



FEDERAL DEMOCRATIC REPUBLIC OF ETHIOPIA
PHARMACEUTICAL SUPPLY AGENCY

Revised Pharmaceutical Supply Transformation Plan 2018 - 2020

September 2018



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PHARMACEUTICAL SUPPLY AGENCY

Revised Pharmaceutical Supply Transformation Plan 2018-2020

Vision

“To be the most responsive and efficient pharmaceuticals supply chain organization in Africa.”

Mission

“Ensure sustainable supply of quality assured essential pharmaceuticals to health facilities at affordable price through establishment of pooled procurement, robust inventory management and distribution, effective financial management, integrated management information system, and attracting and retaining motivated and competent workforce.”

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FOREWORD FROM THE MINISTER OF HEALTH

The continuous availability of quality-assured and affordable pharmaceuticals accompanied by their rational use is critical for the provision of quality health services. Pharmaceuticals Supply Agency (PSA), formerly known as Pharmaceuticals Fund and Supply Agency (PFSA), was established as a semi-autonomous public institution in 2007 to supply quality assured and affordable pharmaceuticals to all public health facilities in the country. The Agency has contributed its part for the achievements made in the health sector regarding the reduction of morbidity and mortality associated with both communicable and non-communicable diseases. Since its establishment, the Agency has been building its capacity in terms of human resource and supply chain systems at all levels. As a result, the Agency's capacity in procuring, storing and distributing pharmaceuticals through the Revolving Drug Fund (RDF) and various programs has increased significantly.

The Agency has also played a pivotal role in increasing the capacity of the supply chain workforce at all levels in all aspects of the supply chain management system. The Integrated Pharmaceuticals Logistics System (IPLS) implemented since 2010 to integrate the supply management of pharmaceuticals that were previously managed in a vertical manner has improved the management of pharmaceuticals

thereby contributing to an increased availability of essential pharmaceuticals at service delivery points (SDPs). The Agency has made great efforts to make it more accessible to health facilities by establishing new branches at strategic locations throughout the country to meet the target set on the Pharmaceutical Logistics Master Plan (PLMP). Despite these achievements, there remains a gap in meeting the ever-increasing pharmaceutical demand of the country which emanates from various operational inefficiencies as revealed by the Business Process Re-engineering (BPR) study and the recently conducted Pharmaceutical Supply Transformation Plan (PSTP) mid-term review.

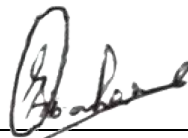
To address the identified gaps and thereby achieve the continuous supply of pharmaceuticals, the Agency is designing and implementing various initiatives. The Agency has taken critical steps defining the list of pharmaceuticals it avails by developing a national pharmaceutical procurement list through a consultative process. Other commendable initiatives have also been instituted such as establishing the warehouse operations management center of excellence, the Strategic Plan on Human Resource Development, the Strategic Plan on Immunization Supply Chain Management, the Pharmaceutical Supply Chain Management Monitoring & Evaluation Framework, and the launching of a procurement system through framework agreement. Taking findings from the BPR study and the PSTP mid-term review into consideration,

the Agency has now revised its strategic plan that will be used for the coming two and half years. The Agency strives to excel in customer relations management, supply chain workforce development and management, and information management and usage with the ultimate goal of achieving the continuous supply of quality assured and affordable essential pharmaceuticals to health facilities.

Implementation of this strategy requires the active participation of all stakeholders and partners in the area. I would like to express the Ministry's commitment to supporting the implementation of this strategic plan and call up on all stakeholders and partners to extend their support to the Agency. I would also like to take this opportunity to thank the Management of PSA for the development of this strategic document.



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TABLE OF CONTENTS

ACKNOWLEDGEMENT	I
FOREWORD FROM THE MINISTER OF HEALTH	II
ACRONYMS	VI
INTRODUCTION	I
EXECUTIVE SUMMARY	2
I. SITUATIONAL ASSESSMENT	8
1.1. QUANTIFICATION AND PROCUREMENT ACTIVITIES	8
1.2. FINANCIAL MANAGEMENT	13
1.3. THE WAREHOUSE INFRASTRUCTURE NETWORK AND DISTRIBUTION OPERATIONS	15
1.4. MANAGEMENT INFORMATION SYSTEMS	27
1.5. HUMAN RESOURCE MANAGEMENT	29
2. STRATEGIC OBJECTIVES, INITIATIVES, AND PERFORMANCE MEASURES	31
2.1. SO1 FI: ACHIEVE FINANCIAL AND OPERATIONAL SELF-SUFFICIENCY	31
2.2. SO2 CI: ENSURE HIGH LEVELS OF PRODUCT AVAILABILITY AND DELIVER EXCELLENT CUSTOMER SERVICE	37
2.3. SO3 CBI: INCREASE THE LEVELS OF SCM EXPERTISE AND PROVIDE THE STAFF WITH REWARDING CAREERS	39
2.4. SO4 PI: GROW THE BUSINESS BY DEVELOPING A CULTURE OF FLEXIBILITY, OPERATING AT INTERNATIONAL STANDARDS, TO ENABLE THE AGENCY TO TAKE ADVANTAGE OF NEW BUSINESS OPPORTUNITIES	42
3. COSTING AND FINANCING	49
4. GOVERNANCE & IMPLEMENTATION ARRANGEMENTS	51
5. MONITORING & EVALUATION FRAMEWORK	52
6. INDICATORS AND TARGETS FOR PSTP MONITORING	56

ACRONYMS

APTS	Auditable Pharmaceutical Transactions and Services
BMGF	The Bill and Melinda Gates Foundation
BPR	Business Process Re-engineering
BPT	Business Process Transformation
ERP	Enterprise Resource Planning
FMHACA	Food, Medicine, Healthcare Administration and Control Authority
FMOH	Federal Ministry of Health
GPS	Geographic Positioning System
HCMIS	Health Commodities Management Information System
HR	Human Resource
HRM	Human Resources Management
IFRS	International Financial Reporting Standards
IPFSMIS	Integrated Pharmaceuticals Fund and Supply Management Information System
IPLSS	Integrated Pharmaceutical Logistics System Survey
KPI	Key Performance Indicator
LMIS	Logistics Management Information System
MIS	Management Information Systems
PSA	Pharmaceutical Supply Agency

PSTP	Pharmaceuticals Supply Transformation Plan
QA	Quality Assurance
RDF	Revolving Drug Fund
SCM	Supply Chain Management
USD	United States Dollars
WHO	World Health Organization

INTRODUCTION

A PSTP was accepted for implementation by the Federal Ministry of Health (FMoH) after having been developed by PSA in late 2015. The overall implementation timeframe embraced a five-year period. In early 2018, the decision was made to review the implementation of the plan around the mid-point of the five-year period. The objectives of that review were to assess the progress of the implementation and to revise the plan appropriately, given the level of achievement and the results of any analyses undertaken in making that assessment, for at least another three-year period.

A team of international consultants was retained to work with members of the PSA Supply Chain team in support of the review. The work commenced towards the middle of 2018, the mid-point of the five-year period of the initial plan.

The project plan required the completion of an assessment of the PSTP and a revised plan document by the end of August 2018. During the course of the work, three Steering Group Meetings were held with senior members of the PSA management team to ensure their input to the process was obtained. This document addresses the twin objectives of reviewing progress and making recommendations for a revised PSTP for the next three-year period.

EXECUTIVE SUMMARY

In 2015, PSA developed and commenced implementing a PSTP. The plan, with a five-year timeframe, embraced all aspects of the end-to-end supply chain from product sourcing to ‘last mile’ delivery to health facilities. In 2018, the PSA senior management commissioned a team of international consultants to work with members of the PSA staff to assess and review the achievements of the PSTP, around the mid-point of the overall timeframe, and develop a revised transformation plan.

The assessment focused on the areas of finance, procurement, warehouse network and distribution operations, management information systems and human resources. According to findings of the assessment little progress has been made since the initial plan; thus the management decided on a major review of the plan.

According to the assessment the supply chain activities and supporting systems were characterized by complex and lengthy business processes, low levels of asset utilization due to, in many cases, investing in more distribution network assets than was required for an efficient operation, lack of management information to control the supply chain activities, operational systems that did not allow for the introduction of best practice techniques, and a dissatisfied workforce primarily resulting from the current terms and conditions of employment.

Ethiopia continues to experience a growing demand for pharmaceuticals and medical supplies in the public sector. Since 2009/10, the annual value of products distributed by PSA has grown from USD126 million to USD500 million in 2017/18. In 2018/19 the volume is projected to grow to USD750 million, and the 2016 – 2020 Health Sector Transformation Plan projects spending on pharmaceuticals and medical supplies in the public sector to reach almost USD1 billion by 2020, excluding the impact of introducing national health insurance. Experience with Community Based Health Insurance (CBHI) suggests nationwide health insurance could double demand for medications covered by the scheme. The planned expansion in the number of hospitals and health facilities over the coming decade also points to demand growth continuing into the foreseeable future.

To improve the current levels of performance and deliver the levels of service required by the continually expanding health sector, a revised Transformation Plan is prepared with the following strategic objectives:

1. Achieve financial and operational self sufficiency
2. Ensure high levels of product availability and delivery of excellent customer service
3. Increase the level of Supply Chain Management (SCM) expertise and provide the staff with rewarding careers

4. Grow the business by developing a culture of flexibility, operating at international standards, to enable the agency to take advantage of new business opportunities

One of the objectives of this plan focuses on giving PSA self-autonomy by closing the skills gap in areas of SCM, MIS, Finance, and HRM. Of particular importance is the replacement of knowledgeable and skilled seconded staffs by PSA employees to regain control of the agency.

The revised Transformation Plan embraces all aspects of the end-to-end supply chain and contains the following key elements:

- Implement an Enterprise Resource Planning (ERP) based integrated financial system utilizing the procurement, inventory control and human resource management modules, but deploying best-of-breed systems in operational areas of warehouse management, demand forecasting and fleet management. The latter system interfacing with the recently implemented Geographic Positioning System (GPS).
- Implement the Customer/Supplier Relationship Management Strategy and Technology.
- Introduce International Financial Reporting Standards (IFRS) and restructure the current General Ledger to enable accurate operational costing and the introduction of management accounts.

- Develop a method of working within the overall inbound logistics area in which on-going market intelligence activities are undertaken separately from the tendering process to reduce overall procurement lead times.
- Introduce focused approaches to procurement by the introduction of category management and extending the use of framework agreements to enable more responsive arrangements to be put in place, allowing more advanced inventory management techniques to be deployed.
- Change the manner in which order capture and processing are undertaken by introducing a central ordering process and function. The system will enable local health administrators to access information without the need for their involvement in the ordering process.
- Establish a central warehouse facility for the receipt of all inbound goods at the Inland Container Port in Modjo. The facility will incorporate a slow-moving stock distribution activity to enhance customer service levels by reducing stock-outs, and create space in the stockholding hubs to accommodate growth in high volume products.
- Reduce the number of stockholding distribution hubs to facilitate inventory management and improve asset utilization while improving the quality of service by deploying 'best practice

stockless distribution techniques’ at the existing hubs that are no longer needed as stockholding facilities.

- Implement a ‘reverse logistics’ collection operation for expired pharmaceuticals and clinical and anatomical waste to support the network of incinerators currently being established. The stockless distribution hubs could also act as consolidation points for the waste from health facilities.
- Initiate extensive training programs in all aspects of SCM via distance and on-campus learning techniques.
- Implement the Supply Chain HRM Strategy 2018-2022.
- Amend the organization structure to reflect the importance of functions within the organization such as MIS and Quality Assurance (QA) as they develop and take on more strategic roles within the organization.

Changing the Agency’s status resulting in an increased level of autonomy is of paramount importance to achieve its strategic objectives. Without being able to attract and retain appropriately qualified and experienced staff, it is considered unlikely that PSA will be able to make the changes needed to meet the demands of the continually increasing health sector.

The revised Transformation Plan has a three-year timeframe and is estimated to cost USD23 million.

Despite the limited progress over the past two to three years, mindful of the private sector in Ethiopia which remains in the early stages of development, PSA will remain the primary supplier of the public health service including ensuring access to Ethiopia Healthcare Insurance Agency (EHIA) covered medicines for the foreseeable future. However, significant changes, requiring large, on-going investments, will be required if the challenges posed by rapidly increasing demand are to be met and overcome. In essence, the agency will execute the Transformation Plan with the overall objective of achieving pharmaceutical supply chain best practice in a three- year period.

I. SITUATIONAL ASSESSMENT

In reviewing the progress made in implementing the PSTP over the past two to three years, the Agency gained an insight into its current levels of supply chain performance.

Despite some excellent changes in the areas of overall organizational structure and the implementation of a GPS, various operational areas were identified that the revised transformation plan should address. These general findings are presented under the following supply chain operational headings:

- Quantification and procurement activities
- Financial management
- The warehouse network and distribution operations
- Management Information Systems (MIS)
- Human Resource Management (HRM)

I.1. Quantification and Procurement Activities

- Procurement lead times are very long. Assessment has indicated the total procurement lead time is determined by the source of funding for the pharmaceuticals:
 - Program commodities: 302 days
 - Millennium Development Goals funded items: 385 days

- RDF funded items: 519 days
- Overall average: 372 days
- The time taken to obtain purchase order (PO) approval from the regulatory authority, currently around 30 days, as well as the time for manufacturing and shipping the products cannot be shortened significantly, the internal processes prior to the issuing of POs are complex and undertaken in a linear and sequential manner.
- The current operation is essentially a linear process impacting the overall lead times, indicated above, as activities are undertaken sequentially for each tender issued.

The linear process contains qualification procedures that are applied within the tender process. These qualification processes rely almost entirely upon the Food, Medicines and Healthcare Administration and Control Authority (FMHACA) and the source of funds. Pharmaceuticals sourced via the RDF need only meet the registration requirements of FMHACA. Program commodities are required to not only meet the requirements of FMHACA, but also the specific quality standards and approved manufacturing sources mandated by the particular donor.

- The tender evaluation process relies almost entirely on the single criteria of pricing. Once the bids that do not meet the technical specifications, such as registration in Ethiopia, have been

discounted, each line-item is evaluated with regard to the price quoted. The remaining supplier/product combinations are then, and only then, subject to a technical review which considers the product shelf-life aspects.

- The concept of best value procurement which considers other criteria such as historic delivery performance, delivery lead time and product shelf life as part of the tender evaluation process is not used.
- Although the process is defined as linear, a number of complex activities exist within each step. There are a considerable number of forms and letters produced and passed through the Department Secretary prior to completing the process and sending the document to FMHACA.
- An Item Master List is lacking. This situation will result in requests for products that have not been the subject of either a forecasting exercise or a tender process; a scenario which is likely to increase customer dissatisfaction as the consequential lead times may be longer than is acceptable to the customer. The recently introduced Pharmaceutical Procurement List will go some ways in solving this issue and guide clients regarding the products available from PSA. Ideally, the Item Master List should be a combination of pre-qualified products and manufacturing sites. Currently, the assessment, relating to the technical aspects of a product, is

undertaken within the linear process. The Item Master List should be developed outside of the tendering process. The Item Master List should also serve as a driver for the selection of products to be included in future framework agreements.

- The new directorate structure has created focus, but the general level of expertise within the functions of market intelligence and market shaping need considerable strengthening. The development of the concepts within the Agency is in its infancy and will require support to take advantage of the opportunities the new organization presents. The separation of the tendering and contracting functions from the activities of market intelligence and shaping has created an environment rife with potential to reduce the time taken prior to issuing a purchase order.
- An integrated procurement MIS is not available. The current processes are paper-based which, unless some level of automation and digitization are introduced, will hamper any future attempts to streamline the overall process lead time. Responses to tenders, often from a large number of potential suppliers, are not received electronically— a situation that makes the evaluation of said responses extremely time-consuming as the individual responses cannot be consolidated and compared electronically.
- In terms of performance measurement, internal Key Performance Indicators (KPIs) monitoring the Agency's processes have been

defined but not yet introduced. Furthermore, supplier performance only becomes a topic of interest once a particular issue has been identified.

- Forecast accuracy is low. Although data used to make an accurate assessment of the level of performance in this area is not available, less formally, the situation is reported to be less than acceptable. Indeed, according to the Integrated Pharmaceutical Logistics System Survey (IPLSS), out of stocks within the distribution network and at health facilities as well as excessive levels of expired product, to some extent, are a feature of low forecast accuracy. The volume of particular program commodities needed, based on the number of patients receiving treatment and a specific treatment regimen, are inherently easier to forecast than those products sourced through the RDF mechanism. Furthermore, the software tools currently deployed by the Agency are more suited to the regular usage type of program pharmaceutical rather than the less predictable essential medications.
- Although a Directorate of Quality Assurance has been created, the function is currently focusing on activities that can, at best, be described as quality control related. A considerable amount of laboratory equipment has been procured and commissioned in order for the testing of pharmaceuticals to be undertaken. These objectives, however, have not been achieved because the chemicals

required to undertake the chemical content testing of the pharmaceuticals have not been procured.

1.2. Financial Management

- The organization expends considerable resources attempting to adjust financial reports of previous years that have not been acceptable to the auditors.
- The reports that are produced, quarterly at best, are not optimal for equipping operational management to manage the agency's operations.
- Management accounts are not produced to provide management with cost data and compliance with functional budgets. Even if the desire existed to produce reports of a management accounting nature, the current structure of the General Ledger (GL) would not allow meaningful reports to be generated. Currently, a small number of cost centers embrace the entire operation, a situation that makes it impossible to allocate costs to the two distinct operations undertaken by PSA namely:
 - The sourcing and distribution of program items
 - The procurement, selling and distribution of essential medicines
- The lack of integrated financial and operational systems results in labor-intensive reconciliation exercises. While this is an inefficient

method of operating on a day to day basis, the need to cease operations for about a month, for the annual stock-take and subsequent reconciliation, is an extreme example of the problem.

The PSTP prioritized excellence in financial management as one of the pillars in strengthening the PSA supply chain. A total of five indicators were developed to monitor financial management performance. During the two and a half years of implementation, none of the performance indicators have been measured or achieved. Table I presents the status in the implementation of PSTP performance indicators.

TABLE I: PSTP Financial Management System Performance Indicators

Strategic Objective	Target	Achieved	Comment
Number of timely produced financial reports with acceptable quality	12	0	Financial reports were not being produced
Liquidity ratio	0.7:1	N/A	There is no information to furnish this indicator
Number of internal quarterly audit reports produced relating to consolidated financial reports	12	0	No internal audit report has been produced

The proportion of external audit reports with clean audit findings	3	0	Audit reports produced had a disclaimer opinion; management is responding to audit
Cash to cash cycle time (in months)	13	N/A	There is no information to furnish this indicator

- KPIs are not produced on a regular basis primarily due to the unavailability of appropriate resources to undertake the work. The focus of the function is the preparation of the required financial reports to the quality required. The issue of attracting and retaining suitably qualified staff, while it is an issue for PSA as a whole, is particularly cumbersome to the finance function.

I.3. The Warehouse Infrastructure Network and Distribution Operations

- ‘Our customers are not happy’. A supply chain has the twin objectives of delivering the required quality of customer service cost-effectively. It is reported that customers are less than happy with the experience of dealing with PSA and specifically quote the following problems:
 - Late and incomplete deliveries
 - Stock-outs: not being able to obtain the items they require

- Different prices for the same item
- Difficulty in communicating with the Agency

Quality of customer service requires rectifying, especially so if PSA desires to expand its business by seeking private sector customers.

- An over-investment in distribution network assets has taken place in recent years as a result of decisions made that were not based on SCM best practice. The increase in the number of distribution hubs has resulted in overlapping delivery areas and a reduced level of delivery vehicle utilization. The aim of ensuring equal access to medications can be achieved with fewer distribution hubs than is currently the case. The aim of any revised PSTP must be the introduction of best practice techniques while simultaneously making use of the investments that have been made to date in distribution network assets.
- The recently implemented GPS has evidentially confirmed the estimated low levels of vehicle utilization. This is, to some extent, brought about by the increase in the number of distribution hubs and limited transport planning expertise.
- There is a considerable amount of work needed with regards to repair and on-going maintenance of warehouses, both ambient and chilled, and the mechanical handling equipment. Productivity is hampered by the poor condition of the warehouse floors and the

wear and tear of the unserviceable mechanical handling equipment. The issue of the warehouse floors has been the focus of attention for some time and plans are in-hand to rectify the situation. However, maintenance strategies are not in place for the cold store equipment, warehouse fabric and the mechanical handling equipment. Delivery vehicle servicing and repair is undertaken in accordance with the recommendations of the manufacturers. However, typically, this requires all vehicles to return to Addis Ababa decreasing the availability of the vehicles for customer deliveries.

- Warehouse operational efficiency is impacted by the volume of slow, non-moving and expired stock consuming valuable storage space in warehouses. Poor inventory management and the lack of best practice SCM techniques combine to generate stock levels of particular items that impact the ability of management to operate the warehouse efficiently. In some cases, it becomes apparent the responsible party for inventory management is not clearly identified. For instance, members of the procurement team delay the issuing of POs as a result of a misperception regarding the availability of adequate stocks of particular items.
- Despite the overall lack of KPIs produced to monitor the achievement of the strategic initiatives, the mid-term review was

able to form further views regarding supply chain performance using data published in other reports including:

- Pharmaceutical availability: The availability of essential medications at the lower end of the supply chain (health centers and health posts) has been evaluated several times over the past few years. The following tables present the results of various calculations undertaken in mid-2018:

TABLE 2: Tracer products out of stock in last six months (Percentage)

Products	Health Centre	Primary Hospital	General Hospital	Tertiary Hospital	National Ex. Hospitals	PSA Priority	Health Posts
1	28.00	19.00	40.00	44.00	28.00	42.00	38.00
2	28.00	32.00	31.00	44.00	28.00	35.00	0.00
3	29.00	33.00	15.00	38.00	29.00	30.00	16.00
4	16.00	0.00	0.00	0.00	38.00	0.00	16.00
5	0.00	0.00	0.00	0.00	16.00	0.00	16.00
6	19.00	21.00	18.00	21.00	17.00	29.00	0.00
7	17.00	27.00	0.00	0.00	18.00	0.00	18.00
8	14.00	5.00	19.00	6.00	5.00	13.00	0.00
9	19.00	14.00	13.00	15.00	18.00	19.00	13.00
10	24.00	29.00	19.00	25.00	24.00	29.00	13.00
11	16.00	35.00	21.00	31.00	20.00	22.00	0.00
12	13.00	19.00	27.00	41.00	14.00	38.00	0.00
13	18.00	27.00	75.00	59.00	14.00	71.00	0.00
14	33.00	0.00	0.00	0.00	0.00	33.00	36.00
15	15.00	15.00	21.00	7.00	16.00	12.00	18.00
Average	19.27	18.40	19.93	22.07	19.00	24.87	12.27

- The data from the 2018 IPLS S reflects considerable variability between the 15 tracer products surveyed. However, the average figures indicate that even amongst the tracer products, out-of-stocks are prevalent. While this does not imply an out-of-stock status for all products.

The above table presents the out-of-stock data for the products by type of facility. The table below presents a summary of the average out-of-stock status for each product across all the health facility categories surveyed:

TABLE 3: Average out of stock percentage (all health facilities)

Product#	Percentage	Product#	Percentage
1	34.14	9	15.86
2	28.29	10	23.29
3	27.14	11	20.71
4	10.00	12	21.71
5	4.57	13	37.71
6	17.86	14	14.57
7	11.43	15	14.86
8	8.86	All	19.40

Moreover, the extent of out-of-stocks will certainly contribute to the problem of ensuring availability of products at health facilities. The difficulty in maintaining balanced inventories across PSAs warehouse network is indicated by analyzing a one-off example of a re-supply

request (April 2016) from the Addis Ababa Hub. The analysis revealed the hub was out of stock of 292 of the Stock Keeping Units (SKUs) requested at the time the requisition was submitted, representing 42 percent of items requested.

- Emergency orders: Further indirect evidence for a supply chain problem comes from an analysis, again published in the 2018 IPLSS, of the number of emergency orders generated by a sample of hospitals and health over a three-month period. The analysis is shown in the following table:

TABLE 4: Monthly frequency of emergency orders (Percentage)

	None	One	Two	Three	Four	Five	> five
Tertiary Hospital	11.10	27.80	0.00	16.70	0.00	5.60	33.00
General Hospital	16.80	18.80	18.80	31.30	0.00	12.50	0.00
Primary Hospital	50.00	27.30	9.10	4.50	0.00	4.50	4.50
Health Centre	71.50	15.30	6.80	4.40	0.08	0.08	0.04
National (456 HFs)	68.80	16.0	7.10	5.20	0.08	1.20	4.00
Health Posts	82.10	7.30	5.30	2.60	0.07	0.07	7.00
PSA Priority Hospitals	22.70	22.70	9.10	13.60	4.50	4.50	22.70
Average	46.14	19.31	8.03	11.19	0.68	4.06	10.18

While the statistics relating to pharmaceutical availability and emergency orders indicate supply chain issues for health facilities, the causes cannot always be totally attributed to the shortcomings of PSA in the area of SCM.

The accuracy of supply chain data: With only approximately 20 percent of health facilities operating a computerized inventory and re-ordering system, the Health Commodity Management Information System (HCMIS), and the balance of the health facilities using the manual version of the system, there is considerable opportunity for the recording and transmission of inaccurate data. This challenge was reported by the IPLSS of 2014 as follows:

TABLE 5: Use and accuracy of IPLS records and reports (Percentage)

Type of Health Facility	Bin Cards/Forms Available	Use of Records and Forms	Accuracy
Health Posts	40	24	21
Health Centers	80	64	43
Hospitals	90	73	N/A

Unfortunately, the IPLSS 2018 report did not survey use of manual records and their accuracy. However, the Mid-term review does not have any reason to accept the situation has improved.

Demand remains unclear to both the ordering facility and PSA as basic forms and records are:

- Not universally available
- Not always used when available
- Inaccurately completed

The inevitable consequence of this situation is the failure to maintain adequate stocks at all times across all levels of the supply chain.

Compounding such problems, the 2015 Pharmaceutical Sector Transformation Plan draws attention to a range of broader problems regarding the Integrated Pharmaceutical Fund and Supply Management Information System (IPFSMIS), reporting a series of commonly observed challenges impacting the accuracy of supply chain including¹:

- Lack of effective integration between information systems across the supply chain levels (SDPs, hubs and centers).
- IPFSMIS is not available for forecasting and supply planning, procurement, fund management, human resource, and asset management including automated fleet management systems, such as GPS.
- Limited data visibility.
- Lack of ownership, challenges with version stability, and concerns regarding sustainability for systems in use.
- Lack of accuracy and concerns of reliability for logistics data and reports generated from HCMIS.
- Limited application for managing warehousing operations: ‘first to expire first out’ (FEFO), batch segregation and management, warehouse location and space management.

¹ PSTP December 2015, pages 15 - 16

- Lack of product dimension data such as weight and volume.
- Underdeveloped institutional capacity for data utilization in decision-making processes.
- Non-standardized product directory services and resulting data quality problems.
- Limited or no application of automated Inventory Management System in referral hospitals, responsible for the majority of national consumption, and the cost/challenge of obtaining quality data.
- Power and network interruption and associated problems for using web-based systems such as HCMIS.
- The legal limitation to use electronic transaction and stock keeping documents.

Stock turn: Indicative of the supply management challenges PSA faces is the low stock turn² of no more than 0.92 times per year. This is considered low by the standards of comparable health supply systems where 3 to 5 stock turns would be expected and is much less than best practice standards accepted in the broader supply chain industry. Without improving the stock turn, the only way to accommodate increasing storage volumes is to expand the amount of warehouse

² Stock turn is an inventory metric that measures the rate at which the inventory is used. The most typical way to calculate the stock turn is to divide the monetary value of stock issued in a year by the monetary value of stock held at the time of measurement

space used by the organization, strategy that has been adopted by PSA for a considerable number of years.

- Distribution network infrastructure: In terms of the distribution network infrastructure, significant amounts of technical assistance between 2015 and 2017 have provided information that can be used to compare the operation to best practices. In 2017, a major assessment was undertaken at all hubs to enable a comparison between the physical and operational standards achieved and Good Warehousing Practice to be made. The results highlighted many areas affecting the operational capabilities of the hubs and impacting health and safety considerations.
- Distribution operations: The over-investment in distribution hubs has already indicated that the situation has adversely impacted the utilization of delivery vehicle. Furthermore, the ability to manage such a large number of storage points is severely restricted by the processes employed in managing their various functions and the breadth of different roles at each hub. An assessment of PSA distribution conducted in May 2015³ reported the following findings with regards to vehicle utilization:

³ JSI Deliver - Transportation Assessment at PSA Ethiopia, May 2015

- 32 percent of all load requests from PSA central stores to hubs were executed by rented vehicles.
- Owners of the rented vehicles used for hub replenishment trips are not always reliable and reluctant to load at more than one warehouse.
- To ensure PSA vehicles are fully loaded, they are regularly required to load at more than one of PSAs 23 warehouses in Addis Ababa and Adama. (By 2018, the number of warehouses in the Addis Ababa area had decreased significantly).
- 18 percent of vehicle weeks are lost to maintenance and repair.
- Vehicle carrying capacity is generally well used, but delivery times are often extended especially at times of high demand when it can take five weeks to complete deliveries.
- An analysis of the HCMIS⁴ data revealed an uneven demand pattern as a result of making two deliveries per year of RDF products to woredas (districts) and six deliveries of program products directly to health facilities. The nature of this demand results in periods of pressure on the transport resources while, at other times, vehicles are idle or under-utilized; it is estimated that 30 percent of vehicle days are currently unused by PSA.

⁴ HCMIS is the warehouse and information management system used by PSA for all commodity transactions

- Continually increasing volumes will require not only additional transport resources but also improved load planning as well as better relationships with the providers of rented vehicles.

The above analysis suggests the distribution planning has some ways to go in order to achieve the best capacity and time utilization of the vehicle fleet. Since the analysis, little improvement has been made in the area of vehicle load and route planning. The GPS, introduced in 2018, will be valuable in providing information to enhance the planning process and help identify health facilities that take unusually long periods of time to unload the vehicles.

I.4. Management Information Systems

- The support for the MIS currently operated by PSA comes from staff that is seconded and funded by various external organizations. This exposes PSA to a serious risk in the event where experienced staffs leave the donating organization or the funding for the posts is reduced or eliminated completely.
- The utilized by PSA is inadequate to manage a supply chain of its size and complexity. Currently, there are a large number of storage locations that have to be managed, re-stocked, and distributed from, either as a re-supply point to the hubs and secondary warehouses or as supply points to the health facilities.

- The growth in demand, coupled with the expanding warehousing and distribution infrastructure, is proving increasingly difficult to manage especially when considering the current management system which is largely manual. As demands on PSA grow and intensify, continuing to operate with the existing MIS will only make it increasingly difficult to manage and control its large and growing supply chain with any degree of dexterity and efficiency.
- The functionality of the available SCM systems is limited especially with regard to warehouse management. This will make implementing best practice techniques, at best, difficult and, at worst, impossible. The available system handles order processing, delivery document generation and inventory recording. However, the operation in terms of managing labor, making optimal use of warehouse space, splitting orders to facilitate different order picking strategies and proactively supporting the management team is missing.
- Being aware of this, PSA is engaged in a process to select an ERP system. However, one of the fundamental starting points, conducting a Business Process Transformation (BPT) exercise, has yet to be completed. One of the pitfalls with selecting and implementing an ERP system is that, if an inefficient or bad process is computerized without any reduction in the inefficient and unnecessary activities within the process, then the result will be a

computerized inefficient or “bad” process. The danger confronting PSA as it strives to determine its ERP needs without conducting a BPT exercise is that it will end up locking in inefficient processes into its new system that will be difficult to amend after the fact.

- A document management system is not provided by an appropriate integrated system or a module of the financial system. The provision of such a system would be beneficial to the procurement function and other functions within the agency.
- The recently implemented GPS will generate benefits in the future. However, there is a need to decide on the issues the system will be required to address and the data it must provide as a consequence.

1.5. Human Resource Management

- Only one to two percent of all employees hold a qualification of any sort within the overall area of SCM. Such low levels of expertise within the agency will limit the agency’s ability to introduce and manage enhanced supply chain techniques
- Staff satisfaction surveys and exit interviews, although not conducted on a consistent basis, reveal dissatisfaction with various aspects of the PSA working conditions including compensation
- Staff turnover is measured at the agency level. While the overall figure reflects the targets presented in the PSTP, there are recent

organizational concerns regarding the number of resignations of senior personnel

- The current salary levels, based on Civil Service Terms and Conditions, are seen as the primary reason for the level of staff dissatisfaction, turnover levels and a lack of operational staff continuity
- The gender ratio has barely changed in the initial two and a half years of the plan

2. STRATEGIC OBJECTIVES, INITIATIVES, AND PERFORMANCE MEASURES

2.1. SOI F1: Achieve Financial and Operational Self-Sufficiency

Description:

This strategic objective focuses on achieving financial and operational self-sufficiency of the Agency through identifying and rectifying the bottlenecks in the existing financial management system. Although the Agency receives funding from a number of different sources and generates additional revenue via the RDF, for this funding to be sustainable the funding organizations must continue to regard the quality of service they receive from the Agency as having value for money. Currently, fees are paid to PSA essentially based on a percentage of the value of the products being procured and/or delivered by the Agency. However, as more demanding service levels and complex operating scenarios are developed, this may not be the case in the future.

The Agency will develop a more in-depth understanding of the costs in order to assess the impact of changes in service level requirements, changes in order sizes, smaller shipping carton quantities and, in some cases, a reduction in the value of the items being handled.

Consideration will be given to the introduction of Activity Based Costing techniques. As with the physical distribution aspects of the operation, supply chain activities need to be scrutinized to ensure the fees received reflect the effort being put into the various activities. In addition to the aim of becoming financially self-sufficient, PSA will be operationally self-sufficient by becoming 'master of its own destiny' and not relying on the 200 seconded staffs from various donor organizations and Non-Governmental Organizations to support its operational activities. The Agency will transform its financial system so that it can provide reliable financial and management accounting reports, collect account receivables timely and prepare an appropriate budget for its operations.

Strategic Initiatives:

1. The development of costing tools within the PSA financial system. It is essential that the costs of the various services provided by PSA are fully understood in order to charge the appropriate prices for the pharmaceuticals and services provided by the agency.
2. A review of the finance systems with a view to their integration into the operational systems to facilitate the regular production of costing data and financially based performance measures.
3. The enhancement of market shaping activities and market intelligence resources by training and the freedom to operate

outside the traditional linear forecasting and procurement processes. The objectives of this initiative being the identification of lower priced pharmaceutical sources, a reduced need for foreign currency and shorter procurement cycles.

4. The introduction of a Continuous Improvement Programme with a particular focus upon cost reduction programme.
5. The production of a plan to eliminate the use of seconded staff members. Initiate a recruitment drive with the aim of establishing a financial management team consisting of PSA employees. It is recognized that this needs to start very soon in order to have the personnel in place to ensure they are fully involved in making the proposed changes happen. Furthermore, any implementation plans need to recognize the need to undertake a considerable amount of training prior to, or very soon after the introduction of new integrated financial systems.
6. Prepare a long term rolling plan updated on an annual basis indicating projected funding and outlining the expenditure plan with appropriate targets. The planning process should emphasize a bottom up planning approach. The planning team has to integrate the views of all stakeholders to ensure that resources are allocated efficiently for key areas of the supply chain such as product specification, quantification, procurement, storage, distribution and inventory management in line with available

resources. This will ensure improvement in the delivery of health commodities and that, there is cost effective utilization of funds.

7. Create specific General Ledger codes for each key functional area, including: procurement, distribution, warehousing, management information systems and administration. The cross cutting functions, typically Head Office related, will also be allocated General Ledger codes. Those costs will subsequently be allocated to the various functional areas based on the levels of activity exhibited by those areas.
8. In-depth financial performance measurement requires that the General Ledger is constructed in enough detail to enable the costs and revenues of the various elements of the business to be monitored and accounted for individually. Creating a greater number of account codes, than is currently the case, will enable the tracking of resource use and enable performance comparisons between departments and locations.
9. Procure and install an ERP based financial management system that will integrate finance to other Supply Chain functions, deploying International Financial Reporting Standards to ensure a successful accomplishment of the organization's strategic goals. Converting from IPSAS to IFRS is important, at an early stage in the transformation plan, as it is a pre-requisite for PSA becoming an independent commercial organization, at some point in the future,

should the organization wish to make the transition. The ERP system will enable the Fund Management Directorate, liaising with the Stock Verification Managers, to periodically review the financial position by maintaining a link between the financial and physical values of the inventory.

10. Introduce management accounts to enable managers to control their activities against budgets and operational cost standards, track resources and optimize the management of funds using the Fund Management performance indicators and other key performance indicators. The introduction of management accounts in addition to the financial reports will not only ensure monitoring and evaluation of the organization financial performance but also indicate to management the actions to be taken to improve performance and meet the strategic objectives. The new activities will include the production of monthly budget performance reports that compare budgeted and actual revenue and expense performance.
11. Strengthen the internal audit to assess, evaluate and manage the financial and managerial risks associated with fund management and develop a mitigation plan in compliance with policies, procedures and laws. In common with the other elements of financial reporting and management accounting, the resources within the internal audit function should add value to the

organization by not only reporting the numeric values of the reports but, indicate areas for improvement and whenever possible, suggest initiatives that could achieve the level of improvement needed. The internal audit is expected to provide independent and objective assessment of PSA's financial and technical performance in accordance with the International Professional Practice Framework issued by the Institute of the Internal Auditors.

12. Long-term financial sustainability plan. The main aim of PSA is the achievement of financial and operational self-sufficiency. To ensure delivery of that aim developing a plan to do so is a key strategic initiative for finance management.
13. Reduce process lead time.

Performance measures:

1. Reduce the average credit sales collection to 60 days
2. Decrease cost to income ratio by 30 percent
3. Replace 50% of seconded staff positions by internal staff
4. Produce quarterly reliable management accounting reports submitted to management regularly
5. 3 unqualified audit reports produced (out of 5 audits)

Outcomes:

1. Financial Independence
2. Reliable, timely and consistent financial reporting system

2.2. SO2 CI: Ensure high levels of product availability and deliver excellent customer service

Description:

The PSA's Supply Chain exists to provide an uninterrupted supply of quality assured pharmaceuticals to health facilities, essentially, hospitals and health centers. Delivering excellent customer service in terms of pharmaceutical distribution supports the agency's aims in the areas of enhanced community ownership and rational medicine use. The provision of the service should be:

- Based on the measurable needs of the recipients of the service
- Provided in the most economical manner while meeting the public health requirements and social economics of Ethiopia

To ensure appropriate levels of pharmaceuticals availability and delivery of customer service levels, a clear understanding of both current and potential customer base and differing needs of product ranges is required. In addition classic inventory control techniques need to be adapted to develop a matrix of availability policies.

PSA is also serving private sector customers; even though these customers contribute very small to the total sales generated and typically served on an ad-hoc basis only, they need to be included in any customer researches.

The percentage of orders delivered on-time and in-full will provide management with an excellent indicator of the extent to which the strategic objective is being achieved. Although a series of measures can be developed to measure the level of performance at various points in the Supply Chain, the single measure will provide all stakeholders with a view of the extent to which the strategic objective is being achieved. Regular customer surveys will enable customers to give feedback regarding the level of service delivered by PSA and provide management with a basis for reviewing their availability policies.

Strategic Initiatives:

1. Implement Customer Relationship Management (CRM) System
2. Improve Public Relationship
3. Strengthen Public-Private Partnership

Performance Measures:

1. Increase percentage of orders delivered on-time and in-full for vital drugs to 100%
2. Increase availability of vital drugs to 100%

Outcome:

1. Satisfied & Retained Customers

2.3. SO3 CBI: Increase the levels of SCM expertise and provide the staff with rewarding careers

Description:

In delivering this objective, aim of the Agency is creation of an organization that is highly respected by the country at large, has staff that are regarded as leaders in their respective areas of expertise and one that people are keen to join should appropriate opportunities/vacancies arise. PSA is essentially a Supply Chain organization and the recently published HRM Strategy 2018-2022 has the objective of improving employee satisfaction. However, currently, very few members of staff have any formal training in the area of SCM and those that are operating in the area have typically gained their experience as a result of working at PSA. Recently, the Agency has adopted an organizational structure that gives more focus to SCM than has traditionally been the case. This new focus should enable career paths to be developed, appropriate training provided, either ‘on-the-job’ or through an educational institution, and the staff, as a consequence, see a future with the Agency.

Implementing the HRM Strategy will support the achievement of this strategic objective. Follow-up procedures are needed to ensure the revised processes become a ‘way of life’ within the agency. The performance of individual managers should contain an element of their

performance in the area of HRM policy compliance. A significant amount of space in the HRM Strategy document is given over to the training needs of the organization and ways in which to obtain that training through. To make the capacity building activities effective, future capacity building activities will be based on comprehensive competency mapping exercise. In addition, innovative ways of filling the skills gap are needed, including the contracting of interim managers, until sufficient permanent staff members are trained or recruited. The Agency's Proclamation is also under revision so as to give more autonomy to the Agency in its operations.

Strategic Initiatives:

1. Introduce motivation, retention and performance measurement system
2. Improve supply chain workforce capacity in different areas of supply chain through competency mapping
3. Establish supply chain training and resource center
4. Revise PSA organization structure to reflect the changes in the agency's business
5. Submit drafted proclamation to the Parliament for endorsement

Performance measures:

1. Increase staff satisfaction to 80 percent
2. Increase the percentage of competent supply chain experts in the agency to 80 percent
3. Reduce staff attrition rate from 3.7 percent to 2 percent
4. Training Center established and functionalized
5. Revised organogram implemented.

Outcomes:

1. Competent and committed supply chain workforce.

2.4. SO4 P1: Grow the business by developing a culture of flexibility, operating at international standards, to enable the agency to take advantage of new business opportunities

Description:

Considerable growth in terms of both the value of goods sold and their physical volume is anticipated in the coming years as a result of not only population growth but also the expansion of the recently introduced health insurance scheme. Recommendations of the PSTP Mid-term Review in the areas of market shaping, intelligence and dynamics highlight the need to be gathering information and responding to that information quickly for the benefit of the agency. A flexible and agile organization, acting quickly on the latest market and operational data is needed to make decisions and take advantage of opportunities as and when they become available to the organization e.g. a new private hospital opening or a chain of retail pharmacies wanting to do business with PSA. A crucial initiative, in delivering a culture of flexibility will be the undertaking of a BPT exercise. Less complex processes will allow PSA to respond quickly in the event that new business opportunities arise. Other initiatives to support the desire to respond to opportunities quickly include:

- Identifying potential growth areas and planning for their consolidation with the existing customer base as and when the business is won.
- Treat all Supply Chain assets in an integrated manner such that deliveries can be switched between distribution points and the inventory and vehicle fleet treated as one rather than the central and hub-based vehicles.
- Establish a separate distribution network for medical equipment which delivers the equipment independently and not with pharmaceuticals and medical supplies. The objective of the initiative being a rapid and flexible response to requests for medical equipment. The distribution of medical equipment would not be constrained by the pharmaceutical distribution cycles and, the pharmaceutical system would not become distracted by large items needing transporting on ad hoc one-off basis. This latter situation would impact the service level being given to the growing pharmaceutical business as volumes increase.

One aim of this strategic objective is being the gaining of a reputation that may at some point in time in the future, result in changes to the legal status of the agency allowing non-government investment via Public Private Partnerships or partial/total ownership via a share flotation to some extent. Any Supply Chain is only as good as the

weakest link in that chain. Thus, an in-depth understanding of all of the end-to-end activities of the Supply Chain is needed in order to identify the weaknesses vis-à-vis commercial good practice. While there are excellent examples of pharmaceutical wholesale distribution in Europe and North America, additional insights should be obtained from other industries in the Private Sector. Management needs to adopt a holistic approach trading-off, as necessary, the impacts of making a change in one element of the chain on another. For example, procurement agreeing to increase minimum order quantities may obtain lower purchase prices but, it could increase storage and handling costs in the event that storage capacity is limited at the central storage facility. Similarly, gaining a large amount of new business in total, spread over a large number of delivery points, may impact adversely the unit costs of delivery and the overall levels of customer service.

Operating to international standards will require the elimination of non-value adding elements of the current business processes. The undertaking of a Business Process Transformation exercise is of utmost importance in identifying non-value adding elements of the agency's business processes and subsequently defining transformed processes. The exercise will support the achievement of the aims of various other strategic objectives and their related strategic initiatives. Transforming the business processes to reflect international good practice will be an important step in transforming PSA's Supply Chain.

However, to manage the transformation experienced Supply Chain personnel, will be needed, to identify operational performance gaps based on their knowledge of good international practice in terms of:

- Forecasting and Procurement
- Warehousing and Transport Management (Temperature Controlled and Ambient Conditions)
- Supply Chain systems including financial control and performance measurement

Once the performance gaps have been identified, a series of improvement projects will need to be defined to close those gaps within a programme of Continuous Improvement and culture change to enhance the operational effectiveness of the agency. Initial research indicates that these projects will be in the areas of market shaping, hub location, hub roles and activities, inventory profiles and vehicle load planning. In order to benchmark PSA's performance against international standards, a single KPI should be developed for each element of the end-to-end Supply Chain, for example:

- Forecast accuracy: Goods issued/sold expressed as a percentage of goods procured/requested from donors.
- Inventory turn: Cost of goods sold divided by value of stock on hand.

- Distribution vehicle capacity utilization: Total loads delivered in cubic meters expressed as a percentage of the total cubic meters of the available vehicle capacity.

The extent to which the strategic objective is achieving its overall aims can be monitored by the following two performance measures:

- Volume growth: The level of business growth, in terms of value and physical volume, coming from new sources for example, newly opened health facilities and private sector customers.
- Medical equipment delivery schedule compliance: The percentage of medical equipment orders delivered within the delivery lead time agreed.

Strategic Initiatives:

1. Implement the cyclical approach to procurement incorporating a Vendor Identification Process and an Item Master List
2. Strengthen the Market Intelligence and Market Shaping capability through training and mentoring
3. Introduce category management and framework agreements
4. Develop a Quality Assurance system based on the WHO model.
5. Reduce the number of stockholding distribution hubs from twenty-three to ten. Essentially, these are the larger hubs currently in the network

6. Establish an in-bound central warehouse for replenishing stockholding hubs and managing the distribution of slow-moving stock orders
7. Define 'cross-docking' processes and establish a network of stockless locations to act across-docking' facilities
8. Establish a network of incineration sites and waste consolidation points for the eventual disposal of pharmaceuticals as well as clinical and anatomical waste
9. Complete a BPT exercise
10. Prepare functional specifications for the selected ERP modules based on the results of the BPT exercise and the revised business processes
11. Acquire the ERP software to be installed at the PSA Head Office: Finance, Procurement, Inventory Management and Human Resource Management.
12. Procure 'best of breed' software for warehouse management and forecasting
13. Research the fleet management systems that can interface with both the GPS software and the acquired WMS
14. Recruit appropriately skilled staff to populate the proposed revised organogram for MIS.
15. Take the necessary steps to ensure that the Internet band-width within PSA is sufficient to support the anticipated internet

volumes associated with the Central Ordering processes and the fully integrated systems

16. Establish when Virtual Private Networks (VPN) will be permitted in Ethiopia. VPNs allow protected data transmission networks to be introduced preventing external access to confidential information passing from one site to another

Performance Measures:

1. Reduce forecasting error (quantity & value) to below 25 percent
2. Decrease suppliers lead time variability to less than 90 days
3. Decrease central warehouse turn-around time to less than 2 days
4. Increase inventory turnover rate from 0.9 to 4

Outcomes:

1. Shortened procurement lead time
2. Increased forecasting accuracy
3. Improved warehouse and inventory management
4. Efficient distribution and fleet management system

3. COSTING AND FINANCING

Implementation of this strategic document should be supported by the required resources. Given the complexity and volume of the operations the Agency is undertaking and the advancements planned to be achieved, financing the implementation will require more commitment from the government as well as development partners. It will require the Agency to operate more efficiently by reducing unnecessary costs without compromising the quality of the service it provides. An estimated total amount of USD22.35 million will be required for implementation of the strategic plan.

The required budget will be generated from the sales of RDF pharmaceuticals and collection of service charge from donors for services provided to donors in the forecasting, procurement, storage, and distribution of pharmaceuticals. These fund sources will be complemented by funds allocated by development partners and donors for supply chain system strengthening. The cost is determined by identifying and costing the key activities that will be undertaken under each strategic initiative. The total estimated costs over the years are summarized in Table 6 below:

TABLE 6: Total estimated implementation costs

	Element of the Total Cost	USD (Million)
1	Training relating to the introduction of IFRS	\$0.25
2	Developing forecasting, QA and market intelligence activities (staff training and mentoring)	\$0.50
3	Procuring and implementing ERP modules (finance, procurement, inventory management and HRM)	\$0.64
4	Procuring and implementing a best-of-breed warehouse management system at 10 hubs – system generated paper outputs	\$0.68
5	Upgrading the WMS to enable a paperless operation utilizing Radio Frequency Identification (RFID) technology	\$0.66
6	Procuring and implementing a best-of-breed forecasting system	\$0.03
7	Establishing a central inbound container handling and slow-moving stock operation	\$10.20
8	Planning, equipping and introducing a clinical waste management operation based upon the incinerator network	\$3.60
9	Undertaking SCM training widely within PSA	\$0.50
10	Engaging in technical assistance (SCM, finance, procurement, MIS, warehousing and distribution) to support the implementation over the three-year period	\$5.29
Total Estimated Costs		\$22.35m

4. GOVERNANCE & IMPLEMENTATION ARRANGEMENTS

The supply of pharmaceuticals is one of the building blocks of the health system. As such, the managing boards of PSA, The Social Affairs Standing Committee of the House of Peoples Representatives, as well as FMoH are providing necessary guidance and oversight on the operation of the Agency. The Head Office and Branch Management Committees are responsible for leading implementation of the plan in a coordinated manner in collaboration with federal and regional stakeholders and development partners.

The pharmaceutical supply donors' forum, the pharmaceutical supply chain system strengthening steering committee and technical working groups, as well as program-specific technical working groups will be instrumental in supporting the implementation of the strategic plan. The Agency will further strengthen and effectively utilize these platforms to advance its operations. The principles of good governance will be the guiding principles in each and every operations of the Agency at all levels and the Agency will strengthen the working relationship with its staff and their performance through revitalizing the Health Development Army. Detailed operational plan will be developed for the effective implementation of this strategic plan.

5. MONITORING & EVALUATION FRAMEWORK

The Framework shows the existing M&E system with overarching principles of integration, simplification and standardization. As outlined in the figure below, inputs are translated into outputs, outcomes and impact. System inputs and processes reflect infrastructure and established a system, whereas outcomes and impact reflect pharmaceutical supply and health systems performance.

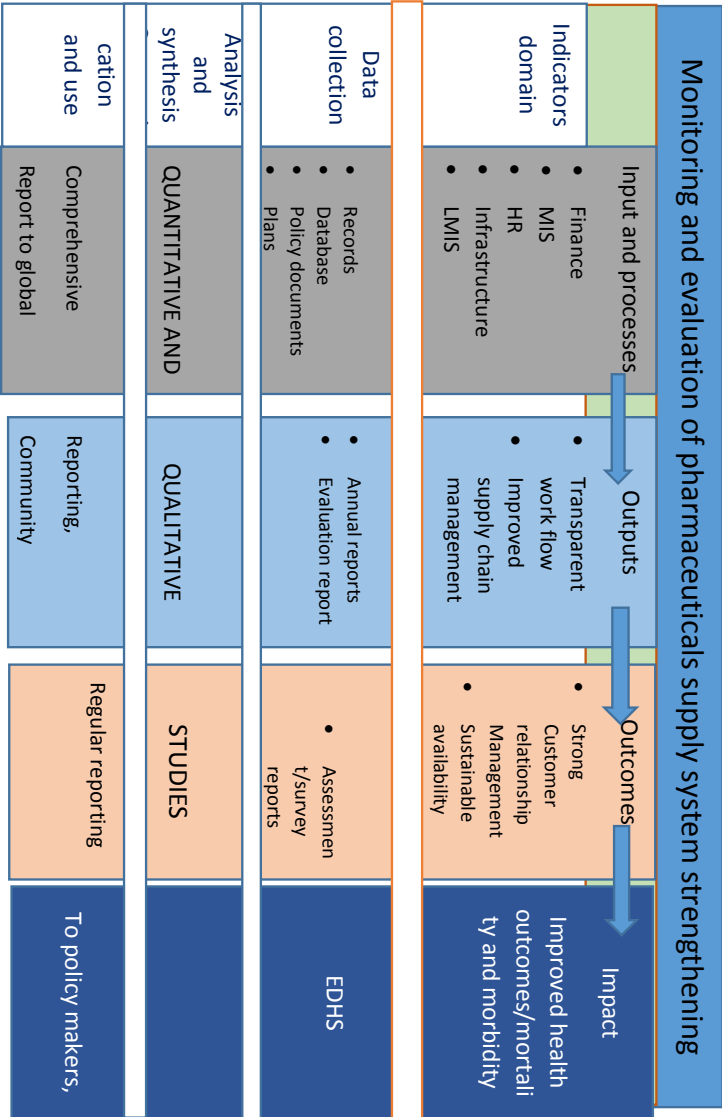


Figure 1: M&E Framework of pharmaceuticals supply system

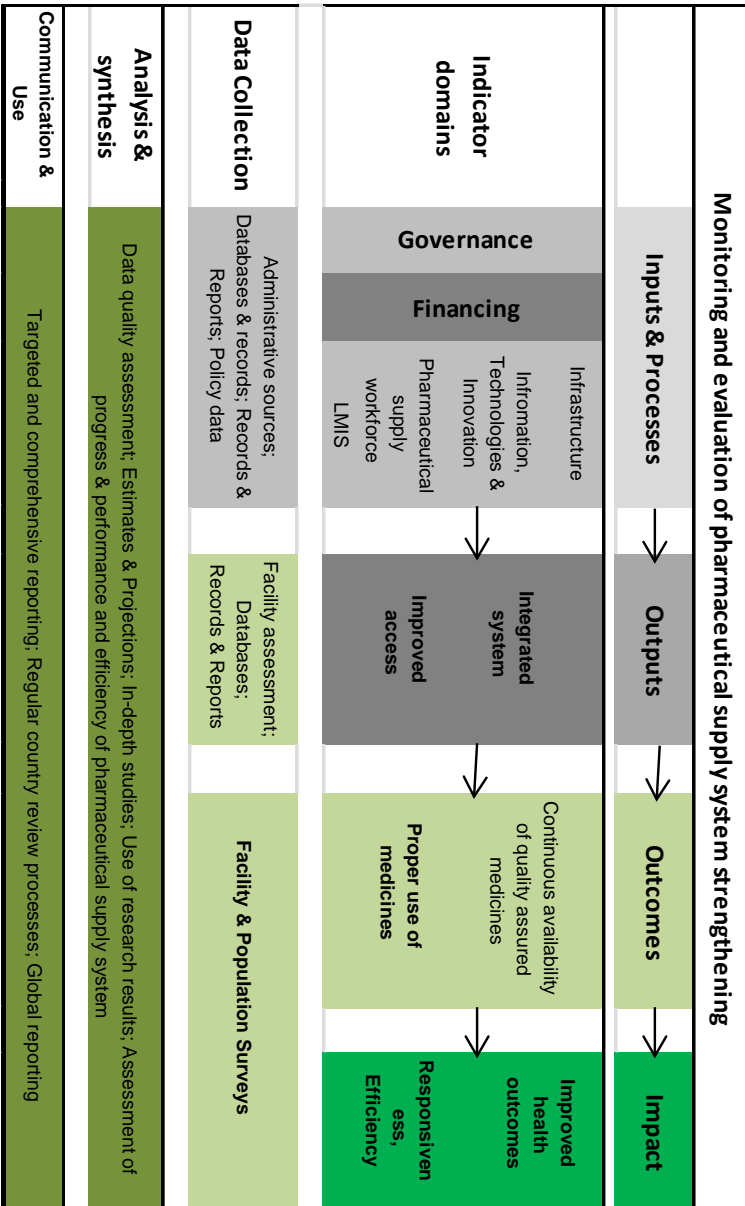


Figure 2: M&E Framework of the pharmaceutical supply system

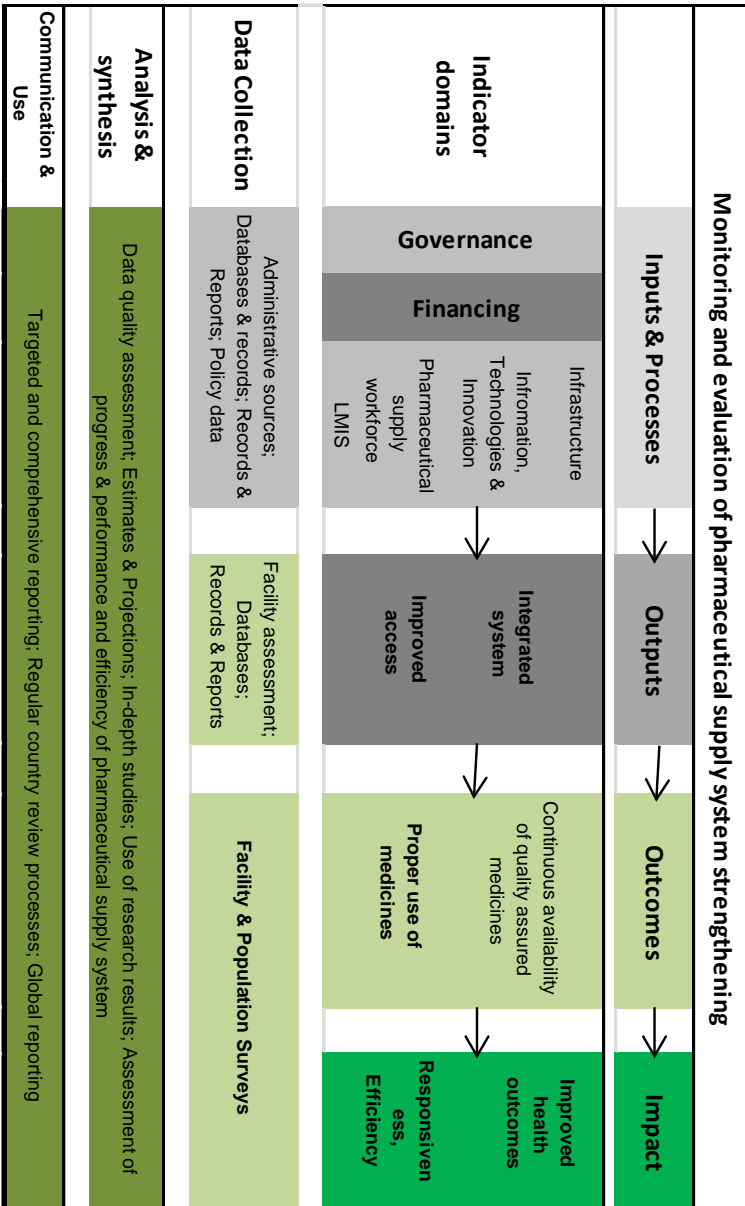


Figure 3: M&E Framework of the pharmaceutical supply system

6. INDICATORS AND TARGETS FOR PSTP MONITORING

Indicator	Type	Baseline	Yearly Target (2018– 2020)			Source	Periodicity	Level of data
			1	2	3			
FI: Achieve Financial and Operational Self-Sufficiency								
1 Reduce the average credit sales collection days	Output	NA	90days	75days	60day	Finance reports	Annually	PSA Center
2 Decrease cost to income ratio	Output	NA	10%	20%	30%	Finance reports	Annually	PSA Center
3 Replace seconded staff positions by internal staff	Output	NA	20%	35%	50%	HR records	Annually	PSA Center
4 Produce quarterly reliable management accounting reports	Output	NA	4	4	4	Finance Reports	Quarterly	PSA Center/hubs
5 Unqualified audit reports produced	Output	NA	1	2	3	Finance Reports	Annually	PSA Center/hubs

Indicator	Type	Baseline	Yearly Target (2018– 2020)			Source	Periodicity	Level of data	
			1	2	3				
CI: Ensure high levels of product availability and deliver excellent customer service									
1	Increase %age of orders delivered on-time and in-full for vital drugs	Output	NA	60%	80%	100%	Distribution reports	Bimonthly	PSA Center
2	Increase availability of vital drugs	Output	NA	80%	90%	100%	Inventory reports	Monthly	PSA center/hub
CBI: Increase the levels of SCM expertise and provide the staff with									
1	Increase staff satisfaction	Output	NA	55%	65%	80%	Survey	Annually	PSA center/hub
2	Increase the percentage of competent supply chain experts in the Agency	Output	NA	35%	55%	80%	HR records	Annually	PSA center
3	Reduce staff attrition rate	Output	3.7%	3%	2.5%	2%	HR records	Annually	PSA center
4	Establish training center	Output	0				Record	Annually	PSA center

Indicator	Type	Baseline	Yearly Target (2018– 2020)			Source	Periodicity	Level of data	
			1	2	3				
PI: Grow the business by developing a culture of flexibility, operating at international standards, to enable the agency to take advantage of new business opportunities									
1	Reduce forecasting error	Output	NA	40%	30%	25%	Forecasting and Consumption	Annually	PSA center and hub
2	Decrease suppliers lead time variability		NA	90days	90days	90days	Procurement records	Annually	PSA center
3	Decrease central warehouse turn-around time	Output	NA	6days	4days	2days	WH records	Quarterly	PSA center/hub
4	Increase inventory turnover rate	Output	0.9	1.5	2.5	4	Inv. Records	Annually	PSA center/hub

