levels of the system. It is important to understand why there is high turnover, as the strain on remaining staff from frequent departures may in fact lead to yet more resignations as staff experience ever greater stress in the role. Optional KPI 5.2 percentage of supply chain positions vacant in addition to indicating the effectiveness of recruitment practices, may also indicate which areas are under excessive strain from multiple and/or extended vacancies that may in turn be increasing the trend in staff turnover.

TABLE 5 HUMAN RESOURCES		
KPI	RELEVANT CMM MODULES	RELEVANT CMM QUESTION GROUPS
5.1 Staff turnover rate	Human Resources	<ul style="list-style-type: none"> <li>HR-100: Workforce planning</li> <li>HR-200: Recruiting</li> <li>HR-400: Performance Reviews</li> <li>SPM-102: Does Strategic Plan include HR planning</li> <li>PG-104: Do supply chain policies cover HR</li> </ul>
	Strategic Planning and Management	
	Policy and Governance	

## SECTION 6 – DATA AND INFORMATION

Challenges in reporting on time will most likely be either from delays or errors by staff, or difficulties with the reporting system. Key questions in the CMM module numbers LM202, 203 and 204 enquire about challenges encountered in using the LMIS; difficulties will likely impact the submission regular reports. It may also be useful to apply Optional KPI 6.2 – Facility reporting rates – complete report. This KPI will indicate the frequency and extent to which facilities cannot submit a full report. This will add depth to an understanding of the quality of reporting.

TABLE 6 DATA AND INFORMATION		
KPI	RELEVANT CMM MODULES	RELEVANT CMM QUESTION GROUPS
6.1 Facility reporting rates on time	Logistics Management Information Systems	<ul style="list-style-type: none"> <li>LM-107 &amp; 108: What is facility report rate frequency</li> <li>LM-109: Is there a standard process to review LMIS data</li> <li>LM-200: Data Tools and Indicators</li> <li>LM-300: LMIS Standard Operating Procedures</li> <li>LM-400: Data Quality Assessments (DQAs)</li> </ul>