Comprehensive Assessment for the Government of Bangladesh, Directorate General of Health Services, Central Medical Stores Depot

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The Strengthening Pharmaceutical Systems (SPS) Program strives to build capacity within developing countries to effectively manage all aspects of pharmaceutical systems and services. SPS focuses on improving governance in the pharmaceutical sector, strengthening pharmaceutical management systems and financing mechanisms, containing antimicrobial resistance, and enhancing access to and appropriate use of medicines.

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ABBREVIATIONS AND ACRONYMS

CMSD	Central Medical Stores Depot
CPP	consolidated procurement plan
CPTU	Central Procurement Training Unit
DGFP	Directorate General of Family Planning
DGHS	Directorate General of Health Services
EDCL	Essential Drugs Company Limited
EPI	Expanded Program on Immunization
GOB	Government of Bangladesh
ICT	information and communications technology
LD	line director
LMI	Logistics Management Institute
LMIS	logistics management information system
MoHFW	Ministry of Health and Family Welfare
NEMEW	National Electro-Medical and Engineering Workshop
OP	operational plan
PIP	program implementation plan
REMEW	Regional Electro-Medical and Engineering Workshop
SPS	Strengthening Pharmaceutical Systems
SWOT	strengths, weaknesses, opportunities, and threats
WHO	World Health Organization

ACKNOWLEDGMENTS

The assessment team would like to thank the entire Ministry of Health and Family Welfare (MoHFW) of Bangladesh and the Directorate General of Health Services (DGHS) staff for the opportunity to learn about their mission and the challenges facing the organization. We hope the approach to this initial assessment and the recommendations that resulted will be useful in informing important decisions for the program's future.

This assessment was greatly assisted by Dr. Zubayer Hussain, Country Director, Management Sciences for Health (MSH)/Strengthening Pharmaceutical Systems (SPS)-Bangladesh. His astute understanding of the Health Services Directorate proved invaluable. The team understood both his intent and personal desire to see productive outcomes from this initial assessment on behalf of the DGHS and public sector health care in Bangladesh. Special thanks are extended to the entire MSH-Bangladesh staff for their exceptional efforts to organize and facilitate all aspects of the field and office visits necessary to conduct the assessment.

We wish to express our sincere appreciation to the SPS Program, US Agency for International Development (USAID), and MSH for providing funding, leadership, and technical support toward implementation of this initial assessment that may assist the DGHS to achieve both its vision and mission, on behalf of the people of Bangladesh.

EXECUTIVE SUMMARY

USAID-Bangladesh requested the assistance of the SPS Program, implemented by MSH, to address procurement and supply chain management issues related to the DGHS. Overall, the intended outcomes of the technical assistance to the country were—

- Improved procurement management systems for health commodities
- Strengthened logistics systems to increase the availability and visibility of medical commodities throughout the public sector
- Enhanced supply chain management systems, organizations, and processes throughout MoHFW
- Local capacity built to strengthen health systems for the future

USAID has been providing both public and private sector support to ensure enhanced medical supply procurement and supply chain management processes in Bangladesh for over 20 years. The nation of Bangladesh is clearly making rapid strides to improve the availability and delivery of health services in both the private and public sectors, and there is widening consensus to support continued progress at all levels. However, critical procurement and supply chain challenges confront the country, and deliberate steps need be taken now to create a seamless, demand-based system capable of supporting national objectives today and in the future. The assessment team found consensus within MoHFW that capacity must be strengthened to address the most pressing medical procurement and supply chain issues within DGHS.

Although stakeholders acknowledged that procurement is a major issue, our assessment indicated that the procurement process itself (the process of developing, issuing, awarding, and managing contracts) is generally transparent, compliant with accepted standards, and well documented. However, we also found that procurements are sometimes not completed quickly enough.

Looking into the future, we believe that testing and implementing new practices (including new procurement practices such as framework contracting and new management practices such as multi-year budgeting) could result in substantially improved logistics support to the Bangladeshi public health system. Looking beyond procurement at the rest of the supply chain, much work remains. For example, processes for the receipt, storage, issue, and distribution of supplies and the maintenance of medical equipment are inconsistently or incompletely managed, documented, and measured. These processes must be strengthened to meet both current and future expectations.

Our discussion emphasizes one overarching concept—procurement, distribution, storage, maintenance, condemnation, and disposal are all links in the end-to-end provision of medical logistics support. Each link should be studied and managed in connection with all the others, as the overall support system is refined and optimized.

Consistent with this end-to-end approach, our assessment highlights five imperatives that we believe should drive the strengthening of the logistics systems underpinning Bangladesh's public health services. All of the imperatives are cross-cutting as they apply to multiple phases or functions in the procurement and logistics life cycle. The imperatives are cross-linked in the sense that accomplishing individual imperatives requires success in one or more of the others.

- Imperative 1: Implement a demand-driven planning, procurement and supply chain
- Imperative 2: Transform the Central Medical Stores Depot (CMSD) into a strategic procurement and supply chain management organization
- Imperative 3: Strengthen and expand the operational plan development process
- Imperative 4: Implement a medical equipment management and maintenance program throughout DGHS
- Imperative 5: Study and adapt commercial distribution capability for use in DGHS public sector operations

The observations and recommendations of this initial assessment provide to the DGHS and its various stakeholders a snap shot of some of the challenges impacting the effectiveness of their logistics systems. Although the assessment was brief, the visits and information derived provide significant information that can be utilized for either follow-on logistics assessments or developing the implementation requirements associated with the recommendations. Significant opportunities for more detailed analysis and implementation planning exist and should be pursued to strengthen existing and future supply chain management, equipment management, and procurement practices.

Investment in procurement, inventory, and warehouse management automated systems should be expedited to optimize the use of timely information and produce optimal procurement and supply chain outcomes—now and into the future. The flow and distribution of commodities into and throughout the country should be optimized to create the maximum supply chain efficiencies to improve the quality and availability of health services throughout DGHS. In the last 20 years, DGHS has obviously provided tremendous improvements in the design and delivery of health services to the people of Bangladesh. Continued progress will depend in part on DGHS's ability to optimize the nation's medical procurement and supply chain system.

The current project extends SPS's Directorate General of Family Planning (DGFP)-focused work to DGHS under MoHFW, which operates a similarly configured, but mostly separate public health delivery network of teaching (medical college), specialty, and district hospitals and upazila (sub-district) health complexes throughout the country. DGHS is a large, complex health delivery system that provides roughly 50% of the health care services to Bangladesh's approximately 160 million citizens. DGHS also supports a number of infrastructure support units, such as the CMSD, with varying responsibilities to provide acquisition, procurement, and logistics support to the system. Opportunities to consolidate processes, facilities, and organizations and to create inter-directorate shared services to support both DGFP and DGHS may well exist, although our assessment did not include any analysis of those possibilities. SPS conducted its initial assessment of CMSD and other service delivery entities throughout Bangladesh between November 28 and December 21, 2010. This report details the method, findings, and recommendations of that initial assessment.

BACKGROUND

Following the successful introduction of an online procurement tracking system in the Directorate General of Family Planning (DGFP), which was undergoing user acceptance testing at the time of the assessment, and a package of interventions to support the procurement management systems of the DGFP under the Ministry of Health and Family Welfare (MoHFW), the Ministry requested the SPS-Bangladesh program to provide support in a number of areas. At a briefing meeting held for the Secretary, MoHFW, on October 13, 2010, and attended by USAID, the following areas were highlighted and recommended for focus during this effort—

- Assessment of the Central Medical Stores Depot (CMSD) starting in early December 2010
- Gradual introduction of the procurement tracker for MoHFW to cover all procurement entities and activities
- Introduction of 'framework contracting' in MoHFW to support a two-year procurement cycle, provide less-centralized contract ordering procedures, and simplify local procurement requirements
- Introduction of e-procurement
- Development of a bar coding system for easy tracking of health commodities
- Acquisition strategy for open source software that can be modified or upgraded by the Government of Bangladesh (GOB)
- Provision of technical support to DGHS for development of an inventory tracking system

This assessment was conducted in response to the specific request to be able to identify gaps and challenges and formulate recommendations to support a package of interventions that will enhance the efficiency and effectiveness of the CMSD within MoHFW in support of its stated goals and objectives.

Overall Tasks

To conduct a comprehensive assessment of the CMSD of the Directorate General of Health Services (DGHS) that will specifically—

- Review the overall management (e.g., personnel, structure etc.), procurement, warehousing, logistics, information technology, and governance functions to identify strengths and weaknesses
- Review the feasibility of coordination and integration of the DGHS and DGFP supply chain operations at all levels in terms of warehouse space, transportation, etc.
- Make recommendations to inform an options analysis for the development of a comprehensive strategic plan for the strengthening of the CMSD

METHODOLOGY

SPS and Logistics Management Institute (LMI) jointly conducted a comprehensive assessment of the management and operations of procurement and supply chain management entities throughout MoHFW to identify strengths and weaknesses, potentials for enhancement, risks, and recommendations for strengthening. Initial orientation to DGHS central, divisional, district, upazila, union, and community health operations focused on developing an understanding of the nationwide operations and support of the CMSD as well as their responsibilities with emphasis on procurement, warehousing, logistics, information and communications technology, and governance and management.

Survey Methods

Our study included a range of data collection and survey methods, including site visits, office calls, information system reviews, and document reviews of organograms, policy and procedure guides, and other process documentation.

The assessment team carried out an extensive review of several key documents related to the activities, organizational structure, and functions of the CMSD to include the central and regional warehouses and upazila and regional storerooms (e.g., divisional warehouses and district reserve stores). Documents reviewed included –

- Strategic plans, previous assessment reports, standard operating procedures, policies, and the next five-year program
- Interviews with staff of CMSD, DGHS, MOHFW and other stakeholders
- Interviews with commodity suppliers and service providers, e.g. CMSD'S transporters
- Field visits to health facilities, warehouses, and store operations at different levels

The team travelled extensively throughout Bangladesh and visited locations and operations at every level from the central warehouse to the service delivery points at the union level. A comprehensive list of persons contacted and locations visited can be found in annex 2.

Strengths, Weaknesses, Opportunities, and Threats Analysis

The assessment team utilized the strengths, weaknesses, opportunities, and threats (SWOT) analysis approach to identify potential gaps or opportunities that exist within the MoHFW supply chain in Bangladesh. The SWOT analysis is used to identify the internal and external factors that are favorable and unfavorable to achieve the objective of any organization.

Table 1. SWOT Analysis

Strengths	Attributes helpful to achieving the objective(s)
Weaknesses	Attributes harmful to achieving the objective(s)
Opportunities	External conditions that are helpful to achieving the objective(s)
Threats	External conditions which could do damage to the objective(s)

FINDINGS AND DISCUSSION

The following findings were developed from the opportunities identified during the assessment. Because this initial assessment was focused on capturing an overarching view of the logistics support for CMSD, the findings developed from the analysis of each support level address only those systemic strengths and weaknesses which affect both current and future operations.

Operational Planning

Operational plans (OPs) are the primary planning documents used to identify and secure funding for DGHS needs. They are the basis for all subsequent activities in the procurement and supply chain management processes throughout the public health system. OPs are developed as the components of the GOB's Health, Nutrition, and Population Sector Program, which in fiscal year (FY) 2009–10 allocated 111,048.71 Lakh Taka (USD 158.6M) to the 19 OPs of the DGHS[1].

OP development, which is sometimes derived from prior-year estimates rather than on actual demographic data or population and health targets, may provide an inaccurate reflection of real needs. Linking OP targets more closely to current health and population needs should improve the overall accuracy of the plans. Line directors (LDs) do not typically use actual consumption figures to plan requirements for consumable items included in their OPs. Equipment requirements are not always linked to plans for hospital construction, refurbishment, or other facility outfitting initiatives.

OPs serve as the genesis of both funding and procurement requirements for procurement packages to support ongoing health care delivery operations throughout the MoHFW and DGHS system, thus a streamlined OP process will contribute to a more responsive and efficient procurement and supply chain management system.

Procurement Management

CMSD is one of 19 LDs within MoHFW. Its function is to undertake procurement on behalf of the other 18 LDs, with OPs serving as the primary source of procurement requirements. CMSD is responsible primarily for procuring goods and services that are funded by the Pool Fund,[2] which is managed by the World Bank. But CMSD also manages procurement funded by the Government on behalf of all LDs under DGHS. On occasion, CMSD handles the procurement of heavy equipment and large value purchases on behalf of LDs. Procurement managed by the CMSD is usually referred to them by the respective LDs of MoHFW. All items to be procured by CMSD and all other procuring entities must be included in the OPs prepared by relevant LDs[3].

[1] "Financing Health Care of Bangladesh", http://nasmis.dghs.gov.bd/dghs_new/dmdocuments/All/Financing%20Health%20Care%20of%20Bangladesh.pdf, accessed on December. 19, 2010.
[2] The Pool Fund is a component of the GOB Development Fund, and it comprises contributions from donors and loans from the International Development Agency.
[3] There are 38 OPs per the 2003–11 Health, Nutrition, and Population Sector Program of which the DGHS implements 19.

Some line directors conduct their own procurement of their requirements, for example, the Line Director for Essential Service Delivery undertakes their own procurement of selected items (all GOB funded), whereas vaccines required for the Expanded Program on Immunization (EPI) are procured through UNICEF in accordance with the agreement signed between UNICEF and the GOB[4].

CMSD is not the only DGHS procurement organization supporting the directorate's needs. The Essential Drugs Company Limited (EDCL) is a fully owned GOB undertaking that manufactures or procures the 117 drugs and medical–surgical items that form the core formulary for the nation's entire public sector health care system. EDCL's board of directors is staffed by senior government officials from MoHFW, and its procurement and production activities are directed by the board. EDCL links its production planning and procurements with the OPs of LDs under MoHFW, but not with actual customer demands or usage patterns from field activities. Although EDCL uses the same tender processes as CMSD, it manages its procurements independently.

Tenders do not usually specify warranty periods, maintenance periods, and in country maintenance management capabilities of bidders with respect to equipment procurement, nor do they typically include ancillary requirements for installation and commissioning of equipment.

The following sequence describes the overall CMSD procurement process.

1) Five-year OPs from LDs are collated and consolidated by MoHFW into a program implementation plan (PIP), which is reflected in the Annual Development Program, which is approved by the high-level decision-making body (inter-ministerial committee).

2) Once the Annual Development Program is approved, the budgets allocated to LDs are communicated to them by MoHFW. LDs will then make necessary adjustments to their OPs on the basis of the allocations received and get approval by the national steering committee under MoHFW. The approved procurement component, in the form of a line director procurement plan, an extract from the broad OP, is then forwarded to the CMSD for processing.

3) CMSD then collates and consolidates LD procurement plans into a consolidated procurement plan (CPP), which specifies the methods of procurement according to thresholds specified in the Public Procurement Rules[5].

[4] The Annual Procurement Plan for Development Budget (2010/11) of the Line Directorate of Essential Services Delivery indicates approximately 25% of the total estimated budget of 17,566.89 (Taka Lakh) to be procured by the line directorate, 35% to be procured through CMSD, and the balance 40% (vaccines) to be procured through UNICEF.
[5] Public Procurement Rules of the Government of Bangladesh, 2008.

4) The CPP identifies items that will be procured with Pool Funds and those that will be procured with GOB funds, usually the GOB component of the Development Fund. The CPP is then sent to MoHFW for approval and the Pool Fund component is forwarded to the World Bank for a No Objection.[6]

5) Once the CPP is approved by MoHFW and the World Bank, CMSD allocates procurement packages to its five desk officers, who are responsible for processing and monitoring the procurement process until letters of credit are opened and the total shipment is received in the country.

Our initial review of the tender process indicates that, although the process is compliant with accepted standards for openness, fairness, and legal requirements, it is also complex and unresponsive. On the average, each desk officer manages 12–15 procurement packages. It is understood that the entire procurement process is quite complex and can take as long as 15–20 months to complete. Our team did not have an opportunity to perform an end-to-end analysis of the complete procurement process or its outcomes, but such an analysis is clearly needed, because indications are that the system is not performing to expectations.

For example, CMSD has sometimes been unable to open letters of credit for some procurement packages. The performance achievement rate had declined from 96% in 2005/6 to 60% in 2009/10. The lowest achievement rate was 35% in 2008/9. Annex 1 provides details on procurement packages processed during the last five years. The causes of this decline in performance were attributed to delays in receiving LD procurement plans that result in CMSD's inability to prepare their CPPs on time and delays in receiving approval for the CPP from MoHFW and No Objection from the World Bank.

When CMSD receives PPs from the LDs, it adds procurement details to the CPPs and forwards them to MoHFW for approval prior to initiating an actual procurement. It was noted that the 2008/9 CPP was sent to MoHFW in October and approval was received in February the following year. CMSD indicated that the goal is for LDs to submit their plans to CMSD by the end of June every year; in reality, they often receive input from the LDs between August and October and are therefore unable to submit the modified CPP to MoHFW until after September, every year. The result is that some procurements can't be formally initiated until as much as three-quarters of the fiscal year in which they must be completed has already passed.

CMSD staff expressed the opinion that because accounting for procurements funded by the Pool Fund was over a five-year period, their inability to open letters of credit by June 30 did not result in a "loss" of funds (unlike GOB funded procurement), and that funds got transferred to the following financial year. However, discussions with some LDs and their staff indicated a contrary view. Some LDs claimed that they did not lose funds unless their OPs were revised by adding the value of carry over packages to the following financial year and the revised OPs were approved. Others still maintained that the funds were lost. The fact that key stakeholders do not clearly understand the process and the business rules that govern it demonstrates a need for further clarification and training. Coordination among the stakeholder organizations to define a better integrated end-to-end flow of procurement processes is needed to eliminate this confusion and optimize the operational planning and procurement processes.

[6] CMSD indicated that they experienced delays in receiving approval for the CPP from MoHFW and a No Objection from the World Bank, which ultimately results in delays in processing procurement packages. We also found that there was some appreciable level of confusion among managers about the process and requirements for approval of the CPP.

Funding levels initially projected by LDs are, in some cases, significantly adjusted as OPs work their way through the review, approval, and procurement processes. However, these adjustments are not always communicated back to the LDs in a timely manner. As a consequence, plans are incompletely executed and subsequent planning may be similarly flawed. Active procurement packages may be delayed or cancelled because of this misalignment.

These issues demonstrate a broader point: the entire end-to-end operational planning and procurement process needs to be improved and streamlined. An improved process should also provide feedback mechanisms to ensure that in-process adjustments and changes are clearly communicated to all stakeholders. The process should include the OP process managed by LDs, the planning processes that produce changes to funding allocations and actual release of funds, the transfer of Pool Fund packages from one financial year to another, and the approval process for the CPPs.

All procurement related activity at CMSD is manual—no aspect of procurement is automated. CMSD also has an informal follow up system, and no established formal, structured procedure to communicate with customers before, during, or after various key steps in the procurement process. CMSD staff stated that they would welcome technical assistance in this area and would very much appreciate the procurement tracking system being implemented at DGFP being introduced at CMSD. CMSD has contracted (through a tender process) a software development company[7] to support procurement and material-receiving automation and to also provide computer hardware, software maintenance, and troubleshooting support. As of our December 2010 assessment, however, the contract had produced no system functionality at CMSD except a single application to support a limited part of the receiving process. Within the broader ambit of e-Procurement, Bangladesh's Central Procurement Training Unit (CPTU) intends to introduce e-Tendering in 2011 and four government agencies (not including MoHFW)[8] have been selected to undertake a pilot project commencing in January 2011.

There is no formal conflict of interest policy, although all Technical Evaluation Committee and Technical Subcommittee members were expected to sign a declaration of impartiality during bid evaluation.

CMSD indicated that they would like to have a procurement procedures manual on the same lines as the draft DGFP procurement procedures manual.

CMSD staff has had procurement training conducted by CPTU but they would like to have refresher training locally and, if possible, internationally so they could be exposed to emerging "best practices" from around the world. They also indicated that training more specific to the procurement activity they were engaged in would be useful to them. Other officials engaged in the procurement process such as members of the Technical Evaluation Committees and Technical Subcommittees have not received any formal training or exposure to procurement principles and management.

[7] Software Development and Yearly Maintenance and Hardware Repair and Yearly Maintenance contract between CMSD and M/s Siddique Softtech Ltd. signed on 2/11/2010, although the agreement period is stated as July 1, 2010, to June 30, 2011, with an optional extension for an unspecified period subject to a 5% yearly increase. Tender reference CMSD/Salve/Repair/4903 dated 09/06/2010.
[8] Roads and Highways Department, Water Development Board, Rural Electrification Board, and Local Government and Engineering Department

CMSD currently has a limited supplier-enlistment process and has so far enlisted only pharmaceutical suppliers[9]. CMSD needs to do more research on quality suppliers, their products, prices, and services and develop long-term contracting relationships with these suppliers. CMSD is and should be a professional procurement outfit, and not simply a middle agency that processes requests sent to them by their customers.

Supply Chain Operations and Inventory Management

Supply chain operations within DGHS involve a mix of "push" activities managed centrally by either EDCL or CMSD and "pull" activities based on customer demands. Supply operations are based on a tiered system in which supply and pharmaceutical consumers (e.g., hospitals and health centers) are supported by locally maintained stores that are replenished either from stores at the next higher level or directly from central sources.

The push/pull hybrid system creates uncertainty throughout the supply system, because supply quantities indented by customers or shipped by supporting activities may or may not reflect actual usage or demand forecasts. Consuming organizations have limited sourcing options, because MoHFW policy requires that most of them expend at least 70% of their medical–surgical requisite supply budget on EDCL-furnished products and no more than 5% on local sources. Except for the very-limited CMSD receiving application mentioned previously, there is no supply chain automation at any level, and storekeepers and other supply management staff use a variety of forms and record-keeping methods to receive, account for, and issue supplies.

With regard to products procured, it could not be verified whether there was a routine pre-shipment quality assurance program. CMSD noted that samples were drawn from batches of pharmaceuticals received and sent to the Drug Testing Laboratory (except in emergency situations). Receipts are not finalized and issues are not made until test reports are received.

Shipment planning is rarely communicated to the receiving activity, and demand forecasting is sporadic and infrequently used in either the ordering or shipping process. Discussions at district and upazila levels have indicated that they receive drug supplies from CMSD that they had not indented and generally some of these supplies expired before they could be used. Expiring or expired items included drugs from commercial sources as well as EDCL[10]. A general observation in the limited number of sites visited was that drugs and other supplies are frequently "pushed" to customers (hospitals and health facilities) based on stocks available at higher levels in the system rather than "pulled" based on actual customer demands.

Supply chain performance metrics are generally not defined, monitored, or used. Although security of local stores is generally good, environmental controls, warehouse cleanliness, and overall care of supplies in storage is poor. The assessment team found no use of commercial transportation or logistics support at any of the locations visited, despite the fact that commercial infrastructure in widely available throughout Bangladesh. The ability of consuming organizations to dispose of excess, expired, or unserviceable supplies is extremely limited, and the supply condemnation process was a major complaint of storekeepers and supply managers at all levels. Excess supplies are a major contributor to the frequent

[9] CMSD stated that this year, there are 40 enlisted suppliers for pharmaceuticals, an increase from the 30 they previously had.
[10] See EDCL discussion under "Procurement Practices".

overcrowding of storage facilities and make efficient movement and operation in those facilities difficult or impossible at some locations.

In contrast to the much more centralized and structured processes used to procure medical products, the supply chain operations to distribute and store supplies are not standardized or conducted uniformly, are inconsistently understood by storekeepers and their customers, and are, for the most part, undocumented beyond the local level. Some stores managers have documented local practices and procedures, and local paper records of receipts and issues are generally well maintained and available. Beyond the local level, there is no documentation of overall supply chain operations or procedures, no supply chain policies, and no performance measurements or reports. Not surprisingly, hospital directors, civil surgeons, and other customers we interviewed during our field visits placed little faith in the medical supply chain beyond the confines of the local stores in their own organizations.

Specific observations from our assessment include the following—

- Extensive opportunities exist for automation of the supply chain throughout DGHS
- Inconsistent use of item numbers or other unique identifiers; different item numbers are used for the same item at each level of the supply chain; for example—
    - Descriptions, usually narrative in form, are used to identify items when CMSD initiates a procurement package
    - Item numbers are created for items when they are received and placed in short- or long-term storage in CMSD
    - Different item numbers are created locally for those same items when they are received by district, medical college, and specialty hospitals and district reserve stores
    - Finally, upazila storekeepers and other local stores managers assign their own locally generated numbers when they receive an item
- Inconsistency in the way package sizes, quantities, and units of measure are recorded, sometimes within the same organization
- Stock record ledgers and other stores documentation is not standardized across the supply chain, and local formats and record keeping methods are pervasive
- Supply chain planning, forecasting, pipeline management procedures, and information are not in use, and, as a result, the supply chain does not function as a synchronized, coordinated system
- Because of these inconsistencies, managers at all levels are unable to perform any formal inventory accounting or inventory valuation, and DGHS, as a whole, has no system-wide visibility of available stores and stores status

- Reagents and other consumable support items are in short supply at many locations, and lack of consumable support products means that x-rays, laboratory analyzers, and other equipment items are idled, sometimes for months at a time

- In every facility we visited, treatment areas and storage facilities are often crowded with significant amounts of aged, salvaged, excess, and unusable equipment; condemnation procedures are cumbersome, highly centralized, and unresponsive; one storekeeper told us that he recalled only one successful condemnation action in 26 years of service

- The current procurement and logistics system is only partly demand driven; for example, demand quantities submitted as quarterly indents by upazila health complex storekeepers frequently don't match the quantities received, and overages and shortages are common; this is a pervasive issue at all levels in the system

- Quantities shipped by both CMSD and EDCL sometimes varied from the demand quantities reflected in OPs prepared by LDs and from demand quantities reflected in indents (orders) submitted by hospital directors and managers; pharmaceuticals sent from hospital storekeepers to hospital pharmacies are often different from the items in current clinical use; this issue produces many imbalances, from budget problems to inadequate storage conditions to frequent stock-outs at many levels

- Despite the frequency of stock-outs, hospital directors, civil surgeons, and others appeared to have very limited authority to close supply chain gaps through local purchasing; local purchase authority is usually limited to only 5% of local medical–surgical requisite budget amounts, even when critically needed supplies are not available from central sources

- As CMSD and other parts of the health care supply chain modernize and automate their operation, staff at all levels will need substantial training to understand and manage responsive, effective procurement and supply chain operations

- Aging stores facilities require significant repairs and renovations; however, improvements in the condemnation process could free up significant amounts of space, so the need for new construction or expansion facilities may be reviewed

- Storage furnishings (pallets, pallet racks, storage racks, conveyors, and belts) are almost universally absent at all levels

- Material handling equipment is either in disrepair or not available

- Stores facilities do not use pantographs, physical locator systems, or other space planning methods

- As with other supply chain activities, storekeeping policies and procedures are incompletely implemented because of a lack of written guidelines

- Business processes and supply chain operations do not reflect an end-to-end life-cycle focus to link procurement, demand forecasting, ordering, distribution, storage, and disposal activities

- The current organization (and, in fact, the organization's name) reflects CMSD's prior role as a storage depot; the staff includes storekeepers, stock record clerks, and others whose role is to care for supplies stored at the CMSD; its procurement staff of only five desk officers are responsible for writing, tendering, awarding, and administering nearly 100 contracts annually; this is very limited for an organization performing complex medical acquisition; over time, staff in the storage-focused positions can be retrained and reorganized to provide additional procurement-focused positions

Medical Equipment Planning, Maintenance, and Management

The original tasking for this assessment did not include a separate examination of biomedical maintenance support to the DGHS, but the team was asked by Ministry officials to review it as an additional area of focus. To enable this, we included field maintenance workshops and the National Electro-Medical and Engineering Workshop (NEMEW) in Dhaka in our schedule and collected medical equipment maintenance observations from LDs, Ministry officials, and others during our office and site visits.

Regarding maintenance planning during the OP development process, CMSD does preliminary work on behalf of the Specification Development Committee of which the chair is the Additional Director General, DGHS, and the Member Secretary is the Director of CMSD. Representatives from NEMEW and the Line Directorate for Hospital Services Management are also members.

Specification development for medical equipment is a technical and complex process that requires knowledge that usually resides with highly trained, functional experts. Although desk officers and non-technical personnel should be coordinating specification requirements, the development of these specifications should be accomplished by specialized technical personnel drawn from user departments. Desk officers and non-technical personnel may act as a resource for these activities. However, CMSD, as a professional procurement agency, has a role in developing tools, such as a database of generic, user-defined specifications for regularly used consumables and equipment so that repetitive processes may be avoided or minimized.

Equipment procurement and maintenance appeared uncoordinated, and there was no clear evidence of a formal process to involve the user. Discussions with NEMEW leadership confirmed that they were not involved in the procurement, sustainment planning, and life-cycle planning processes for equipment.

Biomedical engineers are not associated with the equipment procurement process—they are not involved in the development of specifications and guidelines for "life-cycle costing" (in which the cost of equipment is considered in the wider context of warranty periods, maintenance periods, and the capacity of bidders to commission and maintain equipment).

NEMEW is MoHFW's national-level biomedical equipment sustainment organization, but it has insufficient resources and technical expertise to perform its mission. NEMEW has an annual budget of only 101 lakh taka (USD .16M), a technical staff of 60 (with approximately 25 vacancies), no biomedical engineers or biomedical equipment technicians, and a broad lack of technical manuals, tools, and diagnostic equipment.

Throughout our interviews and site surveys, there was little evidence of a comprehensive biomedical equipment management and maintenance program once manufacturer warranties expire. Current processes do not include a life-cycle equipment management planning process to enable sustainment of equipment throughout its usable life.

Biomedical equipment maintenance issues are meticulously documented in a 2008 World Bank report to the GOB[11], but we found few indications that the report's major life cycle management recommendations (referred to in the report as "planning, supply, and ownership management") have been implemented at any level. The report's key finding—that only 50% of the medical equipment surveyed is effectively used at its final destination—was anecdotally supported in our interviews and site visits.

At the hospitals and other field locations we visited, we found—

- Equipment testing, preventive maintenance, unscheduled repair, and calibration are not performed
- Most locations have no repair parts on hand; where repair parts are available, they are not demand-supported or applicable to the equipment actually in use
- Consumable supplies (x-ray film, lab reagents, and fuel for generators) are generally not budgeted for and often unavailable
- Tools and diagnostic equipment are in short supply
- Maintenance policies and procedures are not available

SWOT Analysis Review

In the table below is a comprehensive SWOT analysis for each operational level visited. Each of the primary focus areas were further analyzed by operational categories that were either previously provided or identified during the visits as essential or impacting the operations.

[11] Bangladesh Medical Equipment Survey, http://www.hnpinfobangladesh.com/documentdetail.aspx?di_key=di_183, accessed December 18, 2010.

Table 2. SWOT Analysis Review

	Strengths	Weaknesses	Opportunities	Threats
Procurement				
People	Long-tenured, experienced staff	• Desk officers unfamiliar with framework contracting and other best practices • Operational planning, procurement, and supply chain processes not fully understood by staff and leaders at all levels • CMSD does not have enough trained desk officers to handle the projected volume demands	Retrain staff to enable transformational change	Best practices continue to evolve more rapidly than GOB processes can accommodate
Systems	Potential availability of usable/adaptable systems in DGFP	Extremely limited automation of procurement functions	• Adapt and implement modern systems to support DGHS procurement • Leverage DGFP capability	Institutional resistance to change and potential organizational consolidation (DGHS and DGFP)
Processes	Meticulously followed tendering and other procurement processes at all levels	Inflexibility	Transformational change to implement best procurement practices across DGHS	Organizational resistance and policy impediments

	Strengths	Weaknesses	Opportunities	Threats
Warehousing				
People	Sincere, committed storekeepers; adequate staffing	Lack of training and staff development in— • Transportation planning • Storekeeping and warehousing • Inventory accounting and control • Quality control practices	Leverage DGFP systems to train DGHS staff	Lack of comprehensive, standard training and staff development causes fragmented, unsynchronized warehouse management activities
Systems	Well defined, locally developed manual systems	No automation for any warehousing functions	Leverage DGFP systems to automate warehousing	DGFP systems are themselves relatively new and unproven
Processes	Locally developed, manual processes are well understood by local staff	No standard, nationwide warehousing processes or guidelines	Select “best of breed” local practices to implement nationally	Resistance to nationwide adoption of local processes and procedures
Facilities	Extensive storage space at all operating locations	Substantial unfunded backlog of facility maintenance requirements	Relatively inexpensive to repair aging facilities vs. construction of new ones	Material spoilage, shrinkage, and compromise of material quality
Logistics				
Biomedical maintenance	None	Biomedical maintenance concepts, processes, records, and resources are lacking	Improved clinical outcomes through establishment of a system-wide biomedical equipment maintenance capability	Inoperable or unreliable equipment compromises the quality of clinical diagnoses, treatments, and outcomes
Distribution/ transportation	Extensive road and transport network	Inadequate DGHS transportation capacity	Leverage DGFP transport capacity and explore commercial distribution options	Inadequate transport capacity can result in stock-outs and compromised product quality

	Strengths	Weaknesses	Opportunities	Threats
Information and communications technology (ICT)				
People	Eager, receptive workforce willing to use ICT tools	Workforce is largely untrained in use of ICT; very limited ICT capability available today	• Leverage DGFP training programs • Develop nationwide DGHS-specific training program	ICT training and workforce development may be unsuitable or insufficient to meet DGHS needs
Systems	Very limited legacy products to sustain and modernize	Systems are unproven and untested for use by DGHS	Leverage DGFP ICT tools to support warehousing, inventory management, and procurement	DGFP tools may fail to support DGHS procurement and supply chain functions
Processes	Clearly defined, local business processes are good candidates for automation	Lack of standard, nationwide ICT requirement definition, development, and sustainment processes	Develop standard, nationally applied ICT acquisition and management processes	ICT management processes may fail to keep up with technology and fail to meet future DGHS needs
Governance and management				
People	DGHS leadership clearly committed to improved governance and management	DGHS staff lacks experience with enterprise-level management of an integrated supply chain	Create and proliferate clear, defined roles and relationships for enterprise-level management of integrated supply chain	DGHS staff may reject or be unable to implement enterprise-level supply chain processes
Systems	Little to no legacy infra-structure to maintain and modernize	End-to-end supply chain performance management systems are almost entirely absent	Design and develop a new performance management system for end-to-end supply chain management and control	Centrally designed management systems may be unsuited or unacceptable for local management functions
Processes	Clear commitment of leadership to the design and development of supply chain governance and management processes	Lack of policies and procedures for end-to-end supply chain management across the entire DGHS structure	Create and use strong, transparent end-to-end supply chain governance and management processes to reduce costs, improve quality, and improve responsiveness	DGHS may fail to implement standard, universal supply chain management processes, thus crippling or impeding the DGHS supply system

RECOMMENDATIONS

Consistent with this life cycle management approach, our strategic recommendations are grouped into five overarching, imperative points that should be quickly initiated to strengthen the supply chain management systems underpinning the Bangladeshi public health services. The recommendations below are aligned to these imperatives.

The staff of DGHS are called upon to perform their jobs against a backdrop of scarce financial and human resources, complex government processes and regulations, inadequate and out-of-date facilities and equipment, inadequate information system support, and an enormous backlog of health care needs. Numerous examples of challenges are found at every level, from aged, unusable stocks in upazila stores to obsolete equipment in hospitals to imbalances between quantities requested and quantities actually shipped.

This assessment included a limited examination of the private sector, but it is important to highlight that there is a contrast between the apparent ineffectiveness of the public health services procurement and emerging private sector capacity.

Every major town has functioning, well-stocked private pharmacies, and numerous Bangladeshi and multi-national pharmacy and medical supply manufacturers stock those pharmacies via private distribution network capable of reaching the entire country quickly and effectively. Private sector hospitals in the major cities (for example, United Healthcare Ltd., Square Hospital, and Apollo Hospitals of Dhaka and Chittagong Metropolitan Hospital) provide comprehensive, accredited health services to a large sector of the population. These hospitals, too, are supplied by private sector suppliers capable of distributing hundreds or thousands of up-to-date products in a timely and efficient way.

Studying and adapting commercial capability is important, and it is the view of the assessment team that the imperatives mentioned here need to take account of private sector efficiencies and experiences when DGHS revitalizes its supply chain management process. These imperatives could also be strengthened through the development of public–private relationships that enable DGHS to take advantage of private sector capacity and efficiencies.

Leveraging private sector capacity and efficiency will be a complex process and will depend on many other factors. External support from non-government entities carries the most risk, but it also has the greatest potential to fundamentally transform the DGHS supply chain.

Although accomplishing the first four imperatives is necessary in the short- and medium-terms to address immediate needs across DGHS, adapting commercial capability to support DGHS is a long-term imperative that may take several years to complete. However, several of the short- and medium-term activities will build the foundation for successful adaptation of commercial capability to support DGHS needs.

Imperative 1: Implement a demand-driven planning, procurement, and supply chain.

Effective procurement and logistics life cycle management begins with a clear picture of customer (end user) requirements. Customer demands should drive the entire procurement and logistics cycle.[12] A demand-driven planning, procurement, and supply chain will also provide greater accountability at all levels, because it will accurately reflect actual usage and supply requirements rather than inaccurate estimates of requirements. Greater accountability can eventually be leveraged to enable increased local flexibility to expend resources. Hospital directors, civil surgeons, and other health workers should be more directly involved in the development of forecasts and resource requirements for the OPs that support them.

Imperative 2: Transform the CMSD into a strategic procurement and supply chain management organization.

The current role of CMSD should change if an efficiency-based, strategically-focused procurement and supply chain management organization is to replace the current one. Central to a new CMSD should be the gradual divesting of its warehousing and distribution role, and its redevelopment as a strategic procurement and supply chain management entity. This new role would position CMSD to better support its customers by creating new procurement approaches (framework contracts, for example), new supply chain management tools, such as the national medical products catalog, and new automation and information tools. Broader changes in the way MoHFW operates, such as the implementation of multi-year budgeting and procurement processes, will also help ensure CMSD's successful transformation.

Imperative 3: Strengthen and expand the OP development process.

The operational planning process appeared inefficient and confusing. The linkages to procurement planning commence with OPs, and naturally, inefficiencies in this process flow on to procurement planning and thereafter to actual procurement activities.

Imperative 4: Implement a medical equipment management and maintenance program throughout DGHS.

Substantial opportunities exist for addressing the challenges found in the medical equipment management and maintenance program. The importance of a well functioning and well managed medical equipment procurement and maintenance program cannot be overemphasized.

Imperative 5: Study and adapt commercial distribution capability for use in DGHS public sector operations.

Potential outsourcing and private sector alternatives should be included in DGHS operations. Public–private partnerships could enable improvements across all of the four preceding imperatives. In this context, MoHFW should study and adapt private sector warehouse, transport, distribution, and supply chain management capacity as a potential long-term partner to the public health system.

[12] Vaccines and immunizations procured through the EPI, an OP managed by the LD, Essential Service Delivery, DGHS, provide a notable exception to this rule. Because vaccine procurement and distribution is prophylactic rather than therapeutic, demand is based on centrally managed forecasts of population health and disease incidence rather than locally generated demands. Thus, for EPI, procurement and distribution should be based on OP quantities developed by the Essential Service Delivery LD.

Specific Recommendations

Specific recommendations were developed based on the analysis of observations made during key informant interviews and operational walk-through of each facility visited. These recommendations are organized into three levels. Implementation of each of these may require varying degrees of expert and financial support from DGHS and external agencies.

- Short term: Have the most immediate impact and should be initiated quickly
- Medium term: Involve issues that have direct operational impact but will require more time and further study prior to implementation, and therefore should be pursued as medium-term recommendations
- Long term: Considered the most difficult, would impact the program strategically, and are more long term

Governance and Overall Management

1. Develop standard supply chain operational guidelines for use in divisional, district, and upazila storage and distribution operations. (Short)

   The guidelines should cover demand forecasting and supply planning, indent/ordering procedures, warehouse and space management practices, inventory accounting and management, quality control and surveillance procedures, safety and security practices, and supply lifecycle management, including condemnation and disposal practices at the end of the supply life cycle.

2. Establish a knowledge transfer forum for DGHS, DGFP, other MoHFW directorates, commercial suppliers and distributors, and other stakeholders at the operational level to promote the exchange of best practices. (Short)

   Forum meetings would be publicly advertised, open to all interested parties, and chaired by a government official. Minutes or proceedings would be publicly available and all forum recommendations would be advisory in nature. The forum would provide a way for CMSD, its customers, and its suppliers to communicate openly and regularly about industry and government practices, capabilities, and requirements.

3. Study and report on potential for consolidating procurement and supply chain management activities and organizations across DGFP and DGHS. (Short)

   There is no technical reason why separate procurement and supply chain organizations, processes, and systems are required to support the DGFP and DGHS missions. To the extent possible, MoHFW should provide funding, executive direction, and other incentives to motivate the two organizations to share or consolidate their current separate activities. For example, information systems and enhanced technology, such as e-Procurement, can be leveraged across both organizations to provide quick wins at low cost. Ultimately, consolidation should enable widespread sharing of transportation, storage and distribution infrastructure, and information technology, and yet preserve the separate accountability of each organization to its respective stakeholders.

4. Assess staffing, training requirements and capacity building needs. (Medium)

5. Develop a strategic plan for institutional and personnel capacity building supply chain management in the MOHFW. (Medium)

Procurement

1. Conduct a stakeholder workshop for senior officials of MoHFW and representatives from the Ministry of Finance, the World Bank, and donors to clarify the processes for operational and consolidated procurement planning. (Short)

2. Introduce procurement management tools and automated systems, including standard procedure guides and defined processes to provide a clear understanding and definition of roles and responsibilities for all participants of the overall process. (Short)

3. Expand the supplier base at CMSD through an expanded enlistment or registration process. (Short)

4. Establish and administer framework contracts. These contracts will establish basic item pricing and allow customers to place purchase orders with enlisted suppliers on an as-needed basis. (Short)

5. Establish a system to monitor supplier performance, analyze demand and usage patterns, and help customers make better use of contracts, suppliers, and supplies. (Short)

6. Develop a CMSD-specific procurement guidelines document for use by CMSD staff. (Short)

   Staff of CMSD indicated their interest in the Procurement Manual developed for DGFP and would like to have a similar manual for their use.

7. Conduct training in procurement management for CMSD staff. (Short)

   CMSD staff indicated that although some training had been provided by the CPTU, that training was in generic procurement management. They indicated their desire to have procurement training specific to DGHS and CMSD within the context of general procurement management.

8. Pursue the introduction of e-Procurement, such as e-Tendering, and explore the feasibility of automating CMSD's transactions to the maximum possible degree. (Medium)

9. Develop a strategic plan to re-engineer CMSD to function as a specialized procurement agency that has a closer engagement with its customers and an expanded, quality supplier base to provide an efficient, cost effective, and professional service to its customers. (Medium)

   A re-engineered CMSD should be provided its own budget and financial resources, rather than having to request funding prior to procuring any item. In this new role, CMSD should monitor procurements by other entities in MoHFW as well as provide the entities with mentoring and guidance.

10. Conduct a review of drug procurement from EDCL with a goal of understanding and making recommendations for improving the service level of EDCL to MOHFW. (Medium)

    Facilities at all levels are required to spend 70% of their drug procurement budgets on items manufactured by EDCL. EDCL's production schedule is driven by OPs rather than customer demands. It is suggested that CMSD facilitate a review of the contractual relationship between the MOHFW and EDCL in collaboration with LDs, tertiary and specialized hospitals, and district health authorities to better understand current processes and agree on a mutually acceptable methodology for future procurement and distribution of drugs manufactured by EDCL.

Warehousing and Logistics

1. Conduct an in-depth review of the distribution process, which often "pushes" essential drugs to hospitals and clinics rather than shipping products when and as required (i.e., based on customer demands) and propose recommendations for enhancement. (Short)

2. Develop a national supply catalog for all pharmaceuticals, medical–surgical supplies, and other consumable products managed by the CMSD. (Short)

   This simple but vital improvement will enable the synchronization of OPs, contracts, demands (indents), distribution activities, storage, and supply chain analysis and planning.

3. Develop and implement a formal system of inventory valuation and accounting, including systematic item identification, a physical locator system, and cyclic inventory and location audits for items that CMSD will continue to store and distribute. (Short)

   If CMSD continues to store supplies, its physical plant (warehouses and other storage facilities) will require substantial modernization and upgrades to provide suitable environmental, surveillance, safety, and security conditions for the medical supplies in its custody.

4. Implement standard supply chain forms/formats and data across the DGHS. (Short)

5. DGHS should develop a replacement strategy for expired stock, forecasts of requirements, and an effective distribution capability for Division Stores, which now has a disaster response mission and is no longer part of the routine flow of supplies. (Short)

6. Develop and implement revised DGHS condemnation processes to more quickly and effectively dispose of excess materials. The revised processes should address and mitigate the reasons why so much excess has accumulated at all levels under the current condemnation process. (Short)

7. Develop a training program on storekeeping procedures for central, divisional, and district warehouse staffs and upazila store keepers. (Short)

8. Develop a strategic plan for capital investments and improvements for the central, divisional, district, and upazila warehouses. (Medium)

Such a strategic plan should consider warehouse designs, master locations, and procurement and installation of storage equipment to maximize material flow and use of vertical space. The plan should provide options for repair or lease/buy of essential pallet jacks, forklifts, trolleys, and ladders to move warehouse stock and options for acquiring and distributing pallets, pallet racks, shelving, and other storage aids to optimize storage space, stores condition, safety, and inventory accounting.

9. Develop and support implementation of a strategic distribution plan to optimize and increase delivery frequency (monthly rather than quarterly indents, incorporation of commercial distribution and transportation). (Medium)

10. Secure funding for a long-term GOB store construction and renovation program at district and upazila levels to replace existing structures and create capacity for the future. (Long)

11. Create commercial partnerships and distribution services contracts to expedite development of a commercial medical product distribution capability to support DGHS and DGFP activities nationwide. (Long)

Information Technology

1. Implement a web-based procurement tracker to provide the ability to view the progress of procurement packages and to track delivery of procured items. (Short)

2. Develop a CMSD website to inform the public on its activities and achievements and to provide information about tender opportunities and procurement results. (Short)

   The website could also be used by other procurement entities to also publish their tenders, and could serve as the online "portal" for the proposed procurement tracker application, the CMSD-maintained national medical products catalogue, and the specification database.

3. Conduct a study of the current situation in information, communication, and technology. Options for improvement to be explored include—

   a. The development of an integrated report-generation functionality and use of a logistics management information system (LMIS) for the transmission, analysis, and presentation of supply chain and inventory status information. (Medium)

   b. Implementation of an integrated communications and data transfer framework based on available technology, such as the Internet and mobile phones, to facilitate ordering, supply chain coordination, distribution, and pipeline reporting. (Medium)

Equipment Management

1. Appoint a MoHFW National Medical and Surgical Equipment Committee that includes user representatives (co-opted when needed, depending on the equipment being procured); biomedical engineers should be retained as consultants to provide technical advice and support. (Short)

2. Revitalize equipment procurement and maintenance management through life-cycle planning. This may include provisions for—

    a. Extended warranty services, user training, and other original equipment manufacturer-furnished services (Medium)

    b. Scheduled and unscheduled maintenance services, including equipment calibration and testing, throughout the expected usable life of each item (Medium)

    c. Provision of required spare parts for each equipment (Medium)

3. Ensure the provision of consumable items (such as reagents for laboratory equipment, films and developer for analog x-ray equipment, and fuel for backup generators) needed to operate each equipment item on a regular basis. (Medium)

4. Ensure that specialized tools and TMDE needed to support biomedical equipment are provided. (Medium)

5. Reorganize and reinvigorate NEMEW. (Medium)

    The current status and role of NEMEW, its resource availability, and future requirements will need to be studied prior to reorganization.

6. Conduct a thorough review of regional electro-medical equipment maintenance efforts. (Medium)

    Regional and hospital-level biomedical maintenance requirements are supported by Regional Electro-Medical and Engineering Workshops (REMEWs). The 16 REMEWs in the country are the field activities charged with in-house maintenance of biomedical equipment at selected specialty and medical college hospitals. They face the same challenges detailed above for NEMEW and are equally unable to perform their equipment support mission. The current status and role of REMEWs, their resource availability, and future requirements will need to be studied prior to reorganization.

7. Conduct a baseline survey of biomedical equipment in use throughout the DGHS. (Medium)

    Without knowing the numbers, types, and current condition of biomedical equipment used in hospitals and clinics across the country, it will be difficult or impossible to plan for its sustainment. The World Bank study referenced above, although thorough and revealing, surveyed only 50 sites in 3 of the country's 6 divisions. This survey should collect data on item description/name, original equipment manufacturer, supplier, model number, serial number, and condition (serviceable, unserviceable but repairable, unserviceable and non-repairable, and salvageable) for each equipment item at each location.

ANNEX 1. CMSD ACTIVITIES UNDERTAKEN AND ACHIEVED IN THE REPORTING YEARS (2005–10) USAID OUTBRIEF

Year	Activities[a]	Target		Implementation		Achievement (%)
		Number of packages[b]	Estimated cost	Number of packages	Contract figure	
2005–2006	8	61	17950.00	59	11463.17	96
2006–2007	11	68	16217.02	66	11409.67	97
2007–2008	13	107	37158.07	85	24640.19	80
2008–2009	14	98	53590.84	34	12318.67	35
2009–2010	10	122	47747.94	70	21311.69	57
2010–2011	9	56	21914.07	27	5309.00	48
	Total	**512**	**194577.94**	**341**	**86452.39**	

Source: In-Charge-Monitoring Desk, CMSD

[a]Number of LDs from whom requirements for procurement of medical equipment were received.
[b]It was explained by CMSD that the number of packages noted under column "target" for any year was the number carried forward from the previous year plus the number of packages received from LDs that year. For example, in 2006–2007, the number of packages (68) was 2 packages carried forward from 2005–2006 plus 66 received that year.

ANNEX 2. LOCATIONS VISITED AND STAFF CONTACTED

November 28 at MSH	
Name	*Designation*
Dr. Zubayer Hussain	Country Director
Md. Abdullah	Senior Program Associate, Logistics SPS Program
Abdullah Iman Khan	Program Associate, SPS

November 29 at CMSD	
Name	*Designation*
Brigadier General MD. Abdur Rab Miah	Director (CMSD)
Dr. MD Rezaul Karim	Deputy Director (CMSD)

December 1 at DGHS, Dhaka	
Name	*Designation*
Prof. Dr. Abul Kalam Azad	Director, MIS, DGHS

December 3 at Chittagong	
Name	*Designation*
Mr. Ashraful Islam	Joint Secretary, Administration

December 4 at Chittagong Medical College Hospital	
Name	*Designation*
Brigadier General Md. Jahangir Hossain Malik	Director (Hospital)
Dr. Saroj Barua	Assistant Director (Administration)
Mr. Anwar Hossain	Accountant

December 5 at Divisional Medical Storage Depot (MSD), Chittagong	
Name	*Designation*
Dr. Kazi Shafiqul Alam	Assistant Director (Admin), Chittagong Division
Dr. A.K.M. Zafarullah	Manager Warehouse, MSD, Chittagong
Mr. Mahbubur Rahman	Supernatant (Store), MSD, Chittagong

December 5 at Civil Surgeon Office, Chittagong	
Name	*Designation*
Dr. Md. Abu Tayeb	Civil Surgeon, Chittagong
Dr. Ahsanul Haque	Medical Officer (CS)
Mr. Mihir	Accountant

December 5 at General Hospital, Chittagong	
Name	*Designation*
Dr. Nurul Islam	Residential Medical Officer (Admin)
Mr. Mohsin	Pharmacist (Store in-charge)

List of officials met during LMI field visits

December 7 at DGHS	
Name	*Designation*
Dr. Md Mumtaz Uddin Bhuiyan	Line Director Hospital Services
Dr. A. K. M. Saidur Rahman	Deputy Program Manager, Hospital Services

December 9 at General Hospital, Tangail	
Name	*Designation*
Dr. Md. Abdul Basit	Civil Surgeon, Tangail
Dr. Robiul Alam	Residential Medical Officer, Tangail
Mr. Abdul Jalil	Storekeeper

December 9 at District Reserve Store (DRS), Tangail	
Name	*Designation*
Dr. Tanveer Ahmed	Medical Officer (DRS)
Mr. Abdul Hamid	Storekeeper (DRS)

December 9 at Upazila Health Complex, Mirzapur	
Name	*Designation*
Dr. Babul Akhter	Residential Medical Officer
Mr. Asad Uzzaman	Storekeeper

December 11 at Dhaka Medical College Hospital	
Name	*Designation*
Brigadier General Shahidul Haque Mallik	Director

December 11 at National Institute of Cardiovascular Disease	
Name	*Designation*
Prof. Abul Hussain Khan Chowdhury	Professor and Director

December 12 at Civil Surgeons Office at Narsingdi	
Name	*Designation*
Dr. Abdur Rashid	Civil Surgeon
Mr. Abdur Rahim Molla	Head Assistant

December 12 at Upazila Health Complex, Palash	
Name	*Designation*
Dr. Abdul Alim Khan	Upazila Health and Family Planning Officer
Dr. Kazi Shamim Hossain	Residential Medical Officer

December 12 at Ghurashal Health and Family Welfare Centre	
Name	*Designation*
Md. Mosharraf Hossain	Medical Assistant
Md. Shamsuzzaman	Pharmacist

List of Officials met During LMI Field Visits

December 13 at World Bank	
Name	*Designation*
Dr. Bushra Binte Alam	Senior Health Specialist
Mr. Marghoob B Hussein	Procurement Specialists

December 14 at MoHFW	
Name	*Designation*
Ms. Aktari Mamtaz	Joint Secretary
Mr. Md. Amin Ul Ahsan	Senior Assistant Secretary

December 15 at DG Health EPI	
Name	*Designation*
Mr. Md. Helal Uddin Tarafder	EPI Central Stores, DGHS

December 18 at Sk. Abu Naser Hospital, Khulna	
Name	*Designation*
Dr. Moni Mohan Shaha	Director (In-charge)
Dr. Sk. Md. Monwar Ahsan	Secretary, Hospital
Dr. Amirul Khasru	Assistant Professor, Cardiology

December 20 at MSH Dhaka	
Name	*Designation*
Dr. Marcos Arevalo	Senior Family Planning Advisor, USAID

December 20 at Essential Drugs Company Limited Dhaka	
Name	*Designation*
Chief Executive Officer & Staff	Chief Executive Officer