

# Supply Chain Management Portal and its Impact on Supply Chain Performance in Ministry of Health and Family Welfare: An Assessment

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**BRAC Institute of Governance and Development**

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**BRAC Institute of Governance and Development**

Dedicated  
To  
The Martyrs  
And  
Freedom Fighters  
Of  
Our Beloved  
Motherland

## **Declaration**

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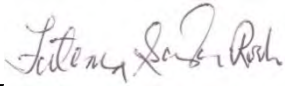
## PREFACE

Before you lie the final version of my master thesis, written for the master program- “Procurement and Supply Management” of the faculty BRAC Institute of Governance and Development (BIGD) of BRAC University. The research has been carried out under enrollment of summer semester 2013.

I started this thesis with prior knowledge about the whole supply chain system of Ministry of Health and Family Welfare (MOHFW) as I am working as consultant of one of the procuring entities of MOHFW i.e. Central Medical Stores Depot (CMSD), serving in the capacity of a senior technical advisor (Procurement). My background knowledge about the Directorates of MOHFW also saved me substantial amount of effort and time.

I experienced both doing the research and the analyses on this particular topic as very challenging and therefore mostly enjoyable—and inevitably sometimes frustrating. Furthermore, I am quite satisfied with the results of the study, as they turned out to be of larger relevancy than I had initially expected, before starting with the thesis.

This research has made use of data originating from confidential data sources such as documents relating to procurement and logistics management, several reports generated through SCMP and procuring entities of MOHFW i.e. DGFP and DGHS like ‘Goods Lead Time Analysis’, ‘Stock Status Report’ etc.; the thesis blinds the references to these sources. Furthermore, this thesis contains a series of interviews which been conducted for this purpose. Due to the nature of the results of this report which are often strongly aided by statements made in the interviews, and because I do not intend to damage reputations of interviewees or their organization I have also decided to blind the identities of the interviewees.

  
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I would like to extend my thanks specifically to my supervisor Dr. Rizwan Khair for his guidance, assistance and direction he provided me for the completion of this thesis.

This thesis was made possible by the kind assistance of a number of people in my life to whom I express my heartfelt gratitude. I owe much thanks to the resource persons, programme advisors and staffs of the BRAC Institute of Governance and Development (BIGD) of BRAC University and Chartered Institute of Purchasing and Supply (CIPS) of UK for the assistance and tutoring given to me throughout the course work during the foundation, advanced and graduate diploma programmes.

I would also like to express my gratitude to the interviewees and the staffs of various levels of Ministry of Health and Family Welfare (MOHFW) for their kind cooperation in terms of sharing confidential information with me for the purpose of the research work.

Finally, I would like to thank my family, colleagues and friends. To all, I say thank you for the prayers, support, words of encouragement and wisdom with which this research work has been made possible.

## **ABSTRACT**

Use of IT i.e. web based solution in procurement system makes purchasing activities more effective and efficient in terms of both time and cost. Not only that, as the information in the portal from planning to receiving of a commodity is visible and open to all level; Policy Makers, Line Directors- all concerned stakeholders can easily identify and track shortcomings of any procurement package from the data available in Portal and thus the procurement delays can be avoided, risk can be minimized and stock out can be avoided. Lead time reduction in procurement process is one of the major challenges for government entities like Bangladesh; this is also an indicator for process efficiency improvement in the cycle. The Ministry of Health and Family Welfare is not beyond this challenge. There are limited empirical studies in the literature on the use of web-based Portal in lead time reduction in a country at the macro-level. Nevertheless, such a study will help other procuring entities of Bangladesh as well as that of other countries to develop policies, strategies, and procedures to implement web-based portal to develop Plan and track procurement process, goods and services. Understanding the importance of such a study, I have conducted a questionnaire-based survey about the Supply Chain Management Portal (SCMP) and its Impact on Supply Chain Performance in Ministry of Health and Family Welfare (MOHFW) in Bangladesh. The main objective of this study is to identify the perceived critical success factors and perceived barriers regarding the implementation of the Portal. A conceptual framework has been developed to measure Supply Chain Performance of the Portal in MOHFW, and this subsequently has been tested with data collected from two key procuring entities of MOHFW i.e. Central Medical Stores Depot (CMSD) and Logistics & Supply (L & S) Unit. The results indicate that the procuring entities in both long- and short-term benefits would encourage the application of SCMP. Some critical success factors include adequate financial support for regular maintenance of the system, availability of interoperability and standards with traditional communication systems, top management support and commitment, and having suitable security systems. If the policy makers and managers use SCMP more in decision making on tendering, logistics management and so on and develop standard Specifications and other

time consuming areas, there will definitely reduce lead time of procurement which will ultimately bring cost efficiency as a bigger impact.

**Keywords:** SCMP; efficiency, lead time



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## **Chapter One**

# **INTRODUCTION**

### **1.1 Introduction:**

The Ministry of Health & Family Welfare (MOHFW) in Bangladesh seeks to create conditions whereby the people of Bangladesh have the opportunity to reach and maintain the highest attainable level of health. It is a vision that recognizes health as a fundamental human right and therefore there is a need to promote health and reduce suffering in the spirit of social justice. The mandate of MOHFW is to enable the GOB to strengthen health systems and improve health services, particularly for the poor. As part of its mandate MOHFW also deals with Education, Training and Research on Medical nursing, dental, pharmaceutical, and allied subjects and Medical and health services including, preventive, curative and rehabilitation aspects.

At present, the Ministry of Health and Family Welfare (MOHFW), Government of Bangladesh (GOB) has been implementing the Health Population and Nutrition Sector Development Program (HPNSDP) for a period of five years from July 2011 to June 2016 with a total estimated cost of Tk 56,993.54 Crore (US\$ 7.7 billion). The priority of the program is to stimulate demand and improve access to and utilization of HPN services in order to reduce morbidity and mortality; reduce population growth rate and improve nutritional status, especially of women and children. The Program has two major components; component 1 is Improving Health Services which will improve priority health services to accelerate the achievement of the HNP-related MDG targets by scaling up on-going interventions as well as introducing new interventions and strengthen the service delivery system. On

the other hand the 2<sup>nd</sup> component is Strengthening Health Systems which will deal particularly governance, stewardship, health sector planning, human resources, health care financing, quality of health care and pharmaceuticals. The Development activities of HPNSDP are being implemented through 32 operational plans. There are three nominated procuring entities i.e. The Logistics and Supply (L & S) Unit of The Directorate General of Family Planning (DGFP), The Central Medical Stores Depot (CMSD) of Directorate General of Health Services (DGHS) and Health Engineering Department (HED). The L & S unit and CMSD are responsible for procurement of goods and services and HED is responsible for work procurement.

As availability of quality pharmaceuticals is prime focus to ensure uninterrupted health service of MOHFW, thus government is keen to reduce lead time of procurement so that commodities are available at the right time and at the right place. It is evident that many factors are responsible for long lead time of procurement such as timely submission of procurement plan, taking too much time in specifications development and bid evaluation stage etc. Considering in mind that a web based solution can bring a shift in timely and effective procurement, SCMP Portal was developed so that all level of users from planners to procuring entities to policy makers can log in the system, develop procurement plan online, track the status of package, find out the cause of delays and give decisions to mitigate the problem. Thus the issue of assessment of Supply Chain Management Portal and its impact on supply chain performance in MOHFW raised.

## **1.2 Scope:**

The DGFP as well as DGHS is one of the four Directorates offices in the Ministry of Health and Family Welfare. It is to mention that DGHS holds

50% of budget of MOHFW. The L & S unit procures on behalf of 7 Line Directors of DGFP and CMSD for 17 Line Directors (LDs) respectively. The LDs are responsible for the development and approval of annual plans. Once the procurement is delegated to L & S unit and CMSD after the approval of the plan, the LDs are relieved of such responsibilities as preparation for Invitation for Tender, setting Specification/Terms of Reference, floating of tenders, receiving and evaluating the tenders/proposals, approval of tender, evaluation appointing suppliers or Individual Firm/consultant, resolving disputes with suppliers, arbitration and going to court. In short, the whole project becomes the responsibility of L & S unit or CMSD as nominated procuring entity.

The major task of the procuring entities is to procure commodities for uninterrupted supply. The expenditure involved in each entity for this portion amounts to around 600 to 650 crore taka annually.

It is this particular area of expenditure which will be studied during this research work to find out ways of reducing lead time and risk and enhancing visibility to add value in the supply chain and hence improving performance.

### **1.3 Problem Identification:**

The L & S unit and CMSD are the two major procuring entities in the Ministry of Health and Family Welfare. Being involved in the procurement of commodities amounting to around Taka 600 to 650 crore annually in each entity, it poses an enormous challenge to the procuring entity to ensure proper usage of the fund and thereby realizing value for money.

Ensuring “value for money” or simply put ensuring the proper utilization of the funds for the benefit of the general public is in itself challenge for the public sector in Bangladesh.



It is therefore understood that the expenditure incurred by the entities in procurement needs to be scrutinized in line with the total process starting from the initiation (through preparation of estimate) to the completion(handing over to the user or health facilities).

Moreover, in Bangladesh the Public Procurement Rules, 2008 And Public Procurement Act 2006 are in place providing strict procedures for tendering. Hence, the implication of these rules, regulations and acts need to be analyzed specially when there are specific time limits for every action regarding tendering. Though there is time limit for different steps in procurement as per country and Development Partners' guideline, building consensus on standard specifications of high-tech medical equipment is not an easy job and in consequence lead time of procurement process may vary from others. In reality, there is no standard lead time for different items.

It is really challenging to ensure timely update of procurement process, logistics data and timely actions required based on information. Also, retention of trained personnel to operate the system is a big issue in government office. ICT infrastructure at all levels is not of same standard. Therefore, it was not possible to assess and analyze with a wide range of data in this research. Thus a study looking at the effectiveness of Supply Chain Management Portal in Supply Chain Performance of MOHFW requires to be carried out

#### **1.4 Objective:**

The study intends to examine whether SCMP has been effective in creating impact in supply change performance in MOHFW.

## **1.5 Research Questions:**

In view of the previous discussion the following research questions are developed;

“Has Supply Chain Management Portal been able to reduce lead time in the tendering process in the MOHFW? What has its impact in better service delivery of MOHFW? If not impacted up to the desired level, what may be the possible improvements of Supply Chain Management Portal (SCMP) to achieve desired result?”

## **1.6 Justification:**

One of the major reasons for undertaking this research work is the fact that no specific study has yet been conducted in regard to possible lead time and cost reduction opportunities of DGFP and DGHS's yearly procurement process.

Some percentage of procurement cannot be completed within fiscal year and thus are carried over to the following year which proves inefficiency of a procuring entity. It is therefore expected to be a very fruitful examination of the lead time reduction opportunities which will be able to shed some light in the amount of time and cost savings. Whatever may be the percentage of this time and cost saving, it will firstly, realize in a more effective utilization of allocated funds and secondly, this savings can be used for further procurement later on.

In general, this study is expected to be helpful to the policymakers of the Ministry of Health and Family Welfare to have a better understanding and subsequent better utilization of public funds.

## **1.7 Methodology:**

The study intends to use questionnaires and interviews as the methods and procedures for collecting data and information. It is quite understandable that the officers involved in the tendering process and logistics management in receiving or issuing need to be interviewed. In this respect, the major focus will be on the Procurement Desk at central level or Upazilla Health Complex at the field level. In addition, officers of other ranks from Director to Desk Officers will also be interviewed. Also, the monitoring departments of the entities and Procurement and Logistics Management Cell (PLMC) of MOHFW were interviewed.

Prior to the collection of data, pretesting of the questionnaire will be done with few prospective interviewees, namely ,Assistant Directors to determine the suitability and accuracy of the questionnaire for the intended purpose of finding out the possible opportunities of lead time and cost reduction in the tendering phase and visibility increase in supply chain. Also, questionnaire was prepared to analyze the stock out situation of contraceptives at health facility level.

The collection of data will emphasize on the time spent on the whole tendering process from stage of preparation of estimates to contract signing and to determine whether more than necessary time is spent at these stages. These overrun of time may be in terms of man hour and/or other physical costs that may accrue as a result. Also, collection of data will focus on total stock in months of contraceptives at field level from the earlier years to present.

Once the data is collected, they will be compared against each other i.e. individual package/ tender other and a generalized quantitative summary will be

derived to understand the amount of lead time and cost reduction that can be achieved in tendering process. The stock status of contraceptives of some years will be analyzed too. These will eventually help in answering the research question and find out whether the hypothesis of value addition for enhancing supply chain performance in public sector supply chain is valid or not.

The methodology is further elaborately presented and discussed in chapter two.

### **1.8 Limitations:**

The limitations which are likely to be faced during this study will mainly be the fact that the study will concentrate on the procurement done at central level i.e. L & S unit and CMSD, hence local procurement at field level i.e. health facilities at district and sub-district level and their consequences on lead time and cost reduction and visibility increase will not come into the picture. Moreover, it is to be understood that there can be a minor difference from one procuring entity to another although it may not deviate from the main purpose of the study.

Finally, it might be more comprehensive if a comparison of research areas of similar entities or Ministries, preferably with Ministry of Social Welfare could be undertaken but unfortunately the time barrier will not permit such an investigation as for that the time would go beyond the allowable limit.

### **1.9 Chapter Outline:**

The whole research work is presented in six different chapters.

The first chapter is the introduction chapter; which gives an outline of the general background of the Ministry of Health and Family Welfare and its nature of work. This chapter also explains the scope of research work, the identification of the problem, the research question, the objective of the work, the methodology to be followed with the

probable limitations.

The second chapter is the research design chapter; where an elaboration of the design of the research work is given including the selection of interviewees, framework of the questionnaire and methods of valid interpretation through triangulation.

The third chapter is the literature review chapter; which gives a generalized concept of the value for money model basing on which this research work intends to be carried out. Also, unique features and functions of different modules of MOHFW SCMP are briefly described. This chapter also sets the analytical approaches needed to determine the cost, lead time and risk i.e. stock out reduction in quantifiable terms.

The fourth chapter is the data presentation chapter; which expresses the collection of data using the methodology previously explained in chapter one. The data is presented in tabular form for easy understanding.

The fifth chapter is the analysis chapter; which encompasses the interpretation of the data in the appropriate format using the analytical methods in finding out the possible lead time/delay, cost reduction during the tendering process. This chapter also provides the results regarding cost savings in conformance with the general concept of the value for money model as explained in the second chapter. Furthermore, the chapter provides the result regarding the favorable stock position and reduction of stock out at the field level as an impact of SCMP.

The sixth and final chapter is the conclusion and summary chapter; which summarizes the findings and analysis to explain the quantifiable cost reduction in the process. In addition to these this chapter also gives the

limitations, assumptions and scope of further study in this field.

## Chapter Two

# RESEARCH DESIGN

### 2.1 Introduction:

#### 2.1.1 Research Design:

Robert Yin (2006) defines three basic steps for a case study design. The first step is to clearly define the case we are studying. For this, I have earlier reviewed literature and tendering procedures and logistics management system which led, after several revisions, to the research questions presented in section 1.4. These research questions have been revised throughout the process in order to match the findings and process of the thesis, which is not unusual for case study research (Yin, 2006).

The second step is to decide whether we investigate a single case study or multiple case studies. For this thesis I used multiple cases corresponding to data collection from L & S Unit of DGFP and CMSD of DGHS, eventually embedded within a holistic case study. These multiple cases will then either replicate and therefore confirm each other, or to contrast in the comparison.

The third step involves the decision whether or not to use theory development to select your case(s) (Yin, 2006). For this thesis, overview of different modules of SCMP is done to see the unique features and functionality of Portal (section 3.4). The theoretical concept of value for money (VFM) and Supply Chain Performance (section 3.5) are used to define the value drivers and drawbacks of procurement and logistics system in the two entities. These case studies have attempted to build, extend or challenge the assumptions (section 3.8 and section 6.2). However, it should be noted that this was merely a starting point, as I had to remain flexible in my research design in order to be able to explore both planned as well as emergent theory (Robson, 2002). Stake (1995) put this as follows: “Most researchers find that they do their best work by being thoroughly prepared to concentrate on a few things, yet ready for unanticipated happenings that reveal the nature of the case”.

As mentioned above, the strategy was to depart from the theoretical assumptions about the added value, performance and pitfalls of L &S unit and CMSD's supply chain. An approach of practicality was chosen. Semi-structured interviews were carried out, in which respondents were asked to reflect on the value drivers and pitfalls of L &S unit and CMSD's tendering process leading to the signing of contract, especially in terms of possible cost and lead time reductions due to time savings with increasing of efficiency and effective use of MOHFW Supply Chain Management Portal .Contrasting with regular single case study research, I realized that selecting interviewee shaving experience with diversified procurement packages could express their opinions from a broader perspective. This knowledge was used to my advantage and enhanced the validity and robustness of my findings; the experiences and opinions of a new desk officer doing procurement for the first time, compared to those of an experienced in- the-field veteran like Assistant Director could be refreshing, but will possess single observations—which is normal for case study research.

In line with the research questions, the interviews will not only regard the value drivers and draw backs of the entities' tendering, receiving or issuing processes, but will also be used to gain a better understanding of the decision process through the use of SCMP.

Accordingly, the assumptions made in the decision instruments and the current flow of the decision process will serve as a starting point for further study. The aim is to analyze and discuss the consequences of the assumptions made in section 3.8andfurther elaborated in section 6.2. Again, the eventual financial estimations on added value will remain the main theme here, in line with the main research question.

On a more process related note, I will critically reflect on the inferred consequences of the current decision process towards the eventual contract. Both these sections will be supported by quantitative illustrations fed by data from real life. All in all, critical reflection on the consequences of the procedures regarding process efficiency in line with the tendering processes up to signing of contract as they are currently in place will be the aim of chapter 4 and chapter5.Also, risk mitigation in line with stock position of



contraceptives will be part of the above mentioned chapters.

As Yin(2006) suggested, the process in case studies is often the most challenging task, and requires more thought and consideration due to the fairly “soft” nature of the research approach. A schematic representation of the research design as described above has been depicted in the diagram below. The red boxes represent the sections in this thesis, while the blue boxes represent the activities or documents which served as input for them. Moreover, the arrows indicate that the preceding sections also served as input for another, which corresponds to the description above.

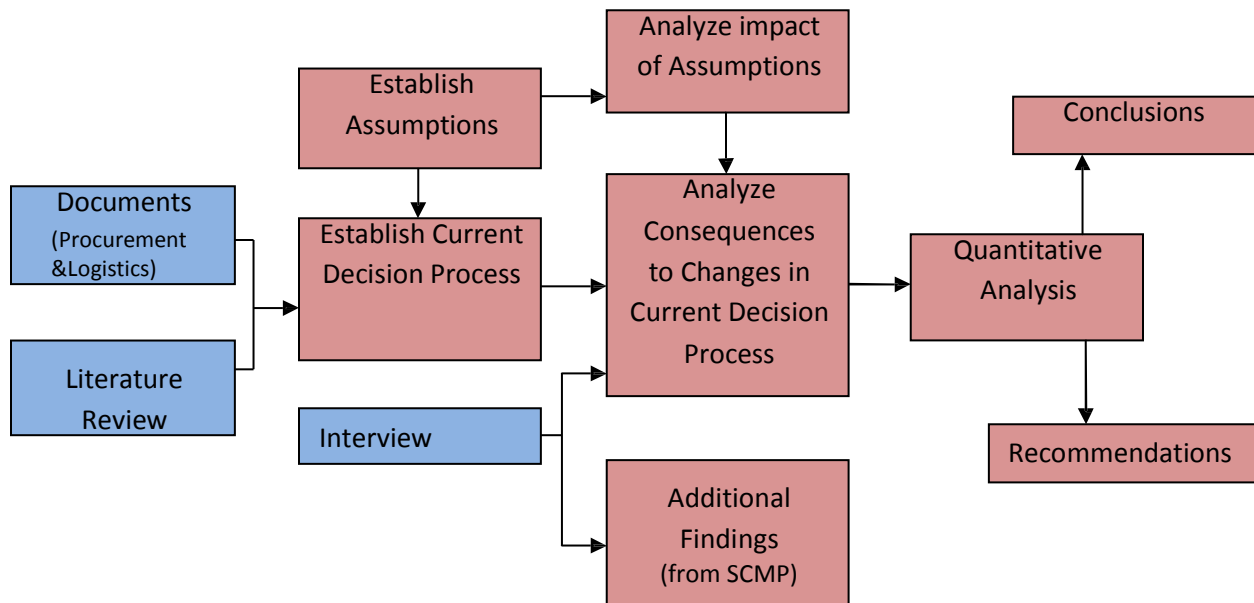


Figure: 2.1–Research Design

### **2.1.2 Selection of cases and interviewees:**

Selecting the cases and interviewees serves as a critical step in case study research. A common misconception is that case studies represent a sample from a larger base and that generalizations depend on statistical significance (statistical generalization). Instead, as Yin (2006) put it: “generalizing from case studies reflects substantive topics or issues of interest, and the making of logical inferences (analytic generalization)”. This means that it is rather the choices we make on the particular cases and people make the difference, rather than striving for a large amount of cases and people; it is about the quality rather than the quantity.

The variety of actors involved indicates the presence of many different interests, opinions and motives. These actors, namely from Desk–Assistants to Director at central level or Upazilla Health and Family Planning Officer(UHFPO) at field level on the Government side as well as the requiring body who may be public body, are all involved in different ways in the tendering process, contract execution, receiving or issuing. Therefore, there are different risks throughout time, which could possibly influence the performance of the supply chain. The right response to this knowledge is adopting a multi-actor approach. It goes without saying that this influences the nature of the interview (on which I will elaborate in the section 2.1.3): one should not ask a supplier/consultant about the government motivations behind the work nor any external body. What could be interesting however, is contrasting assumptions made by actors from across the organizations with statements made by authorities like Director of the organizations and observe their reaction. Actors who are forced to re-assess the situation, and thereby possibly driven outside their comfort zone, may uncover valuable insights which transcend the surface and could lead to new clues. However, during the case studies this only occurred on a rare basis, and because experienced people are hard to drive out of their comfort zone when it concerns their topic of expertise.

Corresponding to the multi-actor approach, I want to at least interview people involved in all groups thereby avoiding a one-sided picture. Most involved actors in the process (Procurement Desk Officers or UHFPO) have fairly straightforward roles and it is safe to

assume that they have bundled interests within their organization. The parties will mainly be asked about their preferences and experiences with the tender process, the contractual arrangements and other responsibilities including the signing of the contract, receiving or issuing at/from Upazilla level.

Furthermore, the Line Directors of DGFP or DGHS play a substantial part in the initial stage of the project in stating their demands, preparing and approving annual procurement plan. However, as their role is limited up to the approving of plan using SCMP, the Line Directors have little role to play in the official process as it has been earlier mentioned in section 1.2. Still, during this thesis it is thought to take interviews of Line Directors as they contribute to some extent in the procurement process and use SCMP as a tool to make their plan and get approved from concerned approving authorities which may include Development partners in addition to Government high Officials as per threshold.

In short, this comes down on the following categories of interviewees;

- a) Officers above the desk officers e.g. Director/Line Director and PLMC member
- b) Desk officers & UHFPO
- c) Staff below the desk officers e.g. desk in-charges as they are also involved in the process

Experience with diversified nature of procurement from low tech to high tech medical equipment and contracts were an additional requirement when selecting people, since they are able to draw from a larger experience.

### **2.1.3 Final selection of Interviewees**

Of course it is easier to draw up with a list of all the people one wants to talk to, but actually arranging an interview is a step further, depending on goodwill and connections. Conveniently, my peer of L & S unit and CMSD were very accommodating in giving interviews. At times, it was much easier and comfortable to approach an interviewee as a

consultant /advisor rather as a student due to potential commercial conflicts of interest which may negatively impact the amount of valuable information the interviewee was willing to convey.

The final list of interviewees is presented below, in chronological order:

- 1) Director /Line Director, 3(three)
- 2) PLMC member, 2(two)
- 3) Desk Officer& UHFPO, 12(twelve)
- 4) Desk In-charges, 3(three)

The chronological order was determined as much as possible in a manner which would allow me to first acquire a complete multi-actor picture of all the motivations, perceptions and experiences with entities tendering process and distribution or logistics management forming the basis for section 3.3, and later pursue the leads for my chapter 4, regarding the impact of the decision process, and use of instruments, on the eventual contracting decision. This explains why the third group of 12 interviewees (desk officers) all fall under one category. Even though this selection strategy helped significantly, the planning of a few interviewees from higher posts (first group of 3 Director positions) were more to confirm and refine my most important findings, a process called triangulation.

#### **2.1.4 Interviews & preparation:**

In contrast to the more trivial techniques of academic data collection and quantitative data analysis which will speak for itself in chapter 4and chapter 5, the soft methodology of interviewing demands a more witty approach. Investigators should not only be able to ask good questions and interpret the answers, but should also be a good listener and therefore open-minded, he should be adaptive and flexible to new encounters and opportunities, have a firm grasp of the issues being studied and be as unbiased as possible

by preconceived notions. From these duties, asking good questions and having a firm grasp of the case are perhaps the easiest to prepare. The first few interview rounds were primarily aimed at better understanding the various actions and timeframes within which those actions are taken towards the execution of tendering and distribution or logistics system from their experiences. I, therefore, outlined a framework to the interviewee in which I thought my answer would be and also allowed him to take side-steps in his argumentation or description of his experiences, to which I could then anticipate in case interesting notions came along (for example, the introduction and use of SCMP) which could help drawing the complete picture of this thesis. These kinds of questions are known as Level 1 questions, which have an open-ended character, contrasting with Level 2 question which are meant to follow a specific line of inquiry.

## **2.2 Framework of the Questionnaire:**

A questionnaire was prepared for the purpose of interviewing the officers /staff of primarily L & S unit , CMSD and Upazilla Health Complex and then some Line directors or PLMC members. The questions on lead time and cost section were targeted for officers /staff of L & S unit and CMSD; risk section /stock status for officers of Upazilla Health Complex whereas the visibility section covered by both target people. It should be noted that as the questionnaire required filling up of several blank spaces, most of the interviewees opted in giving their answers, suggestions and decisions in a verbal form which were duly noted down by me in the corresponding spaces.

The questionnaire concentrated in three areas; firstly, the general questions, secondly, leading questions to follow a specific line of inquiry in line with the objective of the research and thirdly, opened questions which provided a window to the interviewees to put forward their valuable opinions which may or may not be useful for the purpose of thesis directly. These can be shown in the following table;

Table: 2.1:

Type of Questions		
General Questions	Leading Questions	Open Ended Questions
<p><u>Section-1:</u>            1.1 Designation            1.2 &amp; 1.3. Office name,            respondent's name and cell number            1.4.Experience of respondents in public procurement</p>	<p><u>Section-2: Procurement</u>            2.1. Average number of weeks required to prepare and approve a plan by Line Director using SCMP            2.2. Average number of weeks required to approve consolidated plan by L &amp; S unit/CMSD using SCMP in implementing SCMP            2.3. Average number of weeks required to invite tender after the approval of the plan using SCMP            2.4. Average number of weeks required to approve the successful bid by the higher authority using SCMP            2.5. Average number of weeks required to sign the contract with the successful bidder and L/C opening using SCMP            2.6. How often do you visit SCMP?            2.7. Is SCMP user friendly or difficult to use?            2.8. How do you use data of SCMP in decision making in tendering?            2.9 Your Knowledge level about SCMP.</p> <p><u>Section 3: Logistics</u>            3.1. Current time taken to upload Logistics form e.g. 7B template in LMIS. What was previous situation in reporting before introduction of SCMP?            3.2.Have you faced stock out in the last five years?            3.3.Minimum and maximum stock position of major contraceptives i.e. Oral Pill, IUD ,Implant Rod and Injectable in the last five years</p>	<p><u>Section 4</u>            4.1. What are the challenges in implementing SCMP?            4.2. Any other suggestions regarding the possible ways of improvement in SCMP to further reduce lead time and cost.            4.3 Any other suggestions regarding the possible ways of further risk reduction in the supply management</p>

As pointed out in section 2.1.1 these research questions have been revised and necessary additions were done to the questionnaire in order to match the requirements of the thesis as presented in Annexure A.

### **2.3 Interpretation and validation: Triangulation:**

The initial task of this case study is trying to understand the case, which are both important for me, the supervisor and for the reader. After developing the framework of L & S unit and CMSD contracts in section 3.3, it is necessary to sift through evidence in order to identify fruitful clues which could lead to more valuable and skin-deep findings. In reality, certain possible clues had already been defined prior to carrying out the first interview, based on the governmental documents and in-house discussions with my peers (Desk Officers of L & S unit and CMSD) about the topic.

Triangulation is a powerful technique that facilitates validation of data through cross verification from more than two sources. In particular, it refers to the application and combination of several research methodologies in the study of the same phenomenon.

- It can be employed in both quantitative (validation) and qualitative (inquiry) studies.
- It is a method-appropriate strategy of building the credibility of qualitative analyses.
- It becomes an alternative to traditional criteria like reliability and validity.
- It is the preferred line in the social sciences.

By combining multiple observers, theories, methods, and empirical materials, researchers can hope to overcome the weakness or intrinsic biases and the problems that come from single method, single-observer and single-theory studies.

The purpose of triangulation in qualitative research is to increase the credibility and validity of the results. Several scholars have aimed to define triangulation throughout the years.

- Cohen and Manion (1986) define triangulation as an “attempt to map out, or explain more fully, the richness and complexity of human behavior by studying it from more than one standpoint.”
- Altrichteretal.(2008) contend that triangulation “gives a more detailed and balanced picture of the situation.”
- According to O’ Donoghue and Punch (2003), triangulation is a “method of cross-checking data from multiple sources to search for regularities in the research data.”

In this thesis, the approach is similar. One observation does not tell us whether something is true, whereas multiple observations provide grounds for reinterpretation or confirmation (Stake,1995).The protocol used in this thesis is methodological triangulation, basically entailing the use of different kinds of methodologies to arrive at a valid interpretation or generalization:

- Multiple observations from theory where possible
- The interviews
- Reflection with supervisor
- Quantitative data analysis

These methods can also be used as triangulation protocols on their own, as multiple observations within the same method could also provide proper base for triangulation.

## **2.4 Conclusion:**

Based on the design of the research as described in the previous sections of this chapter, this thesis work is carried out and the data and associated findings are analyzed to arrive at a justifiable conclusion regarding the answers to the research questions.



## Chapter Three

# LITERATURE REVIEW

### 3.1 What is Procurement?:

Procurement is a process that covers a range of activities starting from the identification of a business need for works, goods or services through to the end of any supply or contract that may result. Procurement is often confused with the term ‘purchasing’ that simply refers to one step in a much bigger process.

### 3.2 Concept of Procurement:

Procurement is the act of finding, acquiring, buying goods, services or works from an external source, often via a tendering or competitive bidding process. The process is used to ensure the buyer receives goods, services or works the best possible price, when aspects such as quality, quantity, time, and location are compared. Corporations and public bodies often define processes intended to promote fair and open competition for their business while minimizing risk, such as exposure to fraud and collusion. Procurement is one component of the broader concept of sourcing and acquisition. Typically procurement is viewed as more tactical in nature (the process of physically buying a product or service) and sourcing and acquisition are viewed as more strategic and encompassing.

The Institute of Supply Management defines strategic sourcing as the process of identifying sources that could provide needed products or services for the acquiring organization. The term procurement used to reflect the entire purchasing process or cycle, and not just the tactical components. ISM defines procurement as an organizational function that includes specifications development, value analysis, supplier market research, negotiation, buying activities, contract administration, inventory control, traffic, receiving and stores. Purchasing refers to the major function of an organization that is responsible for acquisition of required materials, services and equipment.

### **3.2 International Procurement Practices:**

In the world of globalization, the best-in-class international organizations follow many more advanced strategies and sophisticated models so that they become competitive among their rivals. One of the strategies is “Make technology work for you”. At best-in-class organizations, managers consider “the system” as a mean to better manage their supply chains. They find a way to use technology to produce beneficial information without having to perform various “work-arounds” to extract and view the data. They recognize the importance of an efficient purchase-to-pay process and have adopted strategies and mechanisms to get the greatest benefits from technology. Now-a-days the use of e-Tendering, e-Purchasing, Enterprise Resource Planning (ERP), Material Requirements Planning (MRP), Material Requirements Planning (MRP) II, Electronic Point of Sale (e-POS) ,Radio Frequency Infra-Red device (RFID) have brought huge changes in supply chain field. The use of IT has given many advantages i.e efficiency in processes, integrated, and consistent information, easier reporting, access to data, ability to provide better customer service, better communications across the institution and so on.

Over the years the procurement technology market has undergone huge changes. The people used to focus on ‘one-stop-shops’ where a technology vendor would attempt to sell an overall vision of a better procurement life. Now with the advent of mobile devices, templates and apps we are seeing a far more ‘audience-driven’ focus with three areas emerging: P2P software where the audience is accounts payable; Sourcing software (e-RFx, e-auctions and spend analytics) where the audience is procurement; and SRM software (SRM, SPM, risk, innovation and contract management).

### **3.4 Procurement Policy:**

The general procurement policy of MOHFW is guided in their procurement of works, goods and services by the following principles;

- ◆ Sustainable business practice

- ◆ Best value for money over whole of life
- ◆ Open and effective market competition
- ◆ Full and fair opportunity for domestic suppliers and contractors
- ◆ Introducing web-based solution i.e. SCMP for planning, tracking of goods and services
- ◆ Demonstrate compliance with good practice and government guidelines

### 3.5 Procurement Process Overview:

The procurement process of MOHFW consists of five key phases;

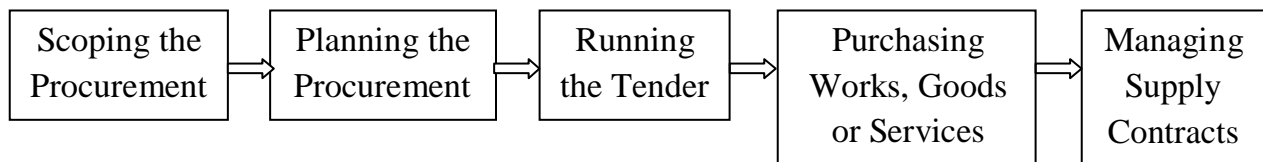


Figure3.1: Procurement Process

It is not necessary for all procurements to pass through all five phases. Based on the business requirements, supply, risks, costs and other considerations; which can be understood through the application of Kraljic’s Matrix model; important decisions are made during the scoping and planning phases that determine the remaining phases of the process. For example, after scoping the procurement, it may be appropriate to;

- ◆ Simply procure the works, goods or services from an existing preferred supplier; or
- ◆ Purchase the goods, works or services using a selective procurement process; or
- ◆ Plan the procurement and determine that seeking quotations from several suppliers is the best approach; or
- ◆ Plan the procurement and determine that running a tender is required.

The diagram in the following page illustrates this and shows some of the key actions within each phase;

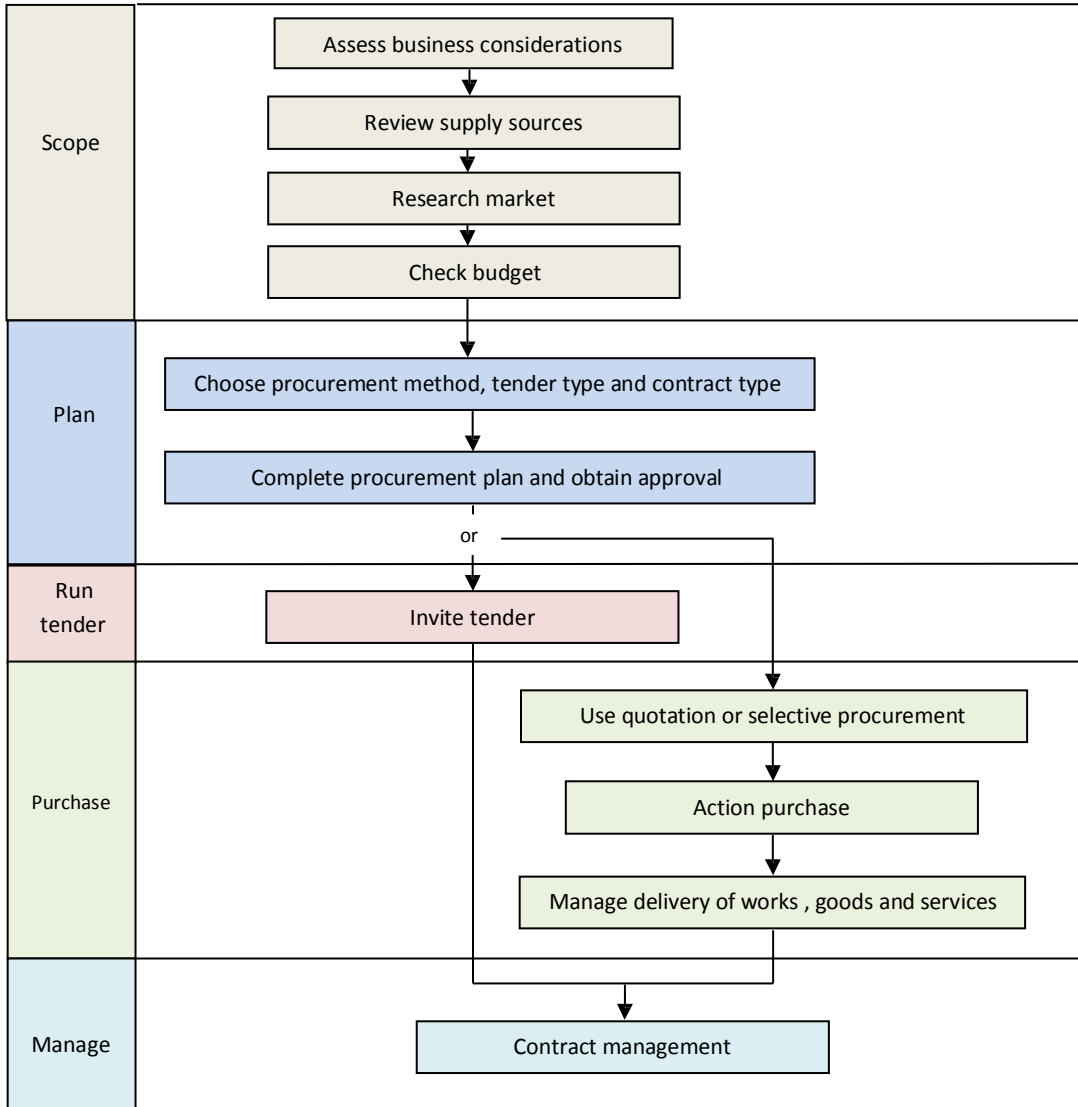


Figure3.2: Key Actions within Procurement Process  
Based on Wellington City Council (2010)

## **3.6 Concept of Value for Money:**

### **3.6.1 What is Value for Money (VFM)?**

The prime objective of the Government's procurement policy is to achieve value for money (VFM)—the optimum combination of whole life cost and quality to meet the customer's requirement. Quality may relate to a number of relevant factors including functionality, durability, aesthetic appropriateness to surroundings, long-term adaptability and maintenance, environmental implications and ability of consultants, supplier and contractors to innovate, improve creativity and work as a team.

### **3.6.2 Why is it important and how is the process monitored?**

Every opportunity to achieve VFM should be evaluated properly and informed decisions taken. In this way, management can have confidence in answering any subsequent questions on the entire decision making process and provide full justification for the decisions taken.

When internal or external audit carry out Procurement post-review or inspect stores/warehouses, it can be expected that consideration will be given to how resources have been used, what influenced the decisions that were taken, whether the best advice available was obtained and implemented, whether risks were managed properly and whether informed judgments were made.

### **3.6.3 Is lowest always best?**

VFM does not necessarily mean accepting the lowest bid as quality, as well as price, must be considered when appointing consultants, suppliers and contractors. Innovation should not be stifled through rigid adherence to mechanistic procedures, although accountability for public funds remains extremely important and should not be compromised.

The Government and certain other public sector organizations including L & S unit/DGFP and CMSD/DGHS must comply with the procurement rules as implemented by the Public Procurement Act 2006 and Public Procurement Regulations 2008 and the amendments in addition to Development Partner guidelines. They are entirely consistent with the policy objective of achieving VFM.

### 3.6.4 How is VFM achieved?

The greatest opportunity for achieving VFM occurs at project inception. Correct project definition is essential to meet the users' needs while achieving VFM. Project definition and subsequent planning should not be constrained by preconceived ideas.

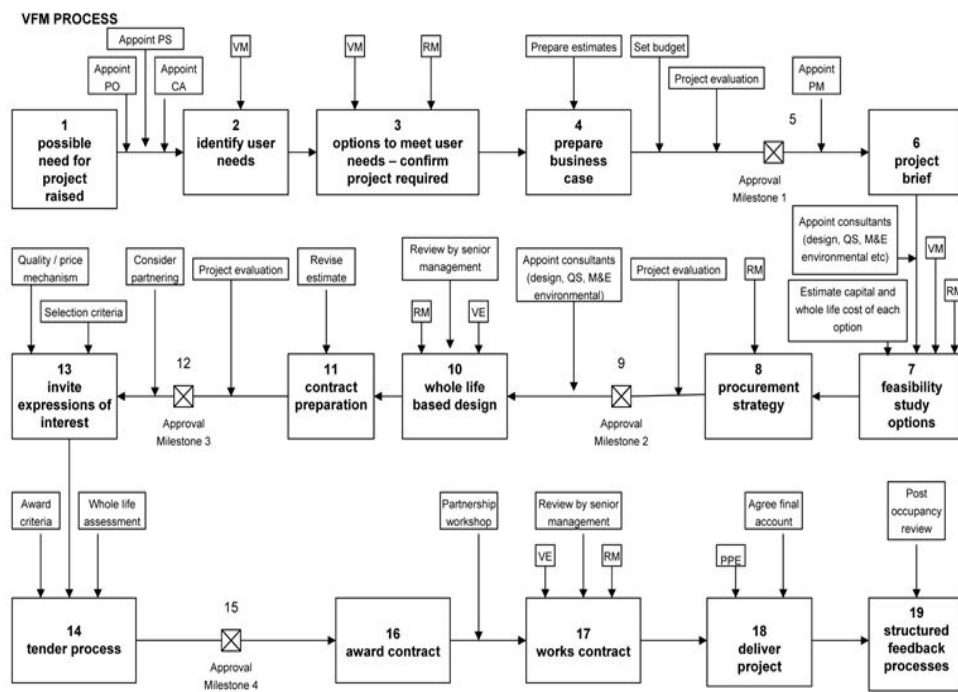
To plan and manage a project from inception to completion, the VFM process as described in Section 3.4.5 incorporates a series of management tools that provide a model structured approach. This model ensures that projects provide VFM by:

- ◆ defining the project carefully to meet the user needs and ensuring that sufficient time and resources are allowed to fully pre-plan the project execution
- ◆ fully assessing and managing the risks involved with different procurement routes and, where necessary, making recommendations to the responsible authority
- ◆ integrating value, risk and cost management techniques within project management processes
- ◆ adopting a change control procedure
- ◆ taking account of whole life costing and long term sustainability issues including the need to maintain, repair, replace and dispose responsibly of components
- ◆ avoiding waste and conflict through team working and partnering, seeking opportunities wherever possible to integrate design and construction
- ◆ appointing consultants and contractors on the basis of VFM rather than lowest initial price

### 3.6.5 VFM process:

The VFM process, described in the ‘traditional’ model here (containing consecutive design and construction stages), contains a number of approval milestones at which reviews must be undertaken. The process can be modified to suit the needs of individual users, specific projects, type of projects/ budget (development or revenue) and procurement strategies, resulting in reviews being undertaken and/or appointments being made at slightly different times from those in the model. The acronyms are explained in the notes that follow the diagram.

**Figure 3.3: Value For Money Process**



### **3.7 Scope of this study in relation to the VFM concept:**

#### **3.7.1 MOHFW and procurement policy:**

The two major procuring entities of MOHFW i.e. L&S unit/DGFP or CMSD/DGHS and its procurement policy are governed by the Public Procurement Act 2006, Public Procurement Rules 2008 and the subsequent amendments. These act and rules require the entities to strictly adhere to the necessary regulations in their procurement activities. These rules are concerned with the Government's policy on procurement thus being government entity, it is mandatory for the entities to abide by these rules.

This study gives more emphasis on the existing processes under these rules and regulations rather than investigating the policies themselves. As a result, efficient execution of the existing processes during public sector tendering is examined in some detail during this study.

#### **3.7.2 MOHFW's procurement and VFM process:**

As detailed out earlier in section 3.5.5, the VFM concept encompasses the whole life cycle of a project. Also, it has earlier been stated in this section that the VFM process can be modified to suit the needs of individual users, specific projects and procurement strategies. This research work concentrated specially on procurement of commodities which is the single most major routine procurement activity of the entities through the traditional and widely used tendering method. Therefore, this study does not investigate into the areas of procurement of works and services as well as the other options of procurement such as request for quotation (RFQ) or direct procurement method (DPM) etc.

### **3.8 MOHFW Supply Chain management Portal (SCMP):**

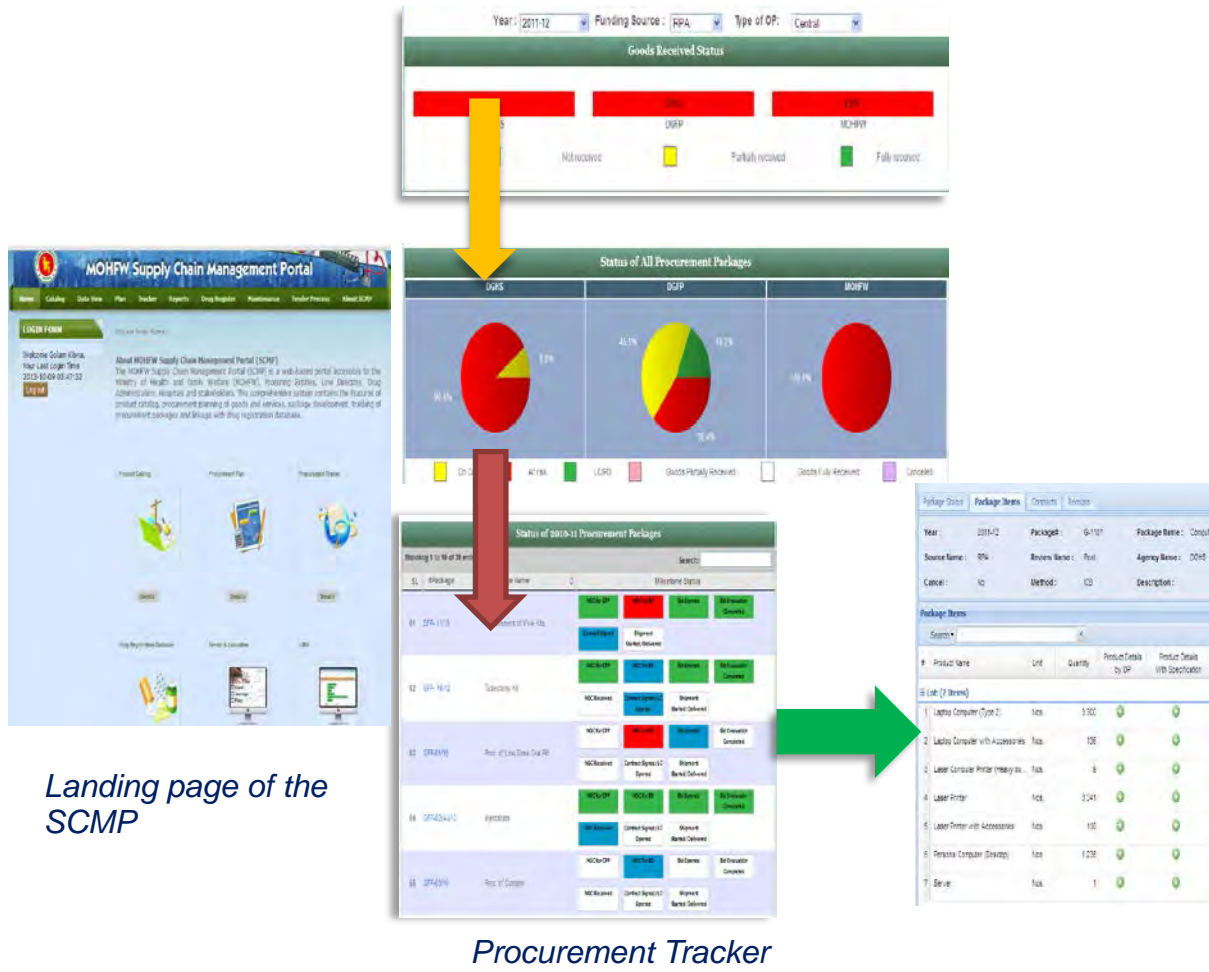
#### **3.8.1 What is MOHFW SCMP?**

The MOHFW Supply Chain Management Portal (SCMP) with a wide range of features to manage procurement processes from planning to the receipt of commodities is a web-based



portal which is accessible to the Ministry of Health and Family Welfare (MOHFW), Procuring Entities, Line Directors, Drug Administration, Hospitals, The World Bank and stakeholders.

The portal is developed by Systems for Improved Access to Pharmaceuticals and Services - SIAPS Program (implemented by Management Sciences for Health-MSH) through the generous financial support of USAID. <https://scmpbd.org>



Landing page of the SCMP

Procurement Tracker

Figure 3.4: MOHFW Supply Chain Management Portal

### **3.8.2 Different modules of MOHFW SCMP?**

There are 6 (Six) modules of SCMP as below;

#### **Module1-Product Catalog:**

- Includes product catalog and specifications
- Only authorized persons allowed to add or update product list with specifications
- Each product identified by unique code (Stock Keeping Unit - SKU)
- All procuring entities can request that new products be included
- Harmonized Systems (HS) Code can be populated and products can be searched by this Code

#### **Module 2-Procurement Plan:**

- Line Directors (LDs) enter budget allocation directly into portal
- Procurement plans are being prepared on this system using GOB, RPA or any other source of funds
- System alerts user if the LD exceeds the budget during the procurement plan development process
- The MOHFW provides on-line approval on the SCMP
- Desk officers of procuring entities review submissions, develop packages based on approved procurement plans
- Procurement plans automatically checked against operational plan procurement information
- Copy-paste features available for the same LD to prepare a new plan for following years

#### **Module 3-Procurement Tracker:**

- Procurement Packages can be tracked through interactive Dashboard
- MOHFW, Line Directors & other stakeholders have immediate access to updated package status
- Provides information on procurement delays and bottlenecks to facilitate management and decision making
- Allows procurement packages to be monitored throughout the delivery process; delays trigger automated alerts through e-mail and strategic monitoring systems to the accountable procurement desk officer
- Secure site with encrypted data transfer

- Publish procurement opportunities and tender results
- Facilitates efficient and effective procurement management
- Promotes good governance, transparency and competition

#### **Module 4-Drug Registration Database:**

- Procuring entities will have access to list of registered drugs with brand names (linked to generic names), it's strength, list of manufacturers name, historical price etc.
- The database guides the LD to procure already registered drugs (to Directorate General of Drug Administration) that is either locally manufactured or imported

#### **Module 5-Equipment Tracking and Maintenance:**

- Linked with procurement plan & packages
- Inventory of costly medical equipment – unique identification number generation using 3d barcode

#### **Installation Reports to be generated**

- Installation Dashboard
- Equipment Installation Status
- Uninstalled Equipment List with Aging
- installation delay

#### **Maintenance reports to be generated**

- Equipment Waiting for Maintenance
- Maintenance trend/behavior of a specific equipment
- Monitor equipment performance indicators such as down time and maintenance costs
- Monitor vendor performance indicators such as repeated repairs by the same vendor for the same problem
- Equipment life-cycle cost
- Cost service ratio, i.e. maintenance cost against equipment value
- Decommission of equipment

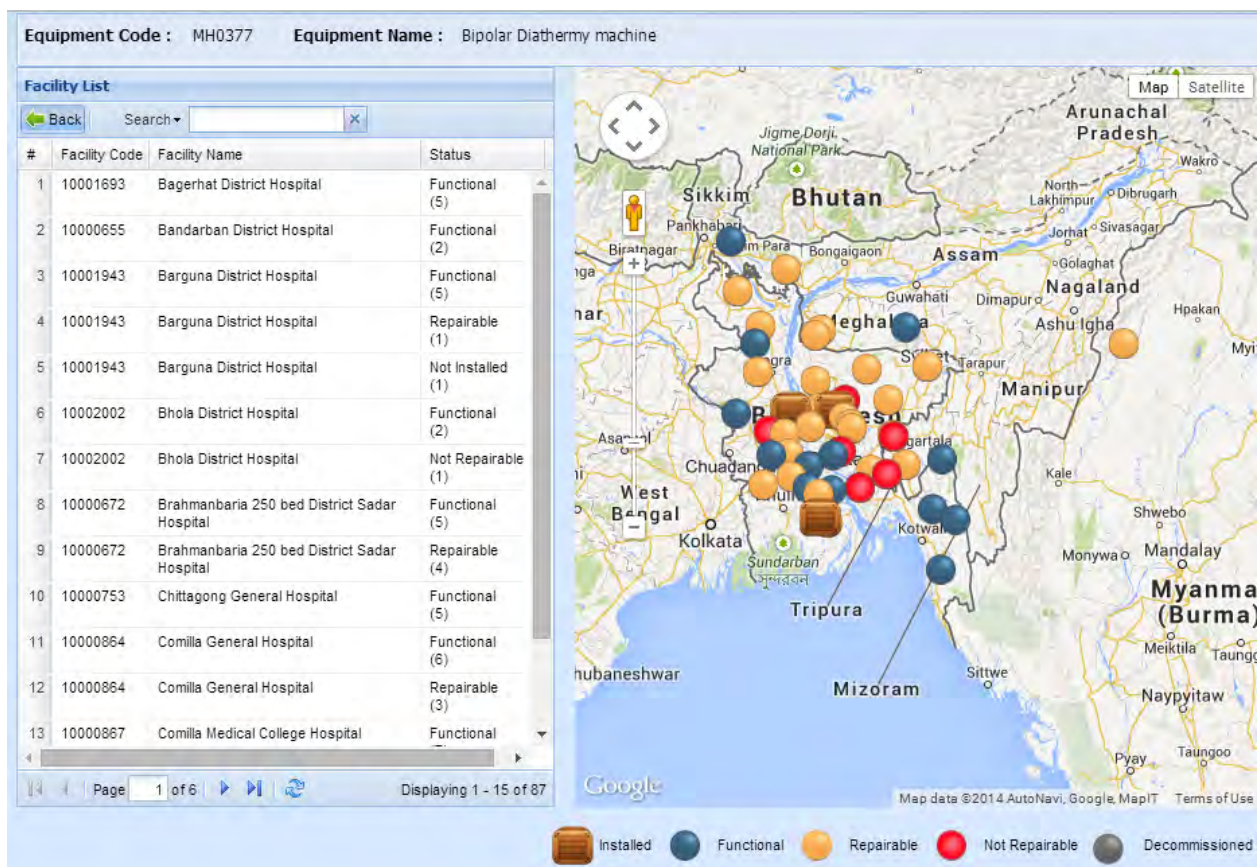
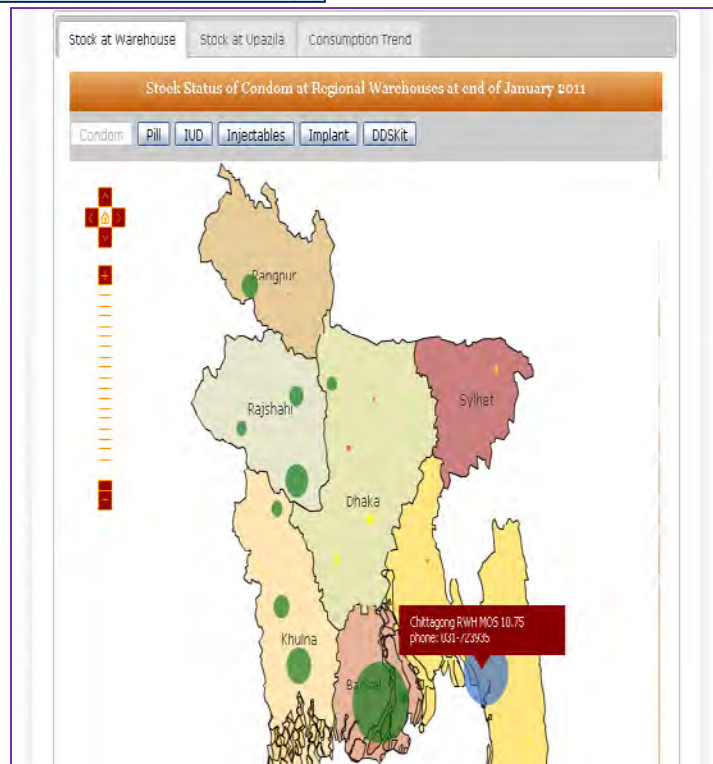


Figure3.5: Equipment Tracking and Maintenance Module

**Module 6-DGFP Logistics Management Information System- LMIS under SCIP:**

- Monitoring of stock position at all levels through interactive Dashboard.
- Allows monitoring of consumption trend of RH commodities.
- Quickly identify Upazilla (Sub-district) & field level stock-out situation & take necessary action.
- Facilitates stock adjustments considering requirement of commodities.
- Allows monitoring of monthly logistics report submission & data accuracy.
- Improves supply chain monitoring at all levels.

Figure 3.6: DGFP Logistics Management Information System (LMIS) of SCIP



### DGFP SDP Dashboard:

- Service Delivery Points (SDP) includes Family Welfare Assistants (FWA), Family Welfare Visitors (FWV), NGO etc.
- SDP Stock Status is available in UIMS (which is running in 488 sub-districts)
- UIMS data upload to web (DGFP SCIP)
- Dashboard will indicate stock status of individual SDP

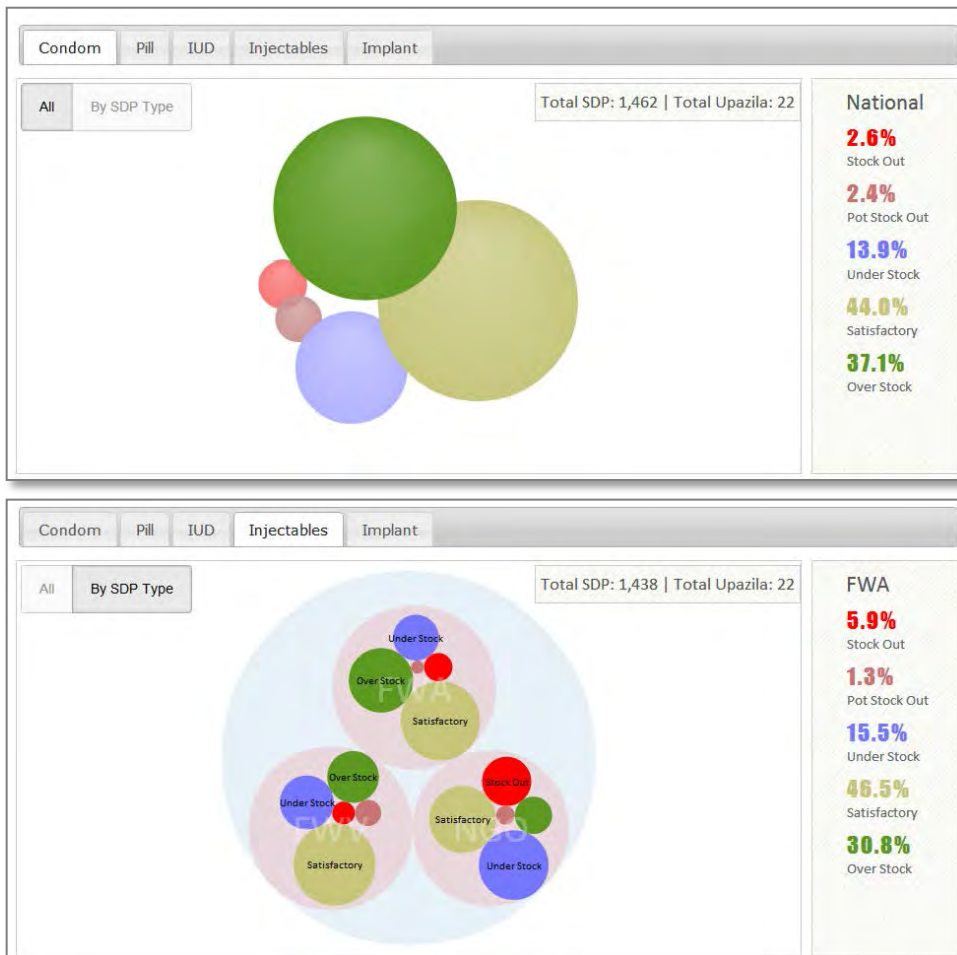


Figure3.7: DGFP SDP Dashboard of LMIS

### 3.8.3 Earlier practices in Supply Chain in MOHFW:

- There was no single product catalog with unique identification codes
- There was no standardized product specifications available in a central repository
- Managers (Line Directors) used to develop, submit and manage annual procurement plans manually
- Consolidation of the procurement plans for all 32 Operation Plans required major



manual effort and time-consuming

- Procurement packages were managed and tracked in Word/Excel and could not visible at a time to all stakeholders
- Information on registered medicines & contraceptives was not directly linked to procurement processes
- There was lack of timely logistics reporting which hampered evidence- based decision making

### 3.8.4 Success Story of SCMP:



SCIP received National Digital Innovation Award 2011 in e-Health category and e-Government Best Award

### 3.9 Supply Chain Performance-Quantifying Benefits:

#### 3.9.1 Key Performance Indicators (KPI):

The benefits component of a business case should not be diluted through complexity. In addition, tracking indicators that are not relevant can skew behavior towards the measures. For this reason, the proposed Key Performance Indicators (KPI) are:

Table–3.1: Key Performance Indicators

Type of Benefit	KPI
Time Savings	Reduction in time spent up to contract signing
Administrative and Overhead Cost Savings	Reduction in administrative and overhead costs

There are other intangible benefits that may exist. The time savings give greater emphasis on the existing process whereas the Administrative and Overhead cost savings bring sideways benefit due to reduction of time as thought.

#### 3.9.2 Lead Time savings:

Time savings relate to the fact of possible amount of reduction in time that is usually taken under the current tendering practice up to the signing of contract. The following stages are investigated for the purpose of finding out the possible time savings;

Table–3.2: Description of Stages for Lead Time Saving

Stages	Description
Stage1	Average number of weeks required to prepare and approve a plan by Line Director
Stage2	Average number of weeks required to approve consolidated plan by L & S unit/CMSD
Stage3	Average number of weeks required to invite tender after the approval of the estimate
Stage4	Average number of weeks required to approve the successful bid by The higher authority
Stage5	Average number of weeks required to sign the contract with the Successful bidder



### 3.9.3 Administrative and Overhead Cost Savings:

The cost savings are due to time savings per tender. The reduced weeks are multiplied by weekly salary of the concerned official man (using the existing Government salary structure). Then the total possible cost reductions are obtained through multiplying the cost reductions pretender by number of tenders as Table 3.3.

The equations developed to arrive at the final conclusion areas follows;

Table3.3: Calculation of cost reduction

Step	Equation
Step1	Cost reduction per tender= Reduced weeks of concerned official × Weekly salary of concerned officials
Step 2	Total Cost reduction per year=cost reduction per tender × Number of Tenders completed within fiscal year
Step 3	Total Cost incurred for software maintenance per year
Step 2	Net cost savings= Total Cost reduction per year- Total Cost incurred for software maintenance per year

### 3.9.4 Risk Reduction:

The risk reduction is a qualitative measure which cannot be calculated directly by any formula. However, reduction of risk relate to the fact of possible amount of reduction in risk that is usually measured as either reduction of stock out situation or stocks (minimum and maximum to be maintained at health facility level) of major contraceptives i.e. Oral Pill, IUD, Implant Rod and Injectable.

### 3.10 Assumption:

During this research work, several assumptions were made which were later on tested and validated through the interviews. These assumptions were as follows;

- a) L & S unit and CMSD's procurement section are responsible for the whole of the

procurement process of commodities which include pharmaceuticals, consumables, medical and non-medical equipment etc; even though it may so happen (and it does!) that the pharmacist from Drug Administration or clinician or Bio-medical engineers from health facilities are involved in development of specifications and technical evaluation of tenders.

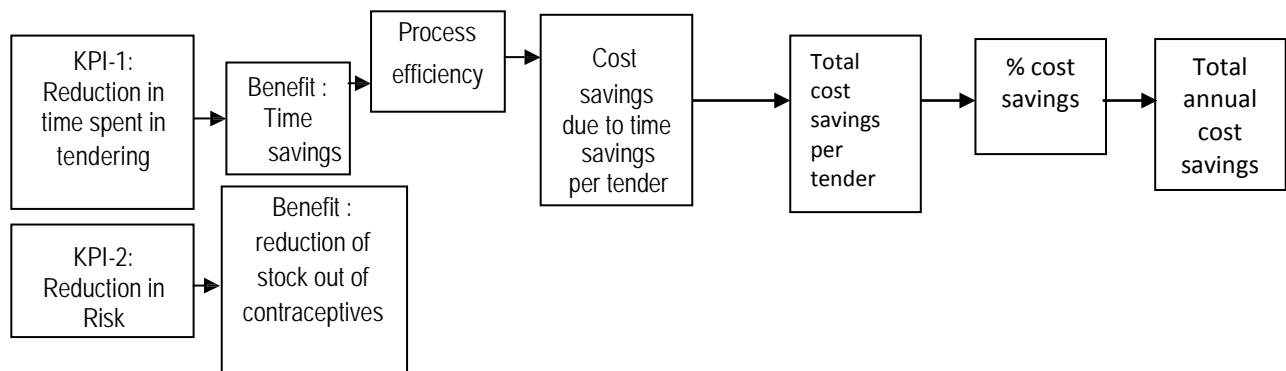
- b) The Desk In-charges and Desk Assistants are assumed to be fully knowledgeable about the total procurement process generally undertaken by the office of the desk officer.

A further elaboration of the assumptions is also given in section 6.2.

### 3.11 Analytical Framework:

Based on the discussion of chapter two and the analytical approach of using data for quantifying the benefits as discussed above in section 3.7 an analytical framework is developed for the purpose of the research work. Each of the elements of the framework contributes to the successful presentation of the cost savings which is the main aim of this research work. The analytical framework is presented below;

**Figure3.8: Analytical Framework**



### **3.12 Conclusion:**

The analytical approach will finally give a possible guideline on the amount of lead time and cost reductions that can be made in the tendering process of L &S unit and CMSD's procurement of commodities.

These findings commensurate with the research question put forward in section 1.4 "Does Supply Chain Management Portal create impact in supply chain performance along the chain? What may be the possible improvements of Supply Chain Management Portal (SCMP)?" Therefore, the findings are expected to fulfill the intentions of this research work.

## Chapter Four

# DATA PRESENTATION

### 4.1 Introduction:

The interviews and the documentary evidences provide the basis of the data collection related to this thesis work. The resulting data from the interviews taken are expressed in tabular forms. These tables provide a general understanding of the data sought for in those interviews. Based on these data, the final analysis is done (which is detailed in chapter 5) to find an answer to the research questions which are, “Does Supply Chain Management Portal create impact in supply chain performance along the chain? What may be the possible improvements of Supply Chain Management Portal (SCMP)?”

### 4.2 Presentation of Data:

As described in section 2.2 and section 3.7.1, the key performance indicators (KPI) provide a basis for the preparation of the questionnaire (Annexure D), which was used to seek out the data for the purpose of this thesis.

#### 4.2.1 Interviewees:

A total number of 20 interviewees were randomly selected for the purpose of data collection. They ranged from Directors to Desk In-Charges as shown below;

**Table: 4.1**

Number of Interviewees			
Director/ Line Director	PLMC member	Desk Officer & UHFPO	Desk In-charges
3	2	8+4=12	3

#### **4.2.2 Information regarding time savings:**

The following information are tabulated for easy understanding of the days required and the possible number of days that can be reduced during the various activities such as the preparation of the estimates, approval of estimates, invitation of tender, approval of the successful bid and signing of the contract. Government staff of all level provided their opinions in this regard; hence no segmentation is done for interviewees of different levels.

It should be noted that the weeks spent (WS) mentioned in the following table is the average of 20 interviewees each of who actually stated the average number of weeks required for a particular stage (from 1 to 5) over 2012-13 and 2013-14. The possible reduction in number of weeks (PR) is the data found from the interviewees.

Table: 4.2: Information regarding TIME TAKEN DURING Tender PROCESS AND POSSIBLE REDUCTION OF SUCH TIME

Officers involved ↓ →	DIR		PM /PLMC and DPM/ PLMC		DO		DIC	
	WS	PR	WS	PR	WS	PR	WS	PR
1. Average number of weeks required to prepare and approve a plan by a Line Director and PLMC official as approving authority	7	4	4	1				
2. Average number of weeks required to approve consolidated plan by L & S unit / CMSD	2		2		3	1		
3. Average number of weeks required to invite tender after the approval of the estimate					8	1	7	0.50
4. Average number of weeks required to approve the successful bid by the higher authority			4		5	0.50	5	
5. Average number of weeks required to sign the contract with the successful bidder and L/C opening	-	-	-	-	5.00	0.50	4.00	0.50

Note-1: DIR : Director/Line Director, PM :Program Manager, DO: Desk Officer, DIC: Desk In-Charge

Note-2: WS: week spent, PR : Possible reduction in no. of weeks.

Also, further information was found from desk officers (monitoring) of the entities which is summarized below:

Table: 4.3: Information regarding package wise lead time of 2014-15

Name of Procuring entity	Number of tendering packages	Tendering completed in weeks
L& S unit /DGFP (Average package number: 40-50)	9	18
	9	22
	21	26
	5	30
	4	34
	1	44
<b>Total</b>	<b>49</b>	
CMSD/DGHS (Average package number: 70-100)	1	44
	12	48
	56	52
<b>Total</b>	<b>69</b>	

Thus, it is seen that from the data above that 99% tendering packages were completed between 18 weeks to 34 weeks in DGFP which is much lower than ministry's given time line i.e.; 58 weeks. Only 1 package has taken 44 weeks due to some reasons behind whereas, in CMSD/DGHS 90% packages are usually completed within 52 weeks.

## 4.3 Questions and Responses

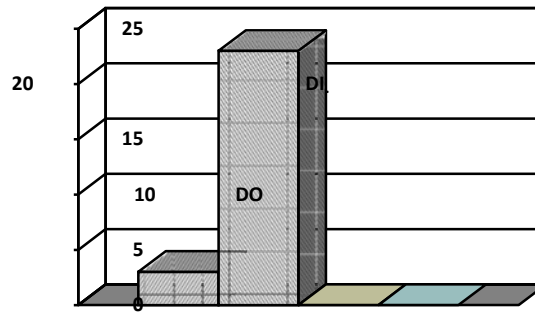
### Section 1: General

**Question 1.1.** You are (designation)

Desk Officer (DO) Desk-In-Charge (DI) Desk Assistant (DA)

Response:

Designation	No.	%
DO	3	12
DI	23	88
DA	0	0
No response	0	0
Total:	26	100



**Question 1.2 and 1.3:**

Office name, respondent's name and cell number.

**Question 1.4:**

Experience of respondents in public procurement.

Response: Central Medical Stores Depot and Logistics and Supply unit are Public sector procuring entity and all the procurement desk officers and their units are involved with procurement at different level. Desk Officers have atleast 5 years' experience in procurement whereas the MOHFW official i.e. Program Manager, Deputy Program Manager at PLMC have 1-3 years' experience in public procurement.

**Section 2 : (for procurement related person only)**

**Question 2.1.** Average number of weeks required to prepare and approve a plan by Line Director using SCMP.

Response: Most respondent came with 5-6 weeks, very few told that sometimes it takes even 4 weeks

**Question 2.2.** Average number of weeks required to approve consolidated plan by L & S unit/CMSD using SCMP.



Response: Most respondent said that it did not impact on Director level, but at PLMC level it will take at best 5-6 weeks.

**Question 2.3.** Average number of weeks required to invite tender after the approval of the plan using SCMP.

Response: Most desk officers and In-charges responded that it will take 7-8 weeks.

**Question 2.4.** Average number of weeks required to approve the successful bid by the higher authority using SCMP.

Response: Most respondent said that it it will take at best 13-14 weeks.

**Question 2.5.** Average number of weeks required to sign the contract with the successful bidder and L/C opening using SCMP.

Response: Most desk officers and In-charges responded that it will take 7-8 weeks.

**Question 2.6 .**How often do you visit SCMP?

Response: Desk Officers log in SCMP once a week, Desk In –charges and Desk-Assistant log in 1-2 times a week; whereas Policy level i.e. Program Managers, Deputy Program Managers, Directors enter in SCMP once or twice a month.

**Question 2.7.**Is SCMP user friendly or difficult to use?

Response: Most respondent said that it is not that difficult to use, but more practice and use of SCMP will increase confidence level and more conversant.

**Question 2.8.**How do you use data of SCMP in decision making in tendering? Does it help in planning and tracking in procurement process?

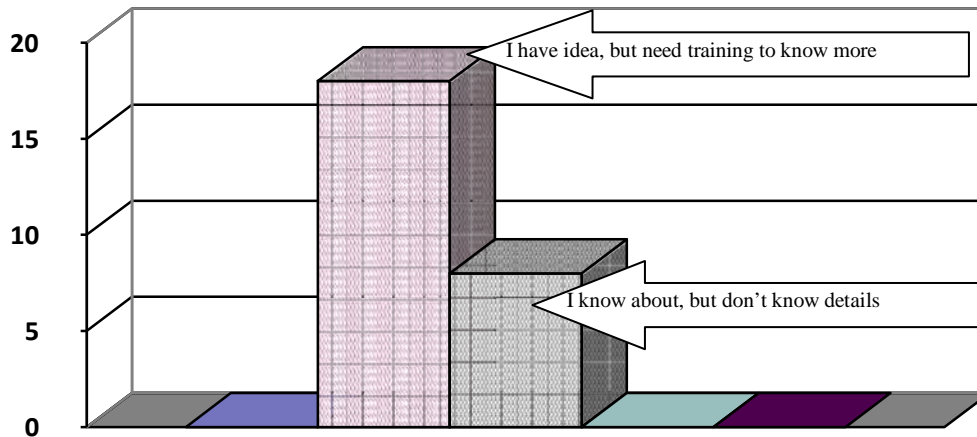
Response: Most respondents said that SCMP is more popular for Procurement Plan development and approval process rather than procurement package tracking and decision-making steps. The respondents also said that SCMP has reduced lead time in procurement plan development and approval timeline .From Policy makers to procurement desk officers SCMP is used to find challenges of the packages too.

**Question 2.9:** Your Knowledge level about SCMP.

- I have clear understanding
- I have idea, but need training to know more
- I know about, but don't know details
- I have no idea

Response:

Options	No.	%
I have clear understanding	0	0
I have idea, but need training to know more	18	69
I know about, but don't know details	8	31
I have no idea	0	0
No response	0	0
Total:	26	100



None (0%) have 'Clear understanding' in SCMP, while most of them (69%), 'Have idea but need training' and others (31%) 'know about, but don't know details' about SCMP.

### Section 3: Logistics (for logistics related person only)

**Question 3.1.** Current time taken to produce Logistics reports (e.g. 7B template) in LMIS. What was previous situation in reporting before introduction of SCMP?

Response: Most logisticians responded that currently it takes 7-15 days' time to complete

reports, earlier it took 3 months' time to manually calculate , interpolate data and furnish reports.

**Question 3.2.**Have you faced stock out in the last five years?

Yes                      Not always                      No

Response:

Options	No.	%
Yes	2	8
Not always	5	19
No	19	73
No response	0	0
Total:	26	100

73% respondents did not face stock out and others are not regularly facing problems.

**Question 3.3.**Minimum and maximum stock position of major contraceptives i.e. Oral Pill, IUD , Implant Rod and Injectable in the last five years.

Response: Most respondents at Upazilla level said that currently use of SCMP has made all supply data available, so Upazilla Health and family Planning Officers (UHFPO) could see where there the stock outs are happening and where are excess stocks which might be relocated. Before year 2009, the stock level of Injectable and IUD at upazila level remained 2 months which was below the minimum stock level and that of oral pill that was just the minimum stock level.

After the use of SCMP, the decision making was more vivid in procurement, supply, issue and relocation etc. of commodities and thus all the supplied commodities in upazila level are above minimum stock level position i.e. 15-28 months.

**Section 4: (For all)**

**Question 4.1.** In your opinion, what are the challenges in implementing SCMP?

Response:

<b>Options</b>	<b>No.</b>
Poor internet connectivity	10
Network, computer infrastructure	5
Lack of computer competency of officials	5
Lack of skill manpower	5
Lack of user-friendliness of SCMP software	4
Electricity	1
Acceptability of new system	3
Lack of awareness	3
Logistic support	2

**Question 4.2 and 4.3.** Any other suggestions regarding the possible ways of improvement in SCMP to further reduce lead time and cost. Any other suggestions regarding the possible ways of further risk reduction in the supply management.

Response: Some respondents i.e. Desk Officers said that the portal could generate some more reports which the procuring entities usually report to higher authorities, ministries quarterly and they will not require to produce reports manually. If the Portal becomes more user-friendly, the fear to log in Portal will be reduced and GOB officials /staff will more own the portal and the use the portal as data for decision making and will save time of officials and staffs.

Also, SCMP might have the options like SMS alerts. So whenever a task in SCMP would be pending at a level like alert on pending of submission/approval of procurement plan , ‘zero stock’ etc.; the concerned person will get SMS alert in his/her mobile; in this way SCMP would be more popular as more and more people will log in the system and use it.

Moreover, procurement officials shared that Specification development for medium to high-tech equipment take a lot of time in the tendering process and this activity is sometimes the factor of higher lead time of procurement process. Thus, the Product Catalog should be richer with updated specification with a wide range of products, so that the procuring entities

can be benefitted from MOHFW SCMP and lead time in stage 3 i.e. stage of IFB is expected to reduce further. Also, during interview with Line Directors, it came out that they require more user-friendly user manual of SCMP for their quick and easy access.

#### **4.4 Conclusion:**

The data collected has been presented in this chapter. In the following chapter, I shall analyze the data and make an analytical presentation in line with the equations presented in section 3.9 to find answers to the research questions.

## Chapter Five

# ANALYSIS

### 5.1 Introduction

The answers to the research questions, “ Does Supply Chain Management Portal create impact in supply chain performance along the chain? What may be the possible improvements of Supply Chain Management Portal (SCMP)?”are sought after in this chapter with the help of the data collected through the interviews and presented in the previous chapter.

Regarding the research question, it is quite apparent that there are four major areas which are causing unnecessary delay in weeks which can be avoided according to the suggestions of the interviewees. As per discussion, the factors that cause delay are frequent change of procurement plan by Line directors which affects other procurement proceedings, un-realistic cost estimate and prior engagement of clinicians who are also part of specification committee (stage1),development& approval of specifications during IFB stage and Tender evaluation committee and Technical sub-committee’s lack of thorough knowledge and technical know-how on subject matter i.e. evaluation (stage3), technical evaluation as a part of tender evaluation (stage 4), delay in processing of fund from concerned section at the time of L/C opening (stage 5) came out.

The challenge of this thesis work is to quantify the unnecessary expenditure which can be avoided through the increasing of efficiency through less time spent in various activities of the tendering process as mentioned above.

From the interview, it was clear that the more frequent use of SCMP would tend to reduce risk caused by stock-out of contraceptives at the field level and more visibility in supply chain process.

The steps presented through the analytical framework in section 3.9 are used to quantify the benefits of avoiding unnecessary delay, expenditures and avoidable stock-outs.

## **5.2 Quantifying the Benefits:**

### **5.2.1 General information of the interviewees:**

The selection of the interviewees ranged from officers of four posts, namely, Line Directors, PLMC members, Desk Officers, UHFPOs and Desk In-charges. The major emphasis of this thesis work is concentrated on the tendering process of L & S unit and CMSD, which is mainly the concern of the Desk Officers. Hence, a major portion of the interviewees are the Desk Officers. The other interviewees ranging from Line Directors to Desk In-charges are for the purpose of triangulation as discussed in section 2.3.

The following assumptions are done in the selection of desk officers as interviewees;

- a) The desk officers are directly linked with the tendering process who know the Tendering like the back of their hands.
- b) The total number of interviewees is 20 out of which 12 are of the post of desk officers which mean that 60% of the interviewees are desk officers, who are considered vital information providers for the research.

### **5.2.2 Lead time savings**

The information presented in Table 4.2 has been used to analyze the lead time savings related to process efficiency as suggested by the interviewees. The data of FY 2011-12 and FY 2014-15 were considered for analysis. In FY 2011-12, the lead time of procurement was 78 weeks. In 2014-15, the lead time of tendering process is reduced from 78 weeks to 52 weeks. Firstly in stage 1, the reduction of 130 weeks is due to 32 Line Directors' developing annual plan using SCMP and approval from ministry /development partner also through SCMP; in stage 2, the reduction of 2 weeks is due SCMP's automated generation of consolidated plan which was done through manually; in stage 3, reduction of time of 24 weeks due to use of Product Catalog (used as Specification database) of SCMP which helped desk officers to retrieve standard specification from the portal and they used those specifications in standard bidding

documents; in stage 4 the reduction of 8 weeks was possible as data in SCMP helped to find out bottlenecks in evaluation stage which is always the most critical part of a tendering process and finally in stage 5, the time savings of 16 weeks was possible as some funding issues were resolved using information from SCMP. This is shown through graphical presentation below;

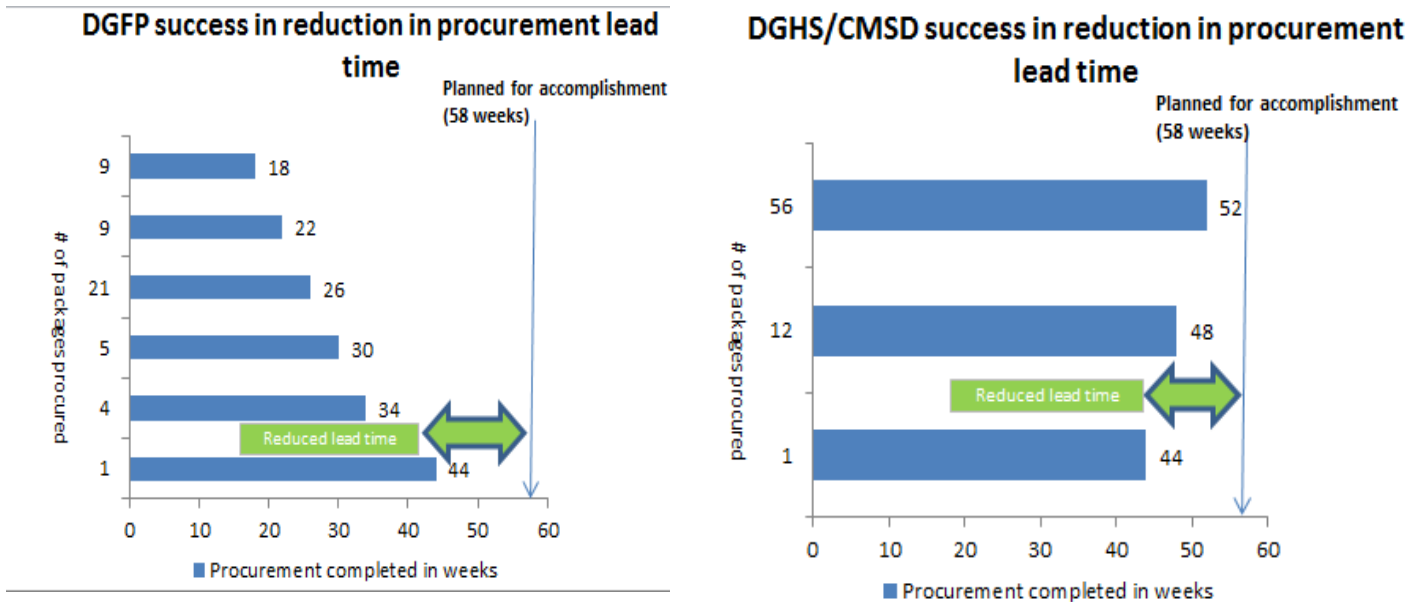


Figure 5.1: Package wise reduction of lead time in Tendering Process

### 5.2.3 Cost savings due to time savings:

The information presented in Table 4.2 has been used to analyze the cost savings that can be made due to time savings related to process efficiency as suggested by the interviewees.

In table 5.1, the weekly salary of the officers involved at various stages of the tendering process is calculated on the basis of the national pay scale 2015. The monthly basic salary is used for the purpose of calculation and also, it is assumed that every officer draws salary at the initial level of the corresponding scale just to be on the conservative side. Then the monthly salary is divided by 4 to get weekly salary.



Table5.1

Weekly Salary of Officers Involved( according to national payscale2009)		
Officer	Monthly Salary(Taka)	Weekly Salary(Taka)
Director	100,000	25,000
Program Manager (PLMC)	75,000	18,750
Desk Officer	50,000	12,500
Desk In-Charge	25,000	6,250

Using the weekly salary from table5.1 and with the help of the information of table 4.2 and equation of table3.3, the cost savings due to time savings are calculated as follows;

Table5.2: Total Cost Savings

Cost savings per year due to time savings				
Stages	Officer(s) involved	Time savings in weeks	Weekly Salary of officer	Cost Savings (Taka)
1. Average number of weeks required to prepare and approve a plan by Line Director	17 Line Directors of DGHS	$4 \times 17 = 68$	25,000	17,00,000
	7 Line Directors of DGFP	$4 \times 7 = 28$	25,000	7,00,000
	8 Line Directors of MOHFW	$4 \times 8 = 32$	25,000	8,00,000
	1 PM/PLMC & DPM/PLMC	$1 \times 2 = 2$	18,750	18,750
2. Average number of weeks required to approve consolidated plan by L & S unit / CMSD	Monitoring Desk Officer of DGFP & DGHS	$1 \times 2 = 2$	12,500	25,500
3. Average number of weeks required to invite tender after the approval of the estimate ( 16 desks)	Desk Officer	$1 \times 16 = 16$	12,500	2,00,000
	Desk In-Charge	$0.50 \times 16 = 8$	6250	50,000

4. Average number of weeks required to approve the successful bid by the higher authority	Desk Officer	$0.50 \times 16 = 8$	12,500	1,00,000
5. Average number of weeks required to sign the contract with the successful bidder and L/C opening	Desk In-Charge	$1 \times 16 = 16$	6250	44,000
Total cost savings per tender package due to time savings per				36,94,000
Total cost savings in CMSD per year (100 packages in CMSD/year)				36,94,00,000
Total cost savings in L & S unit per year (40 packages in L & S unit /year)				14,77,60,000
Total savings from two entities per year				51,71,60,000
Cost incurred for software maintenance per year				48,00,000
Net cost savings per year				<b>51,23,60,000</b>

**Note:** There are 32 line Directors in MOHFW; 17 Line Directors under Directorate General of Health Services, 7 Line Directors under Directorate General of Family Welfare and 8 Line Directors under Ministry of Health and Family Welfare. In L & S unit and CMSD, there are 16 desks in total working in procurement section.

### 5.2.4 Risk reduction and due to continuation of supply at field:

The information presented through Figures 5.2 and 5.3 have been used to analyze the risk reduction that can be made due to continuation of supply at field as suggested by the interviewees.

The below figures show that implementation of the electronic tools has had three major effects:

- Generates timely national logistics reports (currently 15 days vs. previous 3 months)
- Stock-outs have been reduced
- Data are used to make more informed-decisions

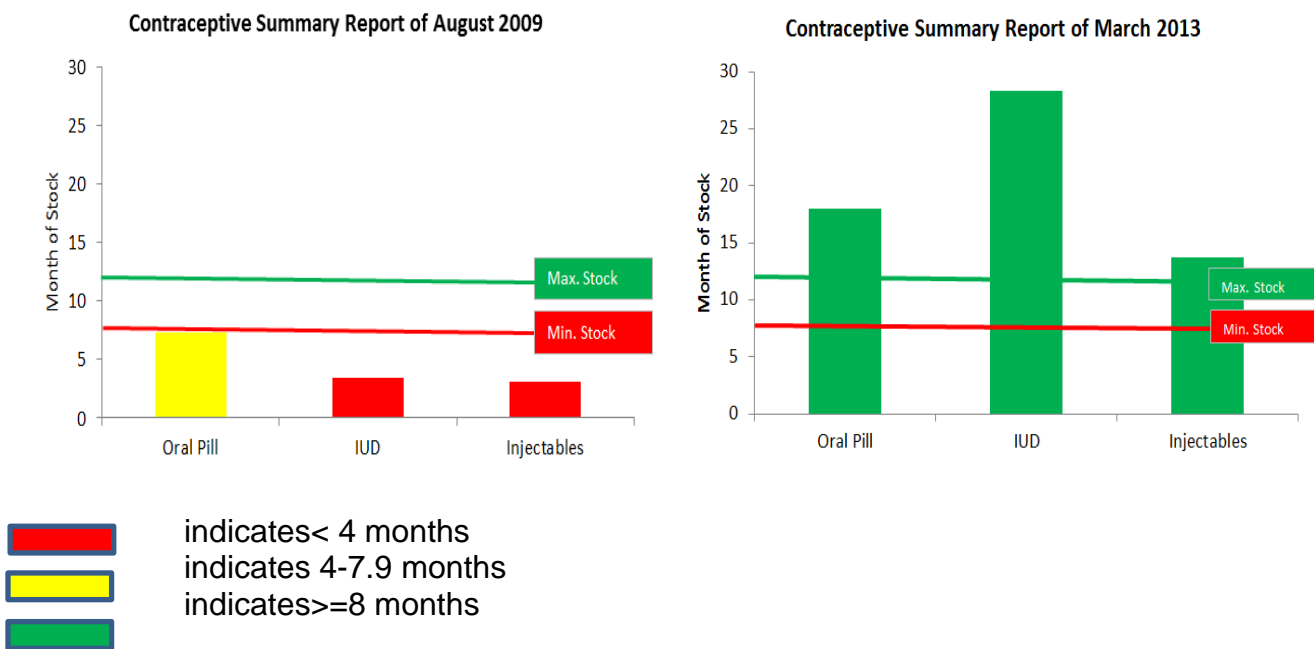


Figure 5.2: Contraceptives stock summary

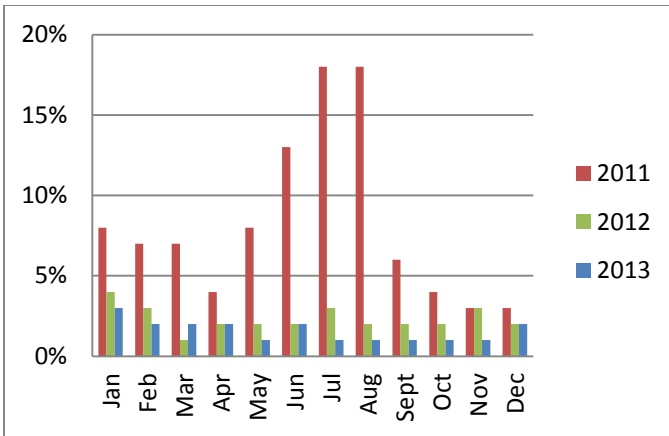


Figure 5.3: Percentage of stock outs on implants from 2011-2013

### 5.2.5 Demand based Procurement Planning established:

Availability of data for decision making has led to more accurate information, better coordination among stakeholders and improved supply planning. One vivid example is that it was revealed from web-LMIS report that around 3.8 Million AD syringes are lying in excess of Injectable in different warehouses including Service Delivery Points (SDP) level whereas L & S unit of DGFP had planned to procure additional AD syringes in FY 2012-13. As follow-on, the annual procurement plan of FY 2012-13 for the syringes was revised in procuring syringes and finally it was decided to procure 2 Million AD syringes less which led 12MillionTaka (USD 0.15Million) savings. Similar case happened in FY 2013-14 which resulted to procure implant rod 50,000 pcs only instead of 460,000 amounted 656 Million Taka (USD 8.3 Million) savings.

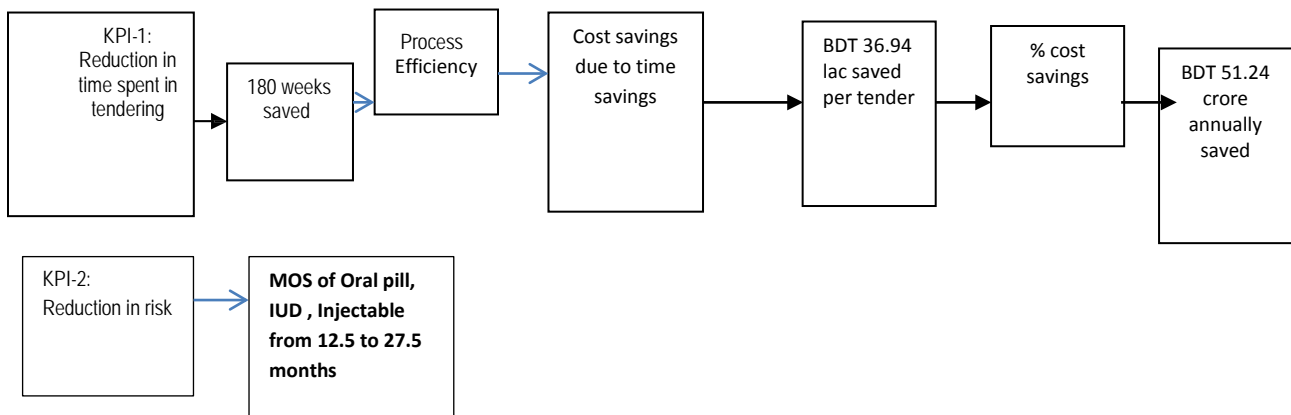


Figure 5.4: Analytical Framework

Thus, the use of SCMP has brought reduction of tendering processing time at different stages of 180 weeks. This time savings was converted in cost savings. As there are a lot of engagement of GOB officials from the very high Officials i.e. Line Directors to Officials at Operational level i.e. Desk Officers, Program/Deputy Program Managers and up to staff of lower level i.e. Desk –In-Charge/Desk-Assistants, this cost savings was found substantial. Considering the current scale of salary and the number of procurement packages of the two major procuring entities i.e. Logistics and Supply (L &S ) unit and Central Medical Stores Depot (CMSD) , it was derived that the use of SCMP contributed around BDT 37 lac savings per tender which ultimately made savings of BDT 52.24 crore in a year. Besides, SCMP has ensured better stock control situation of supplies with minimum –maximum stock level. Earlier before using SCMP the commodities were either below or at the minimum stock level, now the stock situation of contraceptives can be secured for a safer period i.e. 12.5 to 27.5 months.

### 5.3 SCMP Improvement Areas:

The below suggestions on possible improvement areas came out from interviews:

- Provision of generation of more reports, SMS alerts as per requirement of GOB
- User friendly User Manual of SCMP
- Update/standardize Specifications of Product Catalog

## Chapter Six

# SUMMARY AND CONCLUSION

### 6.1 Conclusion:

Based on the questionnaire survey, key informant interview and analysis; following conclusions are drawn regarding the use of Supply Chain Management Portal (SCMP) in creating impact in supply change performance in MOHFW:

- SCMP has significant positive impact on the total time required for procurement of goods. SCMP has shortened tender processing time and has helped for timely completion of procurements of goods.
- SCMP has reduced the cost of tendering process.
- SCMP has created a positive platform to use data for decision making to avoid interruption of supply and better stock situation.
- More use of SCMP will help to make effective Procurement Plan by Line Directors.
- Some updates/improvement in SCMP and availability of infrastructure /facilities may help to make SCMP more popular among users.

### 6.2 Future Policy issues:

As from responses against questionnaire 4.2 and 4.3, it is seen that development of Specifications is a real challenge, the procuring entities can use the specifications entered in product catalog of SCMP and can be benefitted. Thus the higher authority level /decision makers can have some kind of policy recommendations that the Portal Specifications will be used as a reference Specifications in the tendering process of procuring entities and Specifications should be updated /standardized at definite interval by a designated committee .

Also, As SCMP is developed to increase the visibility and accessibility of data at all levels from the desk officers to policy makers, this media can be used for data for decision

making for policy makers and an effective monitoring tool to track procurement packages. Thus for the sustainability of Portal MOHFW should keep budget provision that will cover its continuous staff development, maintenance and trouble-shooting costs , hiring competent IT firm etc.

### **6.3 Scope of Future Studies:**

This type of research work has not been previously undertaken in any Government departments in Bangladesh and definitely not in MOHFW. As a result, there are many scope of further future studies to fine tune the findings of this research as well as open new areas of study;

- a) A comparison between different Government departments/entities which does similar nature of procurement maybe done.
- b) Year wise study could be done to measure the differences between the findings of the different years. This time average of two years data was used.
- c) A similar study could be done on procurement under development and revenue budget as this research is confined only in Reimbursable Project Aid (through GOB) .Like ways, procurement of works or services were not considered too.
- d) Only traditional tendering method of procurement of commodities has been studied. Direct procurement or procurement through quotation has not been investigated.

### **6.4 Final Words:**

Through this research work, it has been tried to establish the particular areas of unnecessary delays, expenditure that occurs during the tendering process in procurement of commodities in MOHFW. Also, the stock situation of contraceptives causing risk and data availability causing more visibility in supply chain was tried to dig out. Also, by an analytical presentation it has been made easy for everyone to understand the possible amount of lead time and cost savings that can be made which eventually will go a long way in ensuring justifiable value for money for public sector tendering process.

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# Annexure A

## Questionnaire

*Topic of Dissertation: "Supply Chain Management Portal and its Impact on Supply Chain Performance in Ministry of Health and Family Welfare: An Assessment"*

Name: *Fatema Samdani Roshni, MCIPS, Consultant- MOHFW*

### 1. General:

1.1 Name of the department:

-----

1.2 & 1.3 Office name, respondent's name and cell number:

-----

1.4 Experience in public procurement:

-----

### 2. Information regarding Procurement:

2.1 Average number of weeks required to prepare and approve a plan by Line Director:

Officers involved

Wks required

a) Director-----

b) PM/DPM-----

c) DO-----

d) D I C -----

2.2 Average number of weeks required to approve consolidated plan by L & S unit/CMSD:

Officers involved

Wks required

- a) Director-----
- b) PM/DPM-----
- c) DO-----
- d) D I C -----

2.3 Average number of weeks required to invite tender after the approval of the plan:

Officers involved                      Wks required

- a) Director-----
- b) PM/PLMC-----
- c) DO-----
- d) D I -----

2.4            Average number of weeks required to approve the successful bid by the higher authority:

Officers involved                      Wks required

- a) Director-----
- b) PM/DPM-----
- c) DO-----
- d) D I -----

2.5            Average number of weeks required to execute the contract with the successful bidder

Officers involved                      Wks required

- a) Director-----
- b) PM/DPM-----
- c) DO            -----
- d) D I -----

2.6    How often do you visit SCMP?

.....

2.7    Is SCMP user friendly or difficult to use?

.....

2.8 How do you use data of SCMP in decision making in tendering process?

.....

2.9 Your Knowledge level about SCMP (Put Tick✓ any one)

I have clear understanding

I have idea, but need training to know more

I know about, but don't know details

I have no idea

.....

3.1 Current time taken to produce Logistics reports (e.g. 7B template) in LMIS. What was previous situation in reporting before introduction of SCMP?

.....

3.2 Have you faced stock out in the last five years?

.....

3.3 Minimum and maximum stock position of major contraceptives in the last five years

.....

4.1. What are the challenges in implementing SCMP? (Put Tick✓ one or more)

Options	✓
Poor internet connectivity	
Network, computer infrastructure	
Lack of computer competency of officials	
Lack of skill manpower	
SCMP software problem	
Electricity	
Acceptability of new system	
Lack of awareness	
Logistic support	

4.2. Any other suggestions regarding the possible ways of improvement in SCMP to further reduce lead time and cost.

.....

4.3. Any other suggestions regarding the possible ways of further risk reduction in the supply management.

.....

Thank you for your kind cooperation.

N.B. 1. DIR : Director/Line Director, PM : Program Manager, DO : Desk Officer, DI : Desk In-Charge

N.B.2. In steps 2.1 to 2.5, the number of days required and the possible reduction in number of days are to be provided for individual officers involved in that stage.