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U.S. Agency for International Development
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Project #386-0531-3-30069
Contract #386-0531-C-00-5010-00

Task Order No. 001: SCHIL, National Clearance and Depository System

NCDS Request for Information
Stock Holding Corporation of India Ltd.
June 1995

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July 7, 1995

Mr. Jon O'Rourke
USAID/New Delhi
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New Delhi 110 021
India

Ref.: Contract No. 386-0531-C-00-5010-00
Task Order #1 - Stock Holding Corporation of India Limited, National Clearance and Depository System

Dear Mr. O'Rourke:

Re: Request For Information document

Enclosed please find the first deliverable under T.O. #1 for the Stock Holding Corporation of India Limited (SHCIL). This is the Request For Information (RFI) for issue to prospective vendors of systems infrastructure for the National Clearance and Depository System (NCDS).

The RFI invites information from vendors of products and services who have the necessary expertise to be able to create the information systems which would support the NCDS. The terms of reference and evaluation criteria have also been outlined in the RFI. Vendors are expected to submit their responses by July 27, 1995.

It has been a pleasure working with SHCIL and USAID/New Delhi on this assignment. Price Waterhouse and its consultants are grateful to all the various persons that assisted in preparing this document.

We look forward to continuing the work and doing whatever we can in order to make the NCDS as envisaged a reality.

Sincerely,

J. Richard Breen
Director, FIRE Project

SHCIL

Stock Holding
Corporation of India
Limited

NATIONAL CLEARANCE AND DEPOSITORY SYSTEM

REQUEST FOR INFORMATION

STOCK HOLDING CORPORATION OF INDIA LTD.
JUNE 1995

PREFACE

The Stock Holding Corporation of India Limited (SHCIL) is an organisation promoted by the following financial institutions:

- Industrial Development Bank of India
- Unit Trust of India
- Life Insurance Corporation of India
- Industrial Credit and Investment Corporation of India
- Industrial Finance Corporation of India
- Industrial Reconstruction Bank of India
- General Insurance Corporation and its subsidiaries

SHCIL has a mandate from the Government of India to establish a Clearing and Settlement system, a Securities Depository and a Securities Facilities Support Corporation. To implement this mandate, SHCIL has promoted the National Depository Corporation of India Ltd., (NDCIL). This Request for Information (RFI)is floated by SHCIL on behalf of NDCIL.

The Request for Information invites information from a selected number of organisations believed to have the necessary experience and skills to be able to create and implement the computerised systems to establish a framework for the Clearance and Depository System (CDS) and its supporting infrastructure.

The remainder of this document outlines the requirements of CDS and the commercial conditions relevant to the acquisition of the system.

This document is intended for the sole purpose of enabling vendors to propose their solutions for the clearing and depository systems to SHCIL. Since SHCIL's commercial plans and objectives are, in part, outlined within this document, vendors are required to keep the contents of this RFI confidential and they are not permitted to disclose its contents partly or fully, to any third party without the written permission of SHCIL.

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CHAPTER 1

INTRODUCTION

This document forms the Request for Information on the ability of your company to satisfy the software needs for the Clearance and Depository System (CDS) for the National Depository Corporation of India Limited (NDCIL).

1.1 The Securities Markets In India

The securities markets in India are based on a 200 year old history of financial and commodity trading. However, the securities markets, as a whole, have not yet achieved their rightful place in the economy and market capitalisation still remains at about 10% of the country's gross domestic product.

The early nineties have brought many new investors, who have gained confidence in the economy of the country. This has led to a massive growth in both the primary and secondary equities markets. As a result, the systems being used to perform the registration, clearing and settlement functions have all been severely strained. This growth has also served to magnify disproportionately the risks that have always plagued the system.

To address these problems, the Government of India has mandated the creation and implementation of computerised book entry systems to establish a framework for national clearing, settlement and depository services. This has paved the way for the creation of the Clearance and Depository System by SHCIL.

1.2 The Clearance and Depository System

CDS is an integrated system, comprising the following:

- Trade Comparison and Reporting System (TRS)
- Clearing System (CS)
- Depository System (DS)

TRS will firmly establish the terms and conditions of a trade. TRS will ensure that both the buyer and the seller have the same understanding of the price, quantity and other terms and conditions of the trade.

CS will ensure that settlement can take place nationally on a standard basis by preparing the trades for depository settlement.

DS will provide for transfer of ownership of securities, in exchange for payment or free, by book entry on ledgers of DS without any physical movement of scrips.

A User Front-End System (UFS) has been conceived to provide the sole interface between participants and the system.

CHAPTER 2

AN OVERVIEW OF THE REQUEST FOR INFORMATION

2.1 Purpose of the RFI

The purpose of this RFI is to define the business requirements which will focus the automated clearing and depository system to a level of detail that will enable the NDCIL to:

- Identify appropriate software solution(s) to implement CDS

Responses to the RFI may form the basis for the contract between the supplier and SHCIL for the acquisition and provision of software solutions in the CDS arena.

2.2 Scope of RFI

The RFI outlines the technical and business requirements of CDS. Specifically, it covers the following:

- Business requirements
- Supplier background
- Evaluation methodology
- Commercial conditions

Each element is discussed in detail in the chapters that follow.

Although this document discusses the functions of CDS, it in no way claims to be the functional specifications of CDS. SHCIL envisages consultancy included for further definition and refining of business requirements before arriving at the functional specifications.

2.3 Response to RFI

At this stage, the responders should assume that their responses will be used to short-list them for a detailed discussion, possibly leading to the award of a contract. The vendor will be required to provide, adapt, test, install, commission and supply training and support services for the software. The software should realize the full clearing and depository system functionality of CDS.

Responders are requested to specifically answer all the questions presented under the "Response" sections of this document. In order to maintain consistency, responders with more than one solution, should select one system only and limit their comments to that system.

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Alternatively, they may submit separate RFI responses for each solution they propose.

Vendors are requested to submit their response separately in the following parts:

- Introduction
- Technical Response
- Management Response
- General Response
- Financial Response

2.3.1 Introduction

This section of the proposal should introduce the responder's proposal and provide an executive summary covering all sections of the response.

2.3.2 Technical Response

The technical response submitted should clearly demonstrate the vendor's understanding of the requirement and competence to undertake the project. Vendors description of how their software solution fulfills the expressed and implied requirements covered in Chapters 3 to 9 of this document alongwith responses to specific queries contained in each chapter will constitute the Technical Response. Care should be taken to distinguish between currently available software, software under development and software which would have to be developed from scratch.

2.3.3 General Response

The general response should include any additional information which has been requested in this document or that the responder considers as necessary or appropriate but is not included in any of the other sections.

Answers to questions in Chapter 10 of this document would constitute the general response.

2.3.4 Management Response

The management response would address the following points :

Proposed staffing
Proposed time schedule
Proposed project management and controls

Answers to queries found in Chapter 11 of this document would form the basis of the management response.

2.3.5 Financial Response

The Financial response will consist of :

- # Price Response
- # Estimated Total Price
- # Price Breakdowns
- # Method of Payment.

- The Financial proposal will be built around the answers to queries contained in the Chapters 12 & 13 of this RFI.

2.3.6 Format of Responses

Vendors are required to submit their responses in the following format:

- # Standard A4 size paper printed on only one side.
- # All papers should be in Ring binders, such that the sections of the response can be detached, if necessary
- # All the handouts to be placed in a separate folder.
- # Vendors should also submit their responses on floppies if possible (using either WordStar 6.0(DOS) or MS-Word(Windows)).

2.4 Evaluation Procedures

All responses to this document will be subjected to a detailed and comprehensive study by the SHCIL staff with the view of developing a shortlist of prospective suppliers of the CDS software . Suppliers on the shortlist will be invited to explain their solutions in greater detail. After any required site visits and/or reference checks, the shortlist may be shortened further and, final fixed priced bids will be entertained.

SHCIL would be interested in hearing about any back office system you may have available to interface with the planned CDS. This may continue to be treated as a separate requirement or eventually folded into the final requirements and subsequent contract.

2.5 Other Terms and Conditions

Vendors should note the following points when submitting their responses:

- Three (3) complete copies of all the responses must be submitted by hand or post to

Mr Nirmalendu Jajodia,
Asst. Vice President (Automation),
Stock Holding Corporation of India Limited,
Glaxo Bldg, No. 72, Plot No.248/B,
Sudam Kalu Ahire Marg, Worli, Bombay-400025.

Phone: 91-22-4928071,91-22-4928336,91-22-4954722
Fax:91-22-4928846.

not later than 17:00 hrs.(I.S.T.) on Thursday 27 July 1995 .

- The cost of preparing the response to this RFI will be the responsibility of the supplier and SHCIL will not be liable for any costs incurred by the vendors.
- All responses must be in English.
- Extension to the submission time may be granted at the sole discretion of SHCIL.

2.6 Contact Details

Should suppliers require any further information or clarification, they should direct their requests to: -

Mr Nirmalendu Jajodia,
Asst. Vice President (Automation),
Stock Holding Corporation of India Limited.
Glaxo Bldg, No. 72, Plot No. 248/B
Sudam Kalu Ahire Marg, Worli,
Bombay - 400 025.

Phone : 91-22-4928071, 91-22-4928336 , 91-22-4954722
Fax : 91-22-4928846.

Mr. J.Viswanathan
Sr.Vice President (Automation)
Stock Holding Corporation of India Ltd.
Mittal Court , B wing, II floor
Nariman Point,
Bombay - 400 021

Phone : 91-22-2045483/84/85, 91-22-2855500
Fax : 91-22-2027211
91-22-2027202

CHAPTER 3

CLEARANCE AND DEPOSITORY SYSTEM

3.1 Overview

The Clearance and Depository System (CDS) will consist of the following major systems:

- Trade Comparison and Reporting System (TRS)
- Clearing System (CS)
- Depository System (DS)

A user interface with CDS will be provided through a User Front-End System (UFS).

CDS will determine upon the eligibility of securities for inclusion. Thus information pertaining to selected securities only will be accepted by the system.

3.1.1 Trade Comparison and Reporting System

The function of the TRS will be to firmly establish the terms and conditions of a trade after execution in the securities markets, on a national basis.

Initially, the trade is executed, which is the activity of a securities owner selling securities to a buyer. This is done through brokers who represent the seller and the buyer on the floor of a recognised stock exchange. Brokers can also be the principal traders, trading on their own holdings.

After trade execution, TRS will ensure that both the buyer and the seller have the same understanding of the price, quantity, and other terms and conditions of the trade. To do this, TRS will accept unmatched records of trade executions for trade matching and reporting. In addition, it will be designed to accept locked-in trades and settlement orders from exchanges.

The principal output of TRS will be matched settlement orders which will be input to CS.

3.1.2 Clearing System

The function of CS will be to ensure that clearing can take place nationally on a standard basis. If a security is eligible for depository settlement, the settlement order will be prepared for entry to the DS. If not eligible, for depository processing the settlement order will be reported to the trade submittor for ex-DS settlement. There may be a requirement to sent the settlement order to another recognised settlement agency.

3.1.3 Depository System

The primary function of DS will be to provide for transfer of ownership of securities in exchange for payment or free, by book entry on electronic ledgers of DS without any physical movement of scrips.

The functions of DS would be to:

- Maintain record of participants' holdings
- Record Deposits, Withdrawals, Free Transfers and Book Entry Settlement against Payment
- Record Pledges (hypothecation)
- Provide Beneficial Owner details to registrars and assist in distribution of benefits as a result of Corporate Actions
- Record Corporate Actions resulting in change of positions
- Maintain Cash and Security Collateral
- Facilitate Securities Lending

All settlements in DS will be made on a trade by trade basis. DS will not net trades before settling them.

3.1.4 User Front-End System

It is envisaged that all entities will interact with CDS on an on-line mode and would do so through a User Front-End System (UFS). Hence brokers, individual investors, registrars and other participants would interact with CDS through a UFS.

The interaction between CDS and UFS will be through messages only and no direct update facility will be provided on CDS through UFS.

3.2 Objectives

CDS will seek to create an efficient clearing, settlement and depository environment trying to do the following:

- To liberate the Indian securities markets from the paperwork gridlock.
- To reduce paper handling costs in capital markets.
- To eliminate the inordinate delays in the process of registration and transfer of securities.

- To implement an achievable clearing, settlement and depository solution at local and national level which is inexpensive to develop and maintain.
- To substantially reduce the risks associated with current Indian settlement practices and reverse fears concerning the integrity of the Indian capital markets.
- To standardise Indian settlements practice.
- To implement a solution that meets medium to long-term international standards.
- To follow the Group-30 recommendations and ultimately provide an international gateway to foreign depositories.
- To increase the growth potential of Indian capital markets.

3.3 Concepts

3.3.1 Depository Eligible Securities

Securities that have been selected by CDS as eligible for settlement within CDS will be termed Depository Eligible Securities.

The norms and rules for a security to be depository eligible will be decided by CDS.

Individual securities will be made depository-eligible as rapidly as the system develops the capacity to handle greater volumes.

Securities recorded in the CDS which are not eligible for settlement, will still be eligible for trade comparison and clearance services.

3.3.2 Investor

An investor is one who invests funds directly or indirectly in the capital or money market. The investor could be an individual or an organisation.

3.3.3 Participant

An external entity involved, directly or indirectly, in the functional operations of CDS will be termed a Participant.

3.3.4 Depository Participants

CDS will provide depository services to all persons / organisations meeting the membership norms laid down by CDS. Depository Participants (DPs) will be members of CDS legally permitted to initiate settlement, transfer of ownership and other related securities transactions with CDS on behalf of beneficial owners. DPs will include:

- Stock exchanges
- Brokers

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- Custodians
- Investment banks/Portfolio Managers
- Insurance companies
- Mutual Funds

A Stock exchange or other designated entities may act as Sub-Depositories. This is sometimes referred to as having an omnibus account in the DS.

Other DPs who will be able to communicate with CDS, access information pertaining to them and perform designated functions with CDS will include:

- The Bankers to DS
- The Bankers to Participants
- Government Regulatory bodies
- Registrars/Transfer Agents
- Issuers of Securities

In order to qualify as a DP, aspirants will have to satisfy stringent criteria including capital adequacy norms. They will also have to adhere to strict rules and regulations pertaining to various aspects of the securities business.

3.3.5 Safe Custody Account (SCA) for Depository Participants

CDS will provide DPs with accounts to record holdings of securities.

An investor interested in using the services of CDS in trade settlement must do so by attaching itself with a DP, i.e., conducting all operations through the DP's SCA. The required sub-accounting necessary to keep the DP holdings separate from the investors is the responsibility of the DP. The sub-account records do not exist in the DS data-base. (See Chapter 9 for greater details)

Every SCA will principally contain two positions: Holding and Trading. Only securities present in the Trading position will be eligible for settlement. Hence, the settling party will have to move holdings from the Holding to the Trading position prior to settlement, and conversely all trading to holdings at the end of settlement. There may be more such positions in the account e.g. blocked.

3.3.6 Sub-account for Investors attached to a DP

- The DP will have to maintain an accounting procedure within itself, where it will record all the holdings and transactions it conducts on behalf of its clients (investors) as well as itself. This accounting will be termed Sub-accounting of the DP. Thus investors will have their holdings of securities recorded in sub-accounts of the DP. These will be reflected at CDS in the holding position of the DP. The DP holding position represents the combined total of all sub-accounts logically attached to the specific DP.

It will be the DP's responsibility to know its customer, i.e. the sub-account holders. An investor may hold more than one sub-account with one or more DPs.

The DP will normally have automated facilities to maintain records of securities holdings for each client in these sub- accounts.

The structure of accounts with CDS is illustrated by the diagram on the following page.

3.3.7 Sub-depository

Any stock exchange with a clearing house may be permitted to act as a sub-depository. The members of the clearing house will be the sub-depository participants(SDP). A sub-depository participant may have sub-accounts. In essence the relation between the sub-depository and a sub-depository participant is exactly analogous to CDS and a DP. A SDP is permitted to hold a DP account also.

A sub-depository can clear and settle trades between its members. Any trades for which one of the settlors is a DP in CDS will be passed on to CDS. The sub-depository in this case acts as a counter-party on behalf of the SDP. A sub-depository will be expected to collateralise the trades in case it is a purchaser and provide securities if it is a seller. Specifically, the sub-depository represents the aggregate of the SDP accounts. For settlement purposes CDS sees the sub-depository as any other DP.

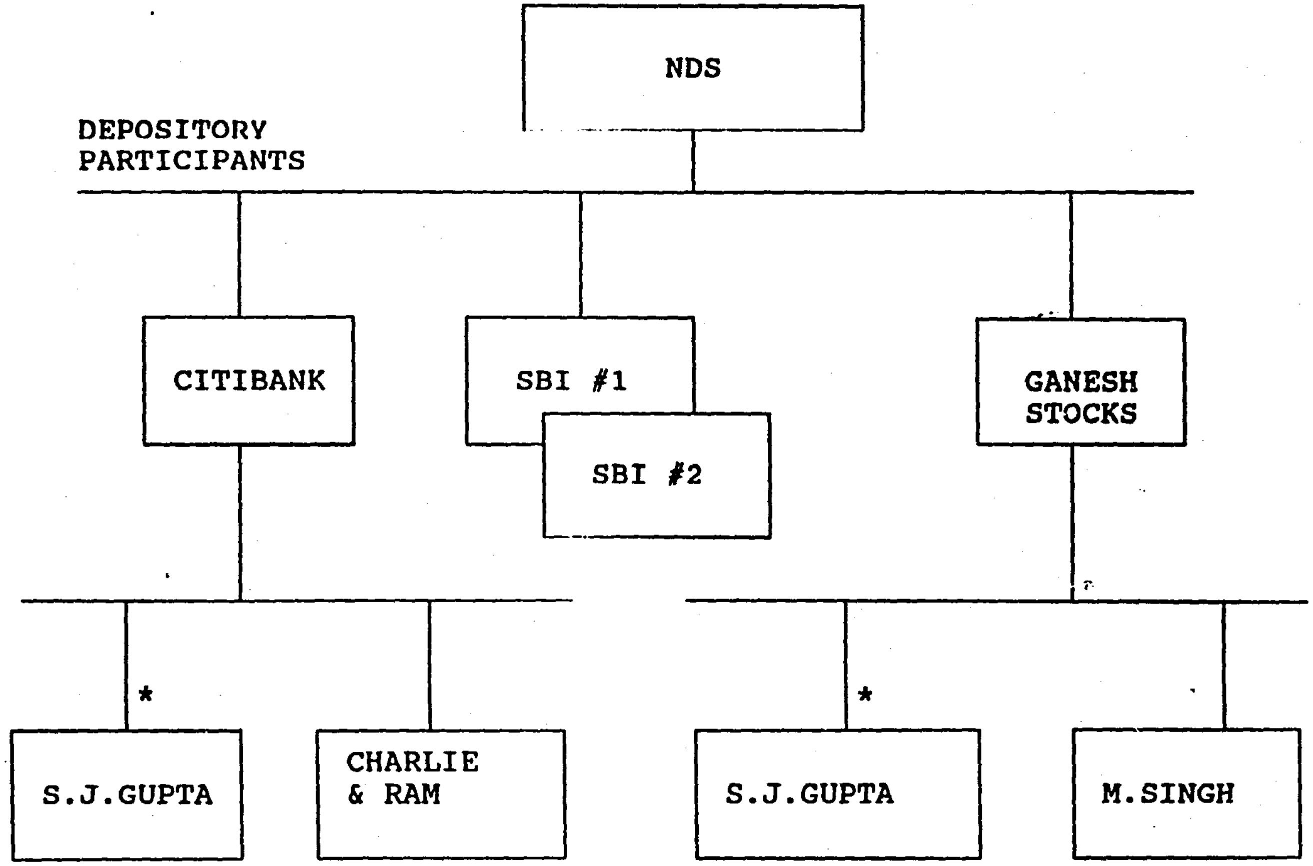
A sub-depository may settle trades between its members either on a trade by trade basis or follow a netting procedure. It must however submit all trades to CDS on a trade by trade basis.

3.3.8 Nominee Name

The holdings in the depository are registered in a nominee name in the Register of Members of the companies.

The beneficial ownership vests with the DP and/or holders of its Sub-Accounts.

NATIONAL DEPOSITORY SYSTEM
PARTICIPANTS AND INDIVIDUAL INVESTORS


NDS
DEPOSITORY PARTICIPANTS
CITIBANK
SBI #1
SBI #2
GANESH STOCKS
*
*
S.J.GUPTA
CHARLIE & RAM
S.J.GUPTA
M.SINGH

* These accounts are not linked

//

3.4 Trade Comparison and Reporting System

TRS will receive trade details from Stock exchanges and DPs.

These trade details (inputs) will be referred to as Trade Settlement Orders. The Stock exchanges and the DPs may be located anywhere in India.

The Stock Exchanges may send in trade details in a matched or unmatched form, depending on the trade matching facilities available. DPs may also send in trade details in a matched or unmatched form.

When a Trade Settlement order is received, TRS will

- accept it
- match it (if it is unmatched)
- Report on acceptance and matching status
- Allow cancellation of matched under controlled circumstances
- Allow modification of matched inputs,non key data

The output from TRS will be a settlement order to CS.

3.5 Clearing System

CS will receive settlement orders from TRS. CS will report participant-wise settlement obligations for securities and cash.

CDS will have a rolling settlement cycle where the number of business days in the settlement cycle will be dictated by the security type.

On settlement date, CS will either send depository settlement orders to DS or if not depository eligible to submittors for settlement .

3.6 Depository System

3.6.1 Concepts

DS's primary objective will be the transfer of ownership of securities through book entry movements on electronic ledgers, without any physical movement of scrips.

The manner in which DS operates is best illustrated by comparing the process that takes place now with the one that would occur in a simple depository environment.

3.6.1.1 Trade and Settlement

At present, when trading takes place, the seller delivers the scrips sold to the buyer and receives payment in return. (This transaction is effected through brokers who represent the buyer and the seller working within the systems established by the stock exchange for recording and comparing the trade, settlement and so on).

In the simple depository system, accounts of shares of each participant will be maintained electronically on computers. Accounts for funds will be similarly maintained. Trade settlements will take place by book entry debits and credits made to these records; the number of shares traded will be added to the buyer's account and deducted from the seller's account. Funds will be simultaneously transferred from the buyer to the seller in the same manner, adding and deducting the value of the transaction from the respective money accounts.

3.6.1.2 Transfer of Ownership

At present, after a trade, the buyer of the scrip is required to have it transferred to its name by the Share Registrar/Transfer Agent of the issuing company (a process requiring several months).

In the depository system, the process of transfer of beneficial ownership will be complete upon a book entry update of records (with immediate transfer of entitlement to rights and privileges).

The above description is only intended to illustrate the basic concepts underlying the operation of a depository. The actual implementation of DS will be more complex, since investors will be using DPs (authorised brokers, bankers and so on) to conduct business with DS on their behalf.

3.6.2 Basic Operations

Basic DS operations are described below; current practice is compared with the mode of operation in a DS environment.

3.6.2.1 Public Issues

Current Practice

- Investor sends Application Form to Issuer
- Investor makes payment directly to the Issuer.
- Issuer sends scrips directly to Individual Investor

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DS in Operation

An application made by the investor will include particulars such as Sub-Account Number and DP Account Number so that shares can be issued immediately upon allotment. The investor will have an option to specify the quantity of securities to be credited to its DS account and the quantity to be sent as certificates to it. In case the allotment is less than the application, the Depository account will be credited first and the balance, if any, dispatched as certificates to the investor.

DS will create electronic records to credit the appropriate DP account.

A DP will update its records for the Sub-Accounts attached to it.

Periodic statements will be sent to the investor confirming holdings by the DP.

3.6.2.2 Registration

Current Practice

- Investor submits the Scrip and Transfer Deeds to the Registrar/Transfer Agent
- Registrar / Transfer Agent registers new beneficial owner
- Scrips are returned to the Owner.

DS in Operation

List of Beneficial Holders are furnished to the Registrar /Transfer Agent. Electronic changes in ownership may cause the security holding to exceed critical limits. These will have to be reviewed by the Registrar. These limits will be specified for each security, and DS will be responsible for notifying the Registrar.

3.6.2.3 Deposit

DS in Operation

Investors will send their scrips through DPs to the Share Registrar / Transfer Agent.

The scrips will be verified. Details of accepted deposits will be intimated to the depository and to the investor.

DS will credit the appropriate DP account on the electronic ledger.

DS will then intimate the credits to the DPs

DPs will update their own records for Sub-Accounts attached to them.

The Registrar/ Transfer agent may charge a fee for the transaction, which will be collected by it directly.

3.6.2.4 Withdrawal

DS In Operation

- If an investor wishes to withdraw scrips from the depository, it will send a withdrawal request to DP.
- DS will debit the appropriate DP account.
- Withdrawal details, will be forwarded to the Share Registrar / Transfer Agent.
- The Share Registrar / Transfer Agent will issue certificates to the investor.
- DPs will update their own records for the Sub-Accounts with them.

3.6.2.5 Trade Settlement

Current Practice

Scrips are physically exchanged for payment according to settlement practices in each stock exchange. The transaction is carried out through brokers.

DS in operation

- DS will receive settlement instructions for DPs.
- On the settlement date, DS will debit and credit the appropriate electronic ledger accounts pertaining to the selling DP and the buying DP. Simultaneously, DS will also credit and debit their respective money accounts.
- Where required, the DPs representing the Buyer and the Seller will similarly carry out the corresponding accounting entries to debit and credit the Sub-Accounts that they maintain for their customers on their own systems

3.6.3 Technical Objectives

3.6.3.1 Dematerialisation

There will be no certificates issued for securities held with DS. Hence, no physical scrips will be warehoused by the depository.

3.6.3.2 Book Entry Transfer

The objective of DS is to be able to execute book entry transfer of ownership of securities in exchange for payment on its electronic records to effect a depository settlement. DS must therefore be able to conduct two basic operations on its electronic records: the transfer of ownership of securities and the simultaneous transfer of money in exchange.

Each type of depository settlement may entail different combinations of transfers of ownerships and money as explained below:

- Ownership of security is transferred but no money transfer is involved (Security Only Transfer). Moving security from an SCA of one Depository Participant to the SCA of another DP for free, is an example of a Security Only Transfer.
- Ownership of security as well as money is transferred (Value Transfer). Investors selling/buying shares is an example of a Value Transfer.
- Money is transferred but no security is transferred (Cash Only Transfer). Payment of depository fee is an example of this.

3.6.3.3 Transfer of Ownership

Transfer of ownership of securities is effected by debiting the seller's depository account and crediting that of the buyer for the number of shares for which the settlement is made.

3.6.3.4 Transfer of Money

The transfer of money in execution of a depository settlement will be carried out in a similar manner by debiting and crediting the respective money accounts held by the buyer and the seller.

However, DS will ensure that there are guarantees that the payment takes place on the day on which the ownership transfer occurs, by verification of the buyer's cash and security collateral.

3.6.3.5 Delivery Versus Payment

The objective of the Delivery Versus Payment (DVP) scheme is the simultaneous exchange of securities for money to reduce risk in a depository.

Once funds movements are made, they will be final and irreversible except in the case of an error on the part of DS. A collateral requirement will be enforced with each book entry settlement to ensure this.

3.6.3.6 Scrip Hypothecation/Pledging

DS will provide facilities to permit hypothecation. This hypothecation may or may not include money movement depending on whether or not the pledgee uses the depository money movement system to lend money.

Beneficial ownership of the securities will remain with the Pledger.

The Pledgee will have the right to seize securities in case of default in repayment.

3.6.3.7 Beneficial Owner Record Keeping

The objective of DS will be to facilitate identification of beneficial owners of each issue by the companies and their Share Registrars / Transfer Agents to enable them to distribute dividend, interest payments and other mailings.

The Share Registrars will be required to obtain information from DS on SCAs maintained by DPs. The list of beneficial owners, i.e. those with scrips still in their hands, would be available in the Share Registrar's own books.

To facilitate this process of roll-up of beneficial owner data, DS will administer specifications for data formats and modes of interchange of data, operational requirements and so on.

3.6.3.8 Account Reconciliation with Registrars

DS will establish close contacts with Share Registrars / Transfer Agents to help carrying out reconciliation between the records maintained by them and those by DS (in addition to facilitating the beneficial owner record keeping described above).

DS will specify the requirements for interfaces needed for accomplishing this objective.

3.6.3.9 Processing Securities

DS aims to eventually make all listed securities in India Depository-Eligible.

This process of change will be introduced gradually and cautiously.

3.6.3.9 Coding Schemes

DS will ensure that there are procedures for coding Securities Identification Numbers, DPs and so on. A given security will have the same identification number on all stock exchanges and in the depository. This identification scheme will be compatible with the International Securities Identification Number (ISIN).

3.6.3.10 Confidentiality and Integrity

DS will provide a high degree of confidentiality to its users and they will get information from DS in a secured environment.

3.7 User Front-End System

UFS would provide a user interface with CDS. It is envisaged that the DP will have an intelligent workstation and that all reports requested by the DP will be printed at its end.

Communication between UFS and CDS will be through messages and data transfers only. The DP will have the facility to execute its own queries and format down-loaded data.

Through UFS, the DP will be able to perform the following functions:

- Entry, modification or cancellation of orders to CDS, in batch mode
- Inquiries about or requests for reports provided by CDS
- Downloading and Uploading of data, in a restricted fashion
- Affirmation / confirmation

3.8 Technical environment

It is proposed that the system be developed using a three tier architecture :

TIER III DATABASE SERVER(S)

TIER II APPLICATION SERVERS

TIER I USER TERMINALS

User terminals will handle only the presentation and file transfer/print functions.

The application code will reside and be executed on the application servers. Multiple user terminals will be connected to an application server. Specific portions of the application would run on different application servers for security reasons.

Application servers would be connected to database servers. In case database is partitioned, there could be multiple database servers. If required, application and database may use a TP monitor to communicate.

In all cases, this complex should be invisible to the users.

It is envisaged that there would be a central computing facility which could be linked to the participants through a multi-level network of Very Small Aperture Terminals (VSAT) ,64Kbps lines and 9600 bps lines. There could be some users on 2400 bps dial-up lines also (in case of failure of faster lines). The local users would be connected on a LAN.

3.9 General Questionnaire

This sub-section lists a set of questions pertaining to the functioning of CDS. Vendors are requested to go through all sections before answering the questions. They are requested to answer all questions. The reference numbers of the questions should be clearly indicated in the answers submitted in the response.

In addition, vendors should provide detailed responses to the additional information sought in the individual sections and sub-sections of the RFI. These answers could be merged with the above responses.

QUESTIONNAIRE

3.9.1 The systems should provide extensive reporting and enquiry features. What are the details of queries and reports you propose to support on the system(s)?

3.9.2 How do you intend to address maintenance requirements?

3.9.3 The systems need exhaustive audit trail features. Three levels of rollback should be possible at any stage of the operation of applications. Historical information of up to 7 years should also be available in the system. How will you address these requirements?

3.9.4 It is envisaged that some of the users will operate on a computer-to-computer link. How do you propose to achieve this?

3.9.5 Functional procedure

3.9.5.1 Specify in detail for - **TRS**

- a. Processing details of functions
- b. Interfaces with external entities
  - # Input structure, format and media
  - # Output structure, format and media
- c. Interfaces with other functions / systems
  e.g. stock exchange clearing system
- d. Manual activities envisaged, if any
- e. Transaction control - methodology and procedure

3.9.5.2 Specify in detail for - **CS**

- a. Processing details of functions
- b. Interfaces with other functions / systems
- c. Manual activities envisaged, if any
- d. Transaction control - methodology and procedure

3.9.5.3 Specify in detail for - **DS**

- a. Processing details of functions
- b. Interfaces with external entities such as brokers
  - # Input structure, format and media
  - # Output structure, format and media
- c. Interfaces with other functions / systems
- d. Manual activities envisaged, if any
- e. Transaction control - methodology and procedure

3.9.6 Common System Features

3.9.6.1 Master Data

- a. Details of the different master data required
- b. Maintenance of these master data
- c. Interfaces with external entities such as DPs
  - # Input structure, format and media
  - # Output structure, format and media
- d. Interfaces with other functions / systems
- e. Manual activities envisaged, if any

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3.9.6.2 Billing

a. Details of the billing procedure, including methodology
b. Input structure, format and media
c. Output structure, format and media
d. Manual activities envisaged

3.9.6.3 Statistics

a. Different statistical information envisaged
b. Interfaces with external entities
  # Input structure, format and media
  # Output structure, format and media
c. Interfaces with other functions / systems
d. Manual activities envisaged

3.9.6.4 System Security

a. A detailed approach to system security requirements

3.9.6.5 User Front-End System

a. Handling details for each CDS function
b. Message specification details including standards followed, if any (e.g.SWIFT)
c. Manual activities envisaged, if any
d. Mechanism for handling priorities of messages

3.9.7 What are the details of processes envisaged for authentication, accessibility, controls, audits and checks for the systems?

3.9.8 Schedule and Window of Operation

For functions in each system, provide the suggested window of operation. In the process, explain your suggestions for the following issues:

3.9.8.1 Will submission of orders and instructions be accepted throughout the day or only during a certain time frame? Will they be processed immediately or only during a specific time period?

3.9.8.2 Will master data maintenance be carried out throughout the day or only during a certain time frame? Will master data corrections be processed immediately or only during a specific time period?

3.9.8.3 Will queries and requests for reports be accepted throughout the day or only during a certain time frame? Will they be processed immediately or only during a specific time period?

3.9.8.4 What will be the frequency of the fee computation process?

3.9.8.5 What will be the frequency of the various maintenance procedures?

3.9.9 Technology :

3.9.8.1 What file system/RDBMS do you recommend?

3.9.8.2 What is the development language, front end tool that you propose to use?

3.9.8.3 What standard will the user interface conform to?

3.9.8.4 What Operating System is recommended?

3.9.8.5 The system will have a GUI for all functions - internal and external. Do you have any recommendations?

3.9.8.6 Do you propose to use a CASE tool? If so, please provide details of the tool.

3.9.8.7 Do you propose to use any development tools like report generators, program generators etc.? If so, please provide details.

3.9.8.9 What are views on the environment described in section (3.8) above? In case you differ, please provide details of the environment suggested by you as well as the reasons for differing.

CHAPTER 4

TRADE COMPARISON AND REPORTING SYSTEM

This section of the RFI outlines the operation of the Trade Comparison and Reporting System (TRS) of Stock Holding Corporation of India Limited.

In this section a brief description of the functions to be supported by TRS are provided.

The subsections are outlined as follows :

- TRS structure overview
- Submission
- Matching
- Correction
- Cancellation
- Interface to CS

4.1 TRS structure overview

The primary objective of the Trade Comparison and Reporting System (TRS) will be to establish firmly the terms and conditions of a trade, after a trade execution, in the securities market, to facilitate settlement of the trade. TRS will provide this service, for trade between any two Participants, who desire to use this service, irrespective of the fact whether the trade has taken place through a stock exchange in India or as a private transaction between them.

To achieve the above objective, TRS will support the input and matching of trades between its Participants and will have an interface with the Clearing System (CS). After the comparison, TRS will release the trade to the Clearing System (CS) for eventual settlement. Henceforth the input to TRS will be referred to as Settlement Order.

TRS will require all data from the Participants in machine readable form :

- Through computer to computer link i.e. Participant's computer is connected to the CDS computer through a network
- Participant is connected to the CDS computer through a User Front End System
- Through magnetic media such as
  - # Floppy diskettes
  - # Magnetic Tapes
  - # Cartridges

CDS will specify the securities that are eligible for its services. All such securities will follow ISIN numbering convention.

TRS will have processing functions to take care of the trades where the entities submitting the trade and entities settling the trade are different. This could imply confirmation/ affirmation of trade by the settling entity.

TRS will be interfaced to CS with a rolling settlement cycle; the number of business days in the settlement cycle dictated by security type. Some security types may settle in T+1, others in T+5, etc. Settlement of the trade using the standard cycle will be termed "Regular Way".

However, TRS will permit a settlement date to be specified that will override the default.

The system will use a single calendar, maintained by CDS, for all security types. This calendar will record all business days for trade settlement and all Participants will adhere to this calendar. TRS will not attempt to produce automatically a settlement date for a security type which will vary based upon the Participant; and TRS will not accept an override settlement date which falls on a non-settlement day.

The inputs received will be verified, validated and accepted. The accepted orders will be then matched to identify the deliverer and receiver pair. However, inputs from some sources like the Stock Exchanges may be already matched. Under such circumstances, they will be just verified and validated.

If the input is not matched, it will get dropped at the end of the day.

Any unmatched input generates an advisory to the counterparty. Acceptance of the advisory will generate a matching order.

Where the order is matched, the Participant can only change that information, which does not form matching parameters.

Matched trade settlement may be cancelled only by agreement of both parties to the trade, and the exchange, if one is involved.

In the overall CDS scenario, the participant always interacts only with TRS . Any input / output to the participant is routed through it, even though the process itself may take place in CS/DS. Hence TRS architecturally also functions as the front-end component of the system. The user front-end system detailed in Chapter 8 will essentially connect to TRS.

4.2 Submission

Participants will submit trades (both buy and sell trades) to TRS, for comparison and clearance on settlement date. Such input will be referred to as Trade Settlement orders.

The Participants will be referred to as major and minor in CDS for the trade.

A Participant will be referred to as the major Participant, to denote that the data relating to the trade is logically attached to it.

A Participant will be referred to as the minor Participant, regardless of the role in the trade, to denote the contra side of the trade.

Each Participant will be assigned an unique identification number by CDS for use in all the three systems, namely, TRS, CS and DS. This number will be the same as the account number used in DS and will be called the Depository Participant Account Number. The submitter will be responsible for using the number given by CDS for use in the three systems.

The submitting Participant will specify its account number as the major Participant, in the settlement order.

Under the case where at least one of the following condition arises

- The submitting Participant is not the same as the one who executed the actual trade
- The submitter is also acting as an intermediary for the Participant who will settle the trade

then the input to the system should have the identification of the three entities: Order sender, Settling party and the actual trade executing party. These identifications have to be done as:

Order sender - Major Participant

Settling DP - Major Settling Party Participant

Broker - Major executed by Participant

The minor-Participant and minor-executed-by-Participant will be shown in the same manner for the contra-side of the trade with the exception being that there is no minor-settling-party-Participant field.

The contra side of the trade must enter the same information for the trades to match. However, the identities of the major and minor parties are to be reversed.

It is also necessary to have reference information for the order sender, which will aid it for any verification that is required, at a later stage.

The following list provides the items that are envisaged as basic information that will be present in the input:

- Trade date
- Major-Participant-Account-Number (always the trade submitter)
- Major-executed-by-Participant-Account-number
- Major-settling-party-Participant-Account-number
- Minor-Participant-account-number (contra side of trade)

- Minor-executed-by-account-number
- International Securities Identification Number (ISIN)
- Quantity traded
- Unit price
- Contract amount
- Override settlement date
- Buy / sell indicator
- Role Indicator specifying the role of Major Participant as Principal or Agent

4.2.1 Receive Settlement order

The order can be received through various media such as

Magnetic media such as Floppy Diskettes or Magnetic tapes

Computer to computer link i.e. Participant's computer is connected to the CDS computer through a network

Participant connected to CDS computer through a front end user system

TRS will decide on the format of the input.

4.2.2 Verify and Validate input

Detailed validation is to be carried out for correct and efficient operation of the system. Scope of the validations required will depend on the rules laid out by the regulatory board.

However some basic rules that are envisaged are :

Only transactions for the Depositories identified to CS will be supported. Initially the only depository will be DS.

Back dated trades with back dated settlement dates will not be accepted.

Trade comparison and clearance can be performed for any security known to the system.

The default settlement date is based on the type of security. However user will have an overriding option to specify the settlement date. This settlement date cannot be greater than the default date as applicable for the type of security.

The ISO 6166 standard of identifying the security through an International Security Identification Number (ISIN) will be followed for identifying the securities.

If the verification and validation passes through, the order will be accepted, otherwise, it will be rejected.

- All the accepted orders will be given an unique 'Reference Number'. For all future reference, the Participants will need to use this 'Reference Number'.

The accepted order will be sent for matching.

If the input is prematched (e.g. from Stock Exchanges), then only verification and validation will be done.

4.3 Matching

Unmatched settlement orders will be matched in the TRS.

The matching parameters that are envisaged are :

- Major-Participant-Account-Number
- Major-Executed-By-Participant-Account-Number
- Minor-Participant-Account-Number
- Minor-Executed-By-Participant-Account-Number
- Buy / Sell indicator
- International Securities Identification Number (ISIN)
- Trade date
- Contract amount
- Quantity
- Settlement date

TRS will attempt for an exact match. Trades which do not match on all of the above terms will be recorded as unmatched trades. The sender will be intimated about the matched conditions.

Under the unmatched condition, the Minor Participant will also be intimated about the settlement order issued by the Major Participant (for which the Minor Participant is the counter party). Such intimation will be referred as 'Advisory'. All valid unmatched trades of the submitting Participant will be recorded as advisories to the contra- side.

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4.4 Correction

The Participant can correct / change only a restricted set of information on its matched Trade Settlement orders. These would not form matching parameters.

All corrected / changed matched settlement orders will also be subjected to verification and validation. If it results in failure, then the changes / corrections will be reversed. The original order will be retained in the system in matched condition.

4.5 Cancellation

The Participant will send the request for cancellation as a Cancel Instruction.

The Participant will have to specify the unique reference number assigned to the Trade Settlement order on its Cancel instructions. Without this valid reference number the Cancel instruction will not be accepted by TRS.

A cancel instruction will be accepted till a pre-specified time on or before the settlement date of the order.

For the cancellation of the matched Trade Settlement order, both the parties to the trade would have to submit the Cancellation Instruction. If one Participant cancels its Trade Settlement order, the counter party to the trade will be informed. Till the counter party provides the cancellation instruction, the orders would not be canceled. The cancellation instruction would be subject to approval by appropriate authorities.

4.6 Interface to CS

The matched Trade settlement orders will be eligible for settlement. CS will select all such matched Trade settlement orders and hold them till settlement day . On that day these orders, if depository eligible , will be passed on to DS for settlement. The settlement failures , if any will retrace this path. TRS will intimate the Participants concerned, for their action.

4.7 General

TRS will build billing details and use the Billing functions in CDS for the charges relating to the processes in TRS.

TRS will provide system authorisations, system access rights and system security measures.

Details about these requirement are described in a later section of the RFI.

4.8 Questionnaire

4.8.1 It may not be advisable to allow cancellation of trades submitted by a stock exchange. In this case, it would be better to accept trade reversals. What are your suggestions regarding this?

4.8.2 In the intermediate phase, there would be settlement at depository (electronically) and outside the depository - physical. This would be further complicated when only one of counterparties to a trade is in the depository. What are your suggestions regarding such a situation?

4.8.3 Certain trades may need to be reported to TRS only for the purpose of recording. How do you propose these to be handled ?

CHAPTER 5

CLEARING SYSTEM

5.1 Introduction

The sub-sections of this chapter are :

- CS Structure Overview
- Clearing / Settlement Order Processing
- RFI Response

5.2 CS Structure Overview

The primary objective of the Clearing System (CS) is to provide a clearing facility. Thus CS, is the component of the Clearance and Depository system (CDS), that will prepare matched orders for settlement in the Depository System (DS). CS will obtain the matched Trade settlement records, from the Trade Comparison and Reporting System (TRS).

Trade Settlement orders with a future settlement date will be held in CS till the settlement date. On the settlement date, CS will prepare and route the depository eligible settlement orders to the Depository for clearing/ settlement.

CS will provide information to TRS to support extensive reporting and enquiry facilities. This facility will enable participants to monitor and manage their securities holdings and cash flows for settlement. Further, it will also help the Participants to take advantage of the various services provided by DS such as the securities lending facility.

CS will provide the participants with the Future Settlement Obligations Report. This report would include security, cash and collateral obligation.

5.3 Clearing / Settlement Order Processing

This sub-section deals with the collection of settlement order transactions from TRS, and their preparation for settlement. Settlement will be done on a trade-by-trade basis. If any Stock Exchange gives the input in a netted fashion, CS will treat it as it would any locked in trade.

All Settlement orders will enter into CS through TRS.

All matched Trade Settlement orders will become eligible for settlement on the settlement day. These matched orders of depository eligible securities will form an input to DS.

Depository eligible Matched Trade Settlement orders will be selected on the settlement day, and they will be sequenced as per a settlement algorithm. A randomising scheme will be required, by which, on every settlement date, the sequence of processing of Participants will be decided. This is required to ensure that a Participant will not be processed in the same slot on every settlement date.

The orders will then be passed to DS for settlement processing. Only orders for securities settling in DS will be passed on.

DS will report the result of the settlement to CS. CS will pass this result to TRS which in turn will inform Participants.

Currently more than one settlement iteration is envisaged. This will help maximize the number of orders settled.

For securities not settling in the DS, only reports will be provided to the participants.

5.4 RFI Response

Please provide a detailed response on your proposed approach along the following lines, clearly specifying the features your system will support and its limitations if any. Underlying assumptions must be stated clearly .

5.4.1 What is the settlement algorithm you propose to use?

5.4.2 Do you envisage a dead-lock situation in the settlement? If so, then how will you identify and resolve such a situation?

5.4.3 Currently inter-depository settlement and bridges to other clearing organisations are not envisaged. However, this may be required at a later stage. How do you intend to address this issue?

CHAPTER 6

DEPOSITORY SYSTEM

This chapter gives a brief description of the functions to be supported by DS. Each subsection describes a function that is to be supported.

6.1 DS Structure Overview

The functions to be supported by DS in meeting its objectives will be:

- Book Entry updates
  - # Deposit of securities
  - # Withdrawal of securities
  - # Free Security Movement
  - # Cash only Movement
  - # Value Movement
  - # Security Pledging
  - # Securities Lending

- Trade Settlement

- Collateral management

- Funds handling
  - # Funds Receipt
  - # Funds Clearance
  - # Funds Payment

- Reconciliation
  - # Share Register
  - # Depository Participants

- Beneficial Owner Reporting

- Corporate Actions

Details about each of these functions are provided in subsequent sections.

DS will have facilities for direct communication with Participants. DS will require all data from Participants in a machine-readable form, as described in Section 4.2.

6.2 Book Entry Update

All transactions described in the subsequent sections will eventually produce book entry update instructions. The instructions will effectively change account holdings and usually ownership, and/or money owed as per the information contained in it.

6.2.1 Deposit of Securities

Currently, physical scrips are in the possession of individuals. There are risks of rampant duplication, stealing, mutilation and so on. To reduce the likelihood of such risks a depository has been envisaged.

All holdings of securities will be reflected by book entries in the DS records.

6.2.1.1 Deposits of existing issues

The procedures involved in depositing existing issues will be as follows:

- Investor delivers certificates to the DP who receipts and forwards to the Share Registrar / Transfer Agent, with information about the account to which the holdings are to be credited.

- DP informs the DS about the deposit activity. DS assigns a deposit transaction number.

- Share Registrar / Transfer Agent verifies the certificates. If found unsatisfactory the certificates are returned to the DP.

- Share Registrar / Transfer Agent sends a deposit instruction (with the account number and the deposit transaction number) to DS. The original certificates given by the investor are destroyed by the Share Registrar / Transfer Agent. The Legal owner on the books of the registrar will be the DS nominee.

- DS, after accepting the deposit instruction, credits the concerned account . DS then informs the DP about the deposit.

- DP updates its sub-account accordingly.

6.2.1.2 Deposits - New Issues

The procedures involved in handling New Issues will be as follows:

- Investor will specify the account to be credited on its application form .

- On allotment, the Share Registrar / Transfer Agent will forward a list containing allotted quantity and the account. This will be submitted on magnetic media, in a pre-specified format to DS.

- DS, will credit the DP account with the specified quantity.

- DP will update its sub-account accordingly.

6.2.2 Free Security Movement

Participants will be able to move their holdings by ledger adjustments across accounts without any physical movement of scrips or money.

The movement could be :

- Between a DP's holding position and trade settlement position

- Between two DP accounts, where settlement (payment) may occur outside DS (see Security lending)

If the deliverer does not have sufficient security holdings to cover this movement, the movement will be rejected, and the concerned DPs notified.

All movements must indicate the appropriate sub-account, if applicable.

6.2.3 Withdrawal of Securities

Although all scrips are expected to be maintained at DS as book entries, the beneficial owners will have the option to remove their holdings from DS and retain them with themselves in certificated form.

Withdrawal can be effected on the DPs' holdings as follows:

- The DP will send the withdrawal order to DS. DP will specify on the order the name and address of the sub-account holder.
- The DP will have the option to specify the denominations in which it wishes to have the scrips.
- The order on verification and acceptance will be forwarded to the concerned Share Registrar / Transfer Agent by DS.
- On sending the order to the Share Registrar / Transfer Agent, DS will debit the corresponding DP account.
- The Share Registrar / Transfer Agent will accept the order after verification.
- The Share Registrar / Transfer Agent will print new certificates in the denominations requested by the investor. By default, the certificates will be in marketable lots. These certificates will be sent to the address on the withdrawal order. The registrar will debit DS nominee's account and credit the investor's account. This will be notified to DS.
- The Registrar/Transfer agent may choose to levy a charge for the certificates.
- In case any documents are to be submitted, DP will dispatch them directly to Registrar.

6.2.4 Cash Only Movement

DS will also support cash only movement with no associated security movement. This requirement is envisaged for purposes such as maintaining cash collateral, making interest payments, collecting CDS charges and so on.

The cash-only movement will be effected as follows:

- The cash payer and payee DP agree on the amount to be moved
- The payer DP instructs DS to make the cash-only movement to the payee
- DS debits the pay/collect figure of the cash payer and credits the pay/collect figure of the payee
- At the end of the day, the Funds payment activity takes care of disbursement.

If the cash payer does not have sufficient collateral to cover the requested movement, the movement will not be carried out and the instruction will be rejected.

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For DS receivables from Participants, the payee will be DS, and the submitter of the transaction. All other movements must be initiated by the payer.

6.2.5 Value Movements

Value movement transactions update the security balance and Pay/collect balances of the deliverer and receiver . The transaction can only be effected if both parties have agreed to the transaction in advance. The system must have a way of ensuring this pre-authorization process. The activity will pend for either lack of holding or collateral.

6.2.6 Security Pledging

DS will support pledging of securities for cash loans. The Pledgee could be any DP, such as a bank. Pledging may be effected on any safe custody account.

The Pledgee and Pledger will agree on the terms and conditions for pledging. Pledging may be carried out with or without money movement.

The Pledger will input a transaction to pledge detailing the securities to be pledged. If loan money is to flow through the system, it must do so as a CASH ONLY movement.

The pledged security quantity will then be under the control of the pledgee. The beneficial ownership will not change as a result of pledging .

The release of pledged securities may be effected to the Pledger in part or full. Substitutions of the pledged securities must be permitted.

In case a Pledger defaults, the Pledgee can seize the pledged securities. The Pledgee will then become the beneficial owner of the securities.

6.2.7 Securities Lending

The facility for borrowing and lending securities will be provided to trading participants to avoid fail-to-deliver situations for the seller.

Securities lending can be effected through security movement with or without money movement.

Currently, only an opportunistic lending procedure is envisaged i.e. DS will act as a facilitator. The actual decision and the agreement to borrow and lend will be outside the system and it will be left to the Participants. DS will handle only book entry updates on intimation from the concerned parties.

DS will aid the process by providing a list of Participants who are willing to lend.

6.2.7.1 RFI Response

6.2.7.1.1 If automatic lending is to be implemented at a later stage, how do you envisage integrating that with the system described above?

6.3 Settlement

All trade settlement transactions will come from CS only.

Settlement at DS, will be achieved by book entries which will change ownership of the securities from the deliverer to the receiver, with or without money movement. Thus, the book entry update process will in general result in:

- Increased security holding for the receiver
- Decreased security holding for the deliverer

with a corresponding

- Decrease in Pay/Collect amount of the receiver
- Increase in Pay/Collect amount of the deliverer

The settlement will go through provided the deliverer has adequate security holding and the receiver has adequate collateral to cover payment.

The Funds transfer process will then clear the net Pay/Collect amount for Participants.

Settlement for SCAs will require DPs to submit free security movements from their holding position to their trading position to satisfy delivery obligations before the settlement process commences.

If the settlement cannot go through due to lack of securities or collateral, by the end of the day, the transaction will be returned to CS for further action.

If the settlement is effected on the sub-account of an Investor with a DP, then the concerned DP will also have to update its account accordingly.

It is envisaged that settlement will be a continuous process run through the settlement window for the day. Trades may be pended for lack of securities or collateral and would be settled as and when this is made good within this window.

India has a unique settlement process, where for certain securities substitution may be utilized in the delivery process. Further, the value of the transaction will be altered. More details will be provided at an appropriate time.

6.3.1 Book Entry Fail-Retry

Trades may be pended in the settlement for lack of securities or collateral. Any change in either position would cause another iteration of the settlement process.

6.3.2 RFI Response

6.3.2.1 Please detail the settlement algorithm you plan to use? Specific details like - is it event driven? is it batch-oriented? must be discussed.

6.4 Collateral Management

To ensure that DS is not undertaking any risk while providing services to Participants, all transactions of the Participants will be settled on availability of pre-allocated settlement funds or sufficient collateral held by DS to support the settlement.

Collateral is the value kept as guarantee by a Participant to cover settlement obligations.

CDS will specify a minimum collateral amount to be placed. This will be kept in a CDS specified combination of cash and securities.

The collateral may be composed of :

- Cash
- Bank guarantees/line of credit from a bank acceptable to CDS
- Securities acceptable to CDS

To place securities as collateral, the DP will have to determine the quantity of the securities to be placed as collateral based on its liabilities. The DP will issue a transaction on the particular security holdings to identify the specified security quantity as collateral.

The security placed as collateral cannot be used for any other purpose. However, beneficial ownership of the securities will continue to vest with the DP, unless CDS seizes the collateral.

If the DP wishes to use the security placed as collateral for other purposes either fully or partially, then the collateral must be explicitly released by CDS.

For cash collateral, the DP will transfer funds to DS. If the DP wishes to withdraw the cash collateral, it can do so by issuing a release request to DS.

The security collateral will be evaluated based on the market value of the security. The total collateral available will then be the sum of the cash collateral and the value of the securities placed as collateral. The current market rate of the security with a suitable discount will be used to determine collateral value.

Provision must be made to smoothen out the fluctuations in the market rate for collateral evaluation while avoiding any risk to DS itself.

In case of seizure of collateral, the cash collateral will be first seized and then the security collateral.

Cash and security collateral will be released according to the following rules:

- First the excess security collateral will be released.

- Next the guarantees/ line of credit will be released

- Last the cash will be released

6.4.1 Collateralisation of settlement processing

Collateral checking is done for every settlement order and selected cash only movement. In case any transaction fails the collateralisation test, it is not settled.

For the purpose of this test, a figure called the collateral monitor is calculated. This figure begins the settlement cycle as the sum of collateral value and pre-allocated settlement funds. Any addition to the payable reduces this value, any payment received increases this value i.e. a buy transaction reduces the value and a sell transaction adds to the value . Any settlement order which causes the monitor to become negative is pended.

Towards the end of business day T+2, the CS calculates the collateral requirement and makes available to the DP, the value of collateral required for T+3 settlement. The DP must move the collateral under the control of DS or provide settlement funds.

During settlement, the collateral monitor is calculated for the DP and settlement orders tested against it.

DS must have a capability to override the collateral check.

Net Debit Cap

Over and above the collateral monitor, the Pay figure that a DP can have during a settlement is also limited by a Net Debit Cap. This represents a percentage of the total credit available to DS from its bankers, in case it needs to liquidate collateral. Any participant's Pay figure minus funds under control of DS can never be allowed to exceed this amount. This amount is same for all DPs in the settlement .

Any transaction, to be able to settle, must first clear the collateralisation test. Then the net debit test is applied. If this fails, transaction is pended.

In essence this test limits the exposure of the Depository as a whole to multiple large failures.

6.4.2 Functions to be provided

The collateral management system must provide for the following functions:

- Specification of collateral composition by CDS
- Maintenance of minimum collateral
- Reporting of collateral requirements to DP
- Valuation of securities placed as collateral
- Release of collateral
- Seizure and liquidation of collateral

6.4.3 RFI Response

6.4.3.1 What time slot(s) do you envisage for computation of collateral value with respect to other functions of DS?

6.4.3.2 What rate (price) do you propose to use for collateral valuation?

6.4.3.3 How will the DP be kept informed of its collateral availability and liability?

6.4.3.4 What processes do you suggest for liquidation of collateral?

6.4.3.5 What interaction is envisaged with the CDS bank to facilitate maintenance of cash collateral?

6.5 Funds Transfer

DS will interact with banks for all money - related activities. DS will net the total fund requirements for participants.

The banking environment will provide a mechanism to permit transfer of funds from the net payer to the net collector of funds on the day ownership is transferred by book entry in the records of DS.

The daily funds transfer operation will consist of the following processes:

- Receipt
- Clearance
- Payment

Actual cash movements will be outside DS.

DS will have information about the Depository Participants' bank accounts in different banks. DS will have its own bank account with a major bank. All funds transfers will take place between these banks.

6.5.1 Funds Receipt

DS will determine the net pay/collect amount for participants on the basis of daily depository (settlement and benefits collection) transactions. Participants will be notified accordingly.

Payers will deposit funds in their bank accounts.On instructions from DS, the banks will make funds transfers to the DS' bank account on a same-day basis. DS will be notified of these transfers into its bank account by its bankers.

Once the funds have been received in DS' bank account, DS will take up clearance of funds payments to its Participants in the capacity of central clearer of funds transactions.

6.5.2 Funds Clearance

Once DS has received all funds from payer participants, it will send money movement messages to the banks to pay the receivers.

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In case all funds are not received, DS will step in as per procedure in section 6.5.4 and assume the responsibilities of the defaulting DP(s).

6.5.3 Funds Payment

The payment process will be the reverse of the receipt process.

For net receivers, DS will instruct its bank to transfer funds from its account to the bank account of the Participants.

Funds Payment must be achieved on a same-day basis. To achieve this objective, DS participants will have to give DS standard instructions. DS will pay its participants in their bank account in accordance with these instructions.

6.5.4 Collateral Liquidation

In case a DP fails to provide funds to meet its settlement obligation, the CDS bankers will extend credit to CDS to meet this shortfall. In return, CDS will pledge the collateral placed by the DP. In case DP makes good the obligation at a later date, the collateral will be returned. Otherwise, DS will make arrangements to liquidate the collateral and pay the bank.

Charges associated with this activity will be borne by the DS. These will be recovered from the DP.

6.5.5 Alternate Scenario for Funds Handling

CDS will designate specific commercial banks to act as cash settlers on its behalf. All participants will maintain accounts with these banks. The balances in the accounts will be made available to DS before settlement. DS will notify the banks of net debits/credits to be made to these accounts, after settlement. Hence , in such a case, DS will not handle funds settlement directly.

6.5.6 RFI response

6.5.6.1 Does the proposed system interface with banks based on a standard message format eg SWIFT?

6.6 Reconciliation

To provide efficient and effective services, it is of utmost importance that the DS ledgers be reconciled with those of

- Share Registrar / Transfer Agent
- DPs

An extensive statistical reporting and enquiry facility must be provided.

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6.6.1 Share Registrar / Transfer Agent

The Share Registrar / Transfer Agent will be the prime authority maintaining all beneficial owner details for securities. This will include holdings maintained at DS in a dematerialised form or outside DS.

Periodic comparisons will be required to ensure that the Share Registrar / Transfer Agent's books match those of DS for the holdings maintained at DS. The total holdings of DS as maintained at the Share Registrar / Transfer Agent must match the DS ledgers. The reconciliation process must take into account the in-transit deposit/withdrawal orders. The reconciliation process must be initiated periodically to avoid any discrepancies or mismatches. Control mechanisms must exist to handle corrective actions in the event of any discrepancies or mismatches.

6.6.2 Depository Participants

DPs will maintain their customers' holdings in sub-accounts outside DS with only a consolidated position being maintained at DS. The sum of the individual sub-account holdings with the DP must match the consolidated position maintained at DS. It is the responsibility of the DP to reconcile the customer holdings with its ledger. The reconciliation process must be initiated periodically to avoid any discrepancies or mismatches. Control mechanisms must be provided to handle corrective actions in the event of any discrepancies or mismatches.

6.6.3 RFI Response

6.6.3.1 What corrective measures do you plan to use for resolving discrepancies in reconciliation?

6.7 Beneficial Owner Reporting

Any issuer of securities or its Registrar/Transfer agent may request a beneficial owner list from the DS. The request must specify the date as on which this list is to be provided. In some cases, data may be requested as on a past date. DS will convey this request to DPs. The DPs will provide this data for the sub-accounts maintained by them.

At the end of settlement on the given date, all DPs will provide the data as per a specified format to DS. This must be done after all pending settlement updates have been effected.

The data to be supplied will include the following:

Name and address of the sub-account holder
Joint names of sub-account holders, if any
Quantity of securities held
A status code

The data format must also contain the security code (ISIN), date, DP code and sub-account code.

DS will validate the data. The total of all securities must equal the DP's holdings in DS. The total for all DPs must equal the total depository holdings .

It will then pass on the data to the requester.

6.7.1 Reporting of excess holdings

If, as a result of settlement, quantity in the receiver's account exceeds a pre-specified limit, then the beneficial ownership must be reported to the registrar. This limit will be set for a security as an absolute number.

This data must be collected every day by DPs and submitted to DS, which will in turn convey it to the Registrar.

6.8 Corporate Actions

DS will support all custodian functions that :

- Operate on a security and related securities if any

- Are initiated by DS at the behest of the issuer of the Corporate action security or in accordance with standing instructions from the issuer of the security to DS

- Operate on all Safe Custody Accounts having a position in the Corporate action security.

These custodian functions may result in a change in the securities holdings of Participants or in cash realization for Participants. In either case, DS will provide beneficial owner information for the Corporate action security to the Share Registrar / Transfer Agent. The Share Registrar / Transfer Agent will determine the actual realization to be disbursed into each account.

Entitlements other than securities and cash will be handled outside DS directly by the Share Registrar / Transfer Agent.

In case of security realization / recall the Share Registrar / Transfer Agent will inform DS which will then book the realization / recall and inform the investors.

DPs will forward beneficial owner data to DS for intimation to the Share Registrar / Transfer Agent. The Share Registrar / Transfer Agent will determine the realization / recall to be disbursed to each sub-account and instruct the DP through DS to book disbursements into the sub-accounts.

In case of cash entitlement, DS will once again act as a facilitator. Details of the sub-account holders, maintained by the DPs will be collated and forwarded to the Share Registrar / Transfer Agent. The Share Registrar / Transfer Agent will determine the realization to be disbursed to each sub-account and inform DS. Cash will also be moved into the DS bank account by the Share Registrar / Transfer Agent. DS will disburse the amount through funds payment to all concerned DPs. It will be the responsibility of the DPs to disburse the received amount to their sub-account holders.

DS will maintain a separate custody account for the Share Registrar / Transfer Agent. For all stock realization / recall this account will be used.

For realization, the transaction would be just like a deposit, except that it is initiated by the issuer.

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For recall, the DP's account will first be debited and the Share Registrar / Transfer Agent's account will then be credited, using free security movement. From the Share Registrar / Transfer Agent's account, it will be handled as a withdrawal.

Any other Corporate action that involves cash and/or stock updates will be handled in the same fashion. In all cases DS will act only as a facilitator. It will forward beneficial owner data to the Share Registrar / Transfer Agent. It will get instructions for debits / credits on the accounts and act accordingly.

6.8.1 RFI response

6.8.1.1 Please detail the Corporate actions which can be processed using the proposed software.

6.8.1.2 Do you envisage an alternate method for administering a Corporate action?

6.8.1.3 What procedures do you suggest for handling optional actions e.g. rights entitlements, warrant conversions etc. ?

6.8.1.4 How do you suggest partly paid up securities and payments of calls be handled?

6.9 Blocking of holdings

Due to certain external events, CDS administrators may need to block the holdings in a DP account. This may happen due to court orders, non-payment of dues etc. In this case, the beneficial ownership will remain with the current beneficial owner. However, no movements are permitted. A record needs to be kept of why the holdings were blocked. CDS will need to convey this information to the DP so that this can be effected in the sub-accounts. There may be simultaneous multiple blocks on a account.

The block may be released in part or in whole.

6.10 Seizure of Holdings

It may be necessary to seize the holdings of a SCA or sub-account. This may be on account of collateral seizure or due to court orders. In this case, beneficial ownership of the securities seized will vest with the seizing authority. A record of this transaction needs to be maintained. A seizure may be for all or part of the holdings in the account.

6.11 RFI Response

6.11.1 Please list other administrative capabilities provided in the proposed system and the circumstances under which each would be used.

CHAPTER 7

COMMON SYSTEM FEATURES

This chapter outlines common system features of the TRS, CS and DS in the CDS.

The chapter is arranged in sub-sections. Each sub-section provides a brief description of the common features supported by CDS.

The subsections are :

- Master data handling
- Billing
- Statistics
- System security
- Inward Mailing system
- Interface with General Ledger
- Tax deductions
- Electronics Mail and messages
- Bank Reconciliation.

7.1 Master Data Handling

Master data is required across the system and it is relatively static in nature. Master data maintenance involves the creation and maintenance of all master information required for the CDS.

7.2 Master Data

It is envisaged that information relating to the following basic items will be required to be maintained for reference and use in TRS, CS and DS.

1. Company
2. Security
3. Participant

4. Custody Account
5. Money Account
6. Calendar with event schedule

The above specified list is not an exhaustive one. There will be new requirements arising from the analysis phase. Currently specified requirements are also expected to evolve and undergo modifications.

7.2.1 Company

Details of companies involved in the capital market industry that utilise CDS services for issues will be maintained in the system. A scrip will enter the CDS system provided the issuing company is identified by the system.

The System will maintain some basic information about the company for investors who wish to assess the company and its issue.

7.2.2 Security

This will maintain information required for scrips that are eligible i.e. for processing in NTRS NCS and, if depository-eligible in DS.

Currently, a security traded/ listed at several stock exchanges is identified by a different security number at each stock exchange. CDS will internally identify the security by the International Security Identification Number (ISIN). This will facilitate easy transformation to international standards with minimum disruption of existing practices. Existing identifications will be gradually phased out and ISIN made the standard identifier for the security over a period of time.

Codification of ISIN will be based on the ISO 6166 standard.

The types of securities that will be supported at CDS are

- Equity
- Preference shares
- Debentures
    - # Convertible
    - # Non-convertible
- Warrants

Corporate Action Diary of each security will also be maintained.

7.2.3 Participant

The basic definition of a Participant is provided in Chapter 3 of this document. Thus, Participants will be members of CDS involved in securities investment and trading or in support activities.

The master data of Participants will include

- Name
- Address
- Identification code
- Type, i.e,
    - DP
    - Other Participants
- Roles, i.e,
    - Broker
    - Stock Exchange Clearing House
    - Custodian
    - Issuer
- Custody account code
- Money account details
- Standing Instructions
- Participant connectivity details
  whether the Participant will be connected to CDS through a
    - Network
    - Computer-to-Computer link, including UFS

This list is not complete and it indicates only some important items.

7.2.4 Custody Account

Custody accounts will be electronic records of the securities holdings of participants.

- The major contents of the custody account will be:
- Participant Code
- Account code (same as in the Participant data)

- Modes of operation of the account i.e.
    - Omnibus
    - Principal
    - Other

- Positions under heads
    - Normal Holding
    - Trade settlement Holding
    - Borrowing Position
    - Lending Position
    - Pledged Position
    - Future Settling Orders
    - IN-Transit - Deposits / Withdrawals
    - Collateral Holdings
    - Blocked/frozen Positions
- Status of the account

This list provides only the basic essential items envisaged for the system.

7.2.5 Money Account

The money account will be meant essentially for funds transfer. Money accounts will be with a CDS nominated bank. All DPs will have to open a money account with the nominated bank, if they wish to use the services of CDS. CDS will also have a money account with the bank.

A Participant will be allowed to have more than one money account. But it will specify the account number whenever funds transfers take place. It will also give standing instructions for the purpose.

At CDS, a mirror image of the money account will be maintained. The major contents of the account will be

- Account Code
- Participant identification code
- Account status
- Bank Code
- Branch Code
- Amount

7.2.6 Calendar with Event Schedule

CDS will maintain a complete calendar. This will include

- Holidays
- Schedule for system maintenance, when the system is shut down
- Schedule for external input and output communication

There will be periodical updates on these. The schedule for updates will also be maintained by the system.

7.3 Billing

For its own funding, CDS will charge fees for the various services it offers to Participants and Issuers. This fee will be utilised for the running costs and maintenance charges of CDS. A strategy will be evolved to handle fees within the system.

The Government of India currently collects stamp tax for new shares or debentures from the issuer and from new owners when there is a transfer. The process of collecting this stamp tax, once CDS has become operational, will have to be evolved. CDS will not always have records of every transfer of beneficial ownership. Where a stock exchange's clearing corporation reports only net positions to the depository for settlement, complete records of each trade and change of ownership will exist at the exchange where the trade took place.

Once issues of public policy have been resolved, a detailed functional specification will be developed. The system should be able to incorporate the stamp tax within the billing process.

CDS will provide various services to issuers for issues such as maintaining accounts of holdings distributed across Participants, administering Corporate actions and providing information on beneficial owners to the concerned Share registrar. Fees will be charged for all such services.

Participants will also be charged for services provided by CDS such as maintenance of holdings in the ledgers, settlement, loans and transfers. Fees will also be charged for providing special services to Participants.

Fees and penalties will also be levied in case of defaults. Transaction charges will be based on value, quantity and time of submission. Volume discounts may be applicable.

Fees may also be based on past history of transactions e.g. number of transactions in previous period, cumulative for the year, number of defaults etc.

The billing system will collect data required for billing according to the policy defined by CDS.

The billing policy will be varied from time to time by CDS to influence Participants' behavior. Strategies for doing so will be established by the CDS management.

The system will require a high degree of modularity with the ability to vary both billing determinants and rates for determinants.

7.4 Statistics

Consolidation of activities and trends in the form of statistical reports will be useful for policy decision-making and for assessing new and additional requirements for the system. Statistics will be collected and represented in a manner meaningful and of use to the managing personnel. Only application-related functions encompassing the scope of CDS will be considered. Operations-related information such as machine down time, and utilisation will not be within the scope of the system.

The statistical information will be utilised for

- Evaluating system performance
- Addressing system tuning requirements
- Studying trends evolving out of Participants' utilisation of the system
- Adapting policies to suit emerging requirements and trends
- Planning for the future

A system of reporting will be evolved to support the statistical requirements.

7.5 System Security

Due to the sensitive nature of the application, security of the system will be a prime requisite for efficient, foolproof and continued functioning of the system. Physical security issues such as safeguarding against natural calamities and restricting access to the area of functioning will not be considered here.

Application security will be provided for by adequate manual as well as automated controls.

Possible threats to the application security are :

a. Unauthorized access

Unauthorized access implies that users are able to access and execute functions outside their scope of day-to-day functioning with no questions asked. This can lead to a lack of control and accountability. To avoid this there will be a clear identification of who does what.

b. Insufficient verification

Having ensured that users do not bungle into unauthorized areas, the next issue will be to ensure that updates to the system are valid and correct. This will require efficient verification procedures.

c. Lack of maintenance

If the completeness, correctness and temporal validity of the information are not maintained, system cannot be secure and fault-free in its functioning. Hence maintenance of the system will be enforced as a regular activity. The database will be maintained upto date and in sync with the external world; historical information will be maintained for future reference and clean-up procedures will be initiated periodically.

Apart from this, there will be access control mechanisms within and outside CDS. These will essentially be based on magnetic strip smart-card identification and Personal Identification Number (PIN).

7.5.1 RFI Response

Do you have any suggestions for physical access control and identification?

7.6 Interface with General Ledger

The CDS system will have an interface with the General Ledger system of CDS. Transactions which have a debit or credit effect on money accounts in the general ledger will be reported to the GL system. The frequency of this reporting will be decided upon by CDS. The following is a partial list of such transactions :

- Billing to DPs
- Accrual of interest on cash collateral
- Adjustment required due to fund transfer
- Tax deducted at source

7.7 Tax Deduction at Source

Income Tax will be deducted on all incomes generated through the services of CDS. This will have to be a parameter driven system where all applicable cases and rules will be parameterised.

The system will provide for calculation of income tax and net income. This will be done according to the rules laid down by the Government of India. The system will be flexible enough to cater to changes in rules.

This tax deduction will be reported to the GL system on a regular basis as required. Appropriate certificates will be issued in case of tax deduction. Subsequently, a statement of total tax deducted will be generated which will be submitted to the IT authorities.

7.8 Electronic Mail and Message System

For the internal working of CDS, the electronic mail and message system will be used for dissemination of information, announcements and so on.

The system will handle the following types of mail and messages.

- Memos to be circulated to CDS users
- Broadcast messages to be flashed at all user terminals
- Correspondence between users
- Announcements of events
- General information for all

The access control system of the E-mail system will restrict unauthorized access to particular mail or messages. The E-mail system will also cover DPs having Computer-to-Computer link with CDS.

7.9 Bank Reconciliation

All cash transactions in CDS will be through CDS's account with a bank. It is envisaged that a large volume of cash transactions will be handled (mainly from settlement).

Discrepancies might occur due to errors at various levels. To avoid such discrepancies, a regular process of reconciliation with the bank will be required. A provision in the system to pass necessary adjustment entries for reconciliation will be required.

CHAPTER 8

USER FRONT-END SYSTEM

This section of the RFI outlines the requirements of the User Front-End System (UFS), which will be a facility for Participants to interact with the CDS. The objectives and broad overview of the system was described in the Chapter 3. In this Chapter a brief description of the functions to be supported by UFS is provided.

The subsections of this Chapter are :

- UFS - overview
- UFS System Structure
- UFS interface with CDS functions

8.1 UFS - Overview

The UFS will be an integral part of CDS and it will provide a gateway to Participants of CDS. It will enable them to send trade details and other orders and make enquiries about the information available at CDS.

The UFS will be located at the Participant's office and it will communicate with CDS through the communication network thus acting as a front end to CDS. Users of CDS will be able to avail of all the facilities, features and functions of CDS (i.e TRS, CS and DS) through this UFS.

The envisaged hardware for the system is :

- A small machine such as the PC or a mini
- Communication hardware
- Printers
- A colour graphics adapter card with a colour monitor
- A device for recognising a smart card/ magnetic stripe

Capacity planning for this system will be done during the system analysis phase.

The system can be a multi-terminal system.

All communication with the host will be in the form of messages. The message level and application level protocols will have to be evolved during system analysis.

The UFS will have local data such as

- Data downloaded from CDS system
- Data for administrative functions on UFS

UFS will have restricted access to CDS data. Maintenance of local data in synchronization with CDS data will be the responsibility of Participant. Participants will be provided with the facility to download data from the host.

The Participant will also ensure the availability of enough disk space for the normal functioning of UFS.

8.2 UFS System Structure

The UFS will work in two modes, viz.,

- Stand-alone mode
- Communication mode

In the Stand-alone mode, UFS will not be connected to the CDS host. It will be an independent system providing certain system functions. In this mode UFS will be used to capture orders, which will be verified and corrected before they are sent to CDS for processing. The orders can be input on-screen or picked from a file.

In the communication mode, UFS will communicate with the CDS host. The Participant will be able to batch inputs and send them to the CDS host as messages. The host will receive these messages and an acknowledgment of the receipt of these inputs will be sent immediately. The Participant can also use this mode to

- Query
- Get mail
- Download reports

An access control procedure will be in place to enable the UFS to work in communication mode.

Since UFS will have the capacity to maintain local data, some basic preliminary checks will be performed at the time of data entry, in the stand-alone mode. Local data will be updated by downloading required data from the host.

8.3 UFS interface with CDS Functions

8.3.1 Queries

The Participant will have to enter the selection criteria for the desired query through screen. Data entered will be checked locally, whenever possible.

The query request along with the selection criteria will be sent to the CDS host as a message. These query requests will be received only during pre-specified times.

Host on receipt of this query, will execute it, and send the result as a message back to the sender. UFS will be able to format it properly and display it on the screen.

UFS will also have the facility to store the queried information locally or print it locally.

8.3.2 Reports

The UFS will provide a facility by which Participants can get reports downloaded in report format for local printing.

To do so, the Participant will give a request for the report. CDS on receipt of this request, will send an acknowledgement to the Participant.

At a specific pre-determined time the report will be generated and will be sent to the requesting Participant.

Participant will also be able to generate reports from local data.

The Advisory Message will be downloaded to the UFS by TRS. The affirmed Advisories will be sent back to TRS.

8.3.3 Interface with DS

CS receives no data input from UFS. UFS may request reports / queries from CS. CS will download reports to UFS.

The UFS will have no direct interface to DS. All inputs will pass through TRS even though destined for processing at DS.

8.3.4. Other Features

An electronic mail facility will be provided for communication between the CDS host and UFS. This will be used for giving information to Participants about events.

UFS will maintain a log of user and communication activities. An exhaustive audit-trail and journaling procedure will be required for the operation of UFS.

The system will have facilities for :

- Authorisation and Access Control
- Authentication
- Enciphering
- Logging
- Backup and data recovery

8.4 Issues

How do you intend to address the following issues :

8.4.1 Authorisation and Access control

8.4.2 Authentication

8.4.3 Enciphering

8.4.4 Activity Logging

8.4.5 Backup and data recovery

8.4.6 Contingency action plan

8.4.7 Administration of local data base

8.4.8 Distribution of local software updates

CHAPTER 9

SUB-ACCOUNTING SYSTEM

This Chapter outlines the operation of the Sub-Accounting System which will be offered by CDS, to DPs as for fee, turnkey hardware / software solution.

To maintain and manage the information about investors associated with them, DPs will require a complete back office system. This will not be a complete back office system - but only a minimal skeletal system which will take care of basic sub-accounting requirements. Vendors are invited to discuss additional features which would evolve this sub-account system or complete back-office system.

In this section a brief description of the functions to be supported by the Sub-accounting System for DPs is provided :

The subsections are as follows :

- Sub-accounting overview
- Security Accounting
- Cash Accounting
- Reconciliation
- Master data maintenance
- Billing
- Reports
- Statistics
- System Security

9.1 Sub-Accounting Overview

The DP Sub-accounting system will

- Recognize and give effect to messages from CDS to update sub-accounts
- Generate proper messages for action at CDS
- Maintain a beneficial owner list
- Generate proper reports to be used by the DPs back office

All movements effected at CDS on DP's account on behalf of sub-account holder will be reflected at the DP Sub-accounting system . The input to the sub-accounting system will consist of messages from the CDS system or instructions entered by the DP on behalf of sub-accounts.

The system will also have a reconciliation feature. This is to ensure that the positions in the Sub-accounts match those in the CDS .

To run the DP Sub-accounting system the following will be essential :

- Information regarding the sub-account holder attached to a DP
- Good system security, so that only authorized persons are allowed access to the system
- Generation of bills and statistical information, as required by the DP, so that clients can be charged.

9.2 Security Accounting

Security accounting will comprise all changes / updates of sub-account holdings, maintained by a DP, arising from security movements, with or without associated cash movement.

The requirement for accounting will arise from :

- Deposit of scrips
- Withdrawal of scrips
- Free Security Movement
- Trade Settlement
- Corporate Actions

Generally, the procedure involved will be as follows :

- Sub-account holder requests DP for the service required
- The DP inputs the required transactions into the sub-accounting system.
- Sub-accounting system accepts and processes the input. This may involve movements in positions at the sub-account level.
- The system generates an appropriate message to the CDS system. The messages will be mainly trades.
- CDS will accept and verify messages. All valid messages will be treated as standard CDS transactions.

- The end result of the CDS action is a message to the DP. DP will take appropriate action based on this message.

The above procedure is a generalized one. Additional procedures to be followed, if necessary, are explained on a case by case basis in the following paragraphs.

9.2.1 Deposit of Scrips

DP inputs a deposit transaction crediting the sub-account's In Transit position. The deposit when accepted into the DS will receive a transaction number which must be recorded in the sub-account system for tracking purposes. The DP will send securities and appropriate instructions for deposits directly to the concerned Share Registrar / Transfer Agent. Messages to CDS for deposit credits will come from the Share Registrar / Transfer Agent. The messages will contain the sub-account number and quantity of scrips being deposited. These messages will be passed on to the DP for processing in sub-accounting system. The system will credit the sub-account and relieve the in-transit position.

9.2.2 Withdrawal of scrips

The DP enters withdrawal requests into the sub-account system.

The investor's holdings will be debited (to the extent of the quantity to be withdrawn) - in the Sub-accounting system . The system will then generate an appropriate message to CDS.

CDS, after taking appropriate action i.e. debiting the DPs' holding account, will pass on the withdrawal to the Registrar or Transfer Agent alongwith appropriate registration information. Any necessary documentation required for the Registrars' files will be sent by the DP to the Registrar directly.

9.2.3 Free Security Movements

The Delivering investor will send instructions to the DP for action. The DP will instruct the Sub-accounting system accordingly, providing the deliverer and receiver sub-account number and details about quantity involved.

The delivering sub-account's holdings will be debited and that of the receiving sub-account credited (assuming both investors have sub-accounts with the same DP).

In case the receiving investor does not hold a sub-account with the same DP, the message to CDS will contain the necessary information for CDS to act. In this case CDS will debit the Holding position of the DP and credit the Holding position of the DP to whom the receiving investor is attached.

9.2.4 Trade Settlement

A full trade settlement process must be included which would ultimately provide the DS with the required net securities to be moved from the Holding Position to the Trading Position for processing in the next CDS settlement cycle.

The management of the trading position, both at the DS and within the sub-accounting system, must be provided for.

At the end of the settlement process, in the DS, the DP must update the sub-account records for all securities and money involved.

9.2.5 Corporate Actions

CDS on receiving Corporate action/benefit distribution instructions from the Share Registrar / Transfer Agents will debit or credit DP's accounts. Then it will pass these instructions as messages to the DP.

The sub-accounting system, in turn will act on the messages and make the appropriate booking to the sub-accounts.

In case of optional Corporate actions, mechanism must exist to transmit consents of the sub-account holders to DS for onward transmission to the issuers.

9.2.6 Pledge

A sub-account holder may wish to pledge its securities with another DP. The DP will capture the details such as other DP, ISIN, quantity, sub-account of receive, sub-account of sender and pass them to DS.

9.2.7 Institutional Trade Entry

Where the client is an institution which utilises the services of a custodian, the sub-account of the institution is then rightfully with the custodian responsible for settling the trades for the client. To achieve the trade settlement, then requires the entry of a trade record by the DP as the major participant with its client, the institution as the executing party and the custodian as the contra party. This entry into the TRS must be automatically generated at the night of T or as soon as the exchange trade reporting system confirms the trade. The back-office system must be capable of completely automated interface with the TRS.

9.3 Cash Accounting

The Sub-accounting system will also handle the cash accounting of sub-account holders. The system will maintain the payable and receivable positions for each sub-account holder.

CDS will update the DP's account at CDS with the net pay / collect figure. The segregation of the money value will have to be done in the sub-accounting system by the DP. These cash movements could be on account of settlement or corporate action disbursal.

These cash disbursals to sub-accounts could result in an instruction from the DP to its bank to credit the account of the sub-account holders or to issue a cheque.

9.4 Reconciliation

The DP Sub-accounting books will have to be in sync with those of CDS. It will therefore be of utmost importance to reconcile accounts.

The total position of the sub-accounts attached to the DP in the sub-accounting system must match the total holding of the DP at CDS.

This reconciliation will have to be done periodically, preferably on a daily basis.

To rectify discrepancies that come to light as a result of the reconciliation process, the system must have a correction mechanism.

9.5 Master Data Maintenance

Master data maintenance will involve the creation and maintenance of all master information required for the DP Sub-accounting system .

This will involve maintenance of details about :

- Sub-accounts holders
- Securities (including the pre-specified holding limits)

The last could be downloaded from CDS periodically.

9.6 Reports

The sub-accounting system must provide for the following reports at the minimum:

- Holding and transaction statements for sub-accounts
- Beneficial ownership data as of a date to CDS
- Contract notes

9.7 System Security

The following threats to security must be considered :

- Unauthorized access
- Insufficient verification
- Lack of maintenance

Systematic security will have to be built up, so that only authorized users , after proper verification, are able to run the Sub-accounting system.

CHAPTER 10

SUPPLIER DETAILS

This Chapter outlines the supplier details that will have to be provided to enable SHCIL to determine whether the supplier has the infra-structure and experience to undertake a project of such magnitude. Vendors will be required to provide information about their Financial and Organizational Structure and Technical Capability, along with Client References for similar projects.

10.1 Financial Details

The following audited financial statements should be provided:

- Balance Sheet and Profit & Loss Statements for the past three years
- Turnover from software products and services for the past three years.

If a packaged software is offered and if the organization which is customizing the package is different from the one developing the package, then the statements of the company offering the software package must also be disclosed.

10.2 Organization Details

The following details about the organization should be provided:

- Year of formation of the company
- Whether Privately Owned or a Publicly Held Company
- Total Staff Strength of the Organization, indicating the number involved in software related activities

If a packaged solution is offered, the staff strength available for Product Support must be indicated.

If a packaged software is offered and if the organization which is customizing the package is different from the one which developed the package, then details of both organizations should be provided.

10.3 Technical Capabilities

The following information about technical capabilities of vendors should be provided :

- Brief overview of some large projects
- Description of some projects executed in the Securities Industry
- Experience on major hardware/ software platforms
- Experience in 3GL, 4GL, Relational Databases, UNIX, C, C++, GUI and Object Oriented Methodology
- Experience in Data Communications and Networking
- Experience in evaluating hardware and networking solutions
- Experience in Site Preparation, Facilities Management
- Project Management Techniques and Development Methodology
- Quality Assurance Standards and Processes
- Usage of Software Productivity Tools
- Training Methodology and Experience in Conducting External Training Courses
- In-house Hardware/Software Infrastructure

The following information about the package should be provided:

- Year Developed
- Year of First Installation
- Total Installations worldwide
- Year of last update/revision
- Documentation Available (Version and last updated date)
- Software/Hardware environment (Provide typical hardware configuration and growth path for the hardware)
- Architecture of the package which brings out the flexibility with which the package lends itself to modifications and user friendliness of the package
- Detailed functions of the package, preferably its Functional Specifications
- Statistics to prove the reliability of the package

- Release of future updates to CDS
- Source Code Licensing Policy

10.4 Reference Sites

If a "fresh development" is proposed, then provide details of reference sites (with contact details) where the vendor has executed a project of a similar magnitude and nature.

If a packaged software is proposed, then provide details of reference sites (with contact details) where the above package is operational.

If the organization which is providing the software package is different from the one that is customizing the package then information about the following reference sites is to be provided:

- The organization providing the customization must describe reference sites where the vendor has executed projects of a similar magnitude and nature
- The organization providing the packaged software must describe/provide reference sites where the proposed package is operational

Are the sites mentioned amenable to on-site visit by an evaluation team from SHCIL ?

CHAPTER 11

DELIVERABLES, PROJECT PLAN AND MANAGEMENT

In this chapter the vendor will detail its Project Management technique and detail its high level implementation schedule to implement the CDS.

11.1 Project Management

Vendors are requested to indicate their project management and organization techniques. They are requested to provide details about the following:

- Project Team Structure (Project Manager, Module Leaders test responsibility etc.). Resumes of key personnel who would be attached to the project should also be provided.
- Project Management Techniques (Reporting and Reviews , types and frequencies)
- Quality Assurance Program
- Use of Software Productivity Tools
- Warranty Criteria, Period and Support
- Acceptance Criteria, Period and Support
- Maintenance Support
- Transfer of Source Code to SHCIL

CHAPTER 12

COST SCHEDULES

12.1 Price Information by Suppliers

Vendors are required to give their estimates of the costs as per items in the list below. Any prices and costs quoted should be the gross figures with all appropriate tariffs, duties and taxes included. However, tariffs, duties and taxes should be indicated separately. The prices quoted should therefore be the 'landed' prices at the SHCIL site.

12.2 RFI Response

12.2.1 What will be the cost of each of the following for a packaged solution ?

- System Software
- Package
- Customization
- System Testing
- Acceptance Testing
- Installation
- Training to SHCIL personnel
- Documentation
- Maintenance

The cost provided should be a fully loaded cost inclusive of travel, boarding and lodging.

12.2.2 What will be the cost for each of the following phases of a "Fresh Development" project ?

- Requirements Study

- Analysis
- Design
- Development
- System Testing
- Acceptance Testing
- Installation
- Training to SHCIL personnel
- Documentation
- Maintenance
- Change Management Procedure (at all stages) additional efforts

The cost provided should be a fully loaded cost inclusive of travel, boarding and lodging.

It is assumed that the hardware, space, software, tools etc for developing / modification will be provided by the selected vendor and the cost of the same is included in the proposal.

In each case, vendors should state the effort involved in Person Days/Months/Years.

12.3 Items in the price response

The price response should address each of the following as applicable :

12.3.1 Staffing

For each individual and/or staffing category to be employed on the project, indicate the proposed monthly rate and the estimated time and cost for each major task, stage and deliverable.

12.3.2 Equipment : (Hardware, Software)

Indicate the equipment /tools that proposer requires for the work, inclusive of applicable taxes and duties and for which the proposer seeks reimbursement from SHCIL under the contract. Where possible specify manufacturer model, supplier, price and the basis for the price. Please note that SHCIL does not undertake to procure/supply any or all of the items and these may have to be procured by the vendor at its own cost and risk.

12.3.3 Post-delivery maintenance

Vendors should be willing to commit to maintain the system for a period of 5 years after successful implementation. The annual cost of this should be separately included. This should not be added to the total cost of proposal.

12.4 General Instructions

All prices are to be quoted in Indian Rupees wherever possible. For a product/service not provided by an Indian source, prices are preferably to be quoted in U.S. Dollars (the prices should also be converted into Indian Rupees). Customs and duty charges should be indicated in Indian Rupees. The conversion rate used should be a constant and must be specified in the response.

Vendors are to note that the hardware and the software environments are not yet decided. If any of the above costs are dependent on the environment then this should be clearly brought out by the vendor.

CHAPTER 13

COMMERCIAL CONDITIONS

This section is included to give advance notice to the prospective suppliers of the important commercial conditions that will be included by SHCIL in the contract.

In case of "fresh development" it is to be clearly understood that ownership of the software including source code and all designs and documentation vest solely with SHCIL including rights to sell, license and otherwise transfer. The contractor shall claim no rights in this regard.

In case of "package solution" the contractor must provide the source code to SHCIL to facilitate maintenance of the software. In this case SHCIL undertakes not to use the source code for any other purpose.

13.1 Applicable Law/Applicability

The contract shall be construed in accordance with and be governed by the laws in India and shall be subject to the jurisdiction of Bombay Courts.

13.2 Arbitration

All disputes, questions or differences, etc. arising in connection with this agreement shall be referred to a single arbitrator in Bombay in case parties agree upon one, otherwise, two arbitrators in Bombay are to be appointed by each party in accordance with and subject to the provisions of the Arbitration Act, 1941 or any other enactment or statutory modification thereof for the time being in force.

13.3 Bankruptcy and Liquidation

If the contractor becomes the subject of bankruptcy proceedings or ceases to carry on its business, then SHCIL will have the immediate right to obtain the source code from the contractor for the purposes of maintaining the system.

13.4 Confidentiality

The contractor and SHCIL shall keep confidential any information obtained under the contract and shall not divulge the same to any third party without the consent in writing of the other party.

The provisions of this clause will not apply to:

- any information in the public domain

- information in the possession of the receiving party prior to the contract being signed

- information obtained from a third party who is free to divulge the same

- information disclosed under legal compulsion viz. Court, SEBI, etc.

The contractor and SHCIL shall divulge confidential information only to those employees who are directly involved in the Contract and fully aware of the Confidentiality Agreement.

Except as may be required by law, no information relating to the examination, clarification and evaluation of bids and recommendation concerning awards should be communicated after public opening of bids to any person(s).

13.5 Delays/Liquidated damages for delay

In the case of any delay in delivery of more than one week from the contractual completion date the contractor shall be liable to pay damages to SHCIL. Damages will be calculated from the expiry date of the contractual period for each day of delay and they will be fixed at 2/1000 of the value of the undelivered piece of software. This will be in addition to any consequences prescribed in that behalf in the contract to be executed between SHCIL and the vendor.

SHCIL may without prejudice to any other method of recovery deduct the amount from the bills of the contractor without any previous demand being necessary.

13.6 Extension of Time for Completion

If, after the date of award of the contract, the contractor is delayed or impeded by any act or omission of SHCIL or any circumstances beyond the reasonable control of the contractor, and provided that the contractor shall without delay have notified SHCIL in writing for such delay or impedance, SHCIL may grant the contractor at its absolute discretion from time to time in writing such extension of time as may be reasonable and the Completion Date shall be amended/extended accordingly.

Should the amount of extra or additional work of any kind or other special circumstances of any kind whatsoever which may occur, be such as fairly to entitle the contractor to an extension of time for the completion of work, SHCIL shall determine the amount of such extension. SHCIL is not bound to take into account any extra or additional work or other special circumstances unless the contractor has within fifteen days after such work has commenced or such circumstances have arisen or as soon thereafter as is practicable, delivered to SHCIL's representatives full and detailed particulars along with a calculation of the time to which SHCIL may consider in order that such claims may be investigated.

13.7 Force Majeure

Neither party shall be liable for failure to perform its obligations under the contract if such failure results from circumstances beyond the party's reasonable control.

13.8 Indemnity

The contractor shall indemnify and keep indemnified SHCIL and its staff, against any loss or injury (including death) to any persons or loss of damage to any property and services which may arise out of the act, default or negligence of the contractor or his appointed sub-contractors and against all claims, demands, proceedings, damages, costs, charges and expenses whatsoever, in respect thereof or in relation thereto.

13.9 Publicity

Neither the contractor nor his sub-contractor shall without the prior consent of SHCIL advertise or publicly announce that he is working for SHCIL.

13.10 Sub-Contracting/Sub-letting

Except where otherwise permitted by SHCIL, the contractor shall not sub-let any part of the work without prior written consent and such consent if given shall not relieve the contractor from any liability or obligation under the contract. The contractor shall be responsible for the acts, defaults and neglects of any sub-contractor or his agents or servants as fully as if they were his own acts.

13.11 Notice of termination of Contract

The contractual agreement shall become effective on the date on which it is entered into / executed and it shall continue and remain in force until it is terminated by SHCIL at any time by giving 30 days prior written notice thereof delivered or dispatched by mail to the contractor.

13.12 Tendering Costs

All tendering costs will be the sole responsibility of the tenderer. SHCIL will not be liable for any costs associated with the preparation of the response and/or the contractual negotiations.

13.13 Updates

In case of a packaged solution, the contractor will undertake to provide SHCIL with all updates to all software provided under the contract free of charge for a period of two years from the delivery date of the package. This will include but not be limited to all software fixes and major revisions to the software as the basis of the contract between SHCIL and the selected vendor.

13.14 Project Management

The contractor is required to have an on-site management team at SHCIL premises during SHCIL working hours including public holidays that are not observed by SHCIL. The members of this team must have full authority to make decisions regarding all aspects covered by the contractual agreement between SHCIL and the contractor. One of the responsibilities of the contractors' on-site manager will be to submit a weekly status report in writing and to attend a weekly status meeting.

The contractor is required to establish a formal system of internal quality assurance as part of the responsibilities of the on-site management team. The contractor must propose standards for quality assurance to be agreed upon with SHCIL. Specific areas that must be addressed are :

- Acceptable response times for transaction and queries
- Acceptable run times
- Acceptable system resource utilization

These standards will be part of the contract.

SHCIL reserves the right to call upon other quality assurance expertise at its own expense or consult third parties at its discretion.

13.15 Acceptance of Deliverables

SHCIL reserves the right to reject any deliverable which does not fully comply with functional requirements and or established standards of quality assurance.

CHAPTER 14

VENDOR EVALUATION

SHCIL will evaluate the responses. Detailed evaluation weightings will not be disclosed.

A technical evaluation will first be conducted based on which vendors will be short-listed. The Financial Evaluation will be conducted only on the short-listed vendors.

SHCIL will then seek clarifications on the Response from short-listed vendors. If a packaged solution is offered, it is likely that members of the Evaluation Committee will visit a site for a demonstration of the product.

14.1 Technical Evaluation

The Technical Evaluation will be based on various criteria. These are discussed in detail below.

a. Compliance and Response to the RFI Format (Business Functions)

SHCIL will study and evaluate the responses to Chapters 3 - 9 in detail. This evaluation will help SHCIL to judge how Business Functions are supported by the Vendor's solution.

b. Software Solution

If a packaged solution is proposed, SHCIL will evaluate the package according to the following criteria:

- Architecture of the package and its functions
- Ability to work in centralized and distributed environments
- Software environment (3GL/4GL)
- Growth path for the hardware on which the package runs
- Availability of manpower to maintain the package

- Effort involved in customizing the package
- Flexibility with which the product lends itself to modifications
- User-friendliness of the package
- Reliability of the Package
- Performance of the package considering current and future volumes in the Indian securities market
- Release of future updates to NCDS

If a fresh development solution is proposed, SHCIL will evaluate vendors on their proposed:

- Project Management Techniques and Development Methodology
- Quality Assurance Plan
- Usage of Tools
- Manpower Resources

Irrespective of whether it is a packaged or a "Fresh Development" solution, the following factors will be taken into account in the evaluation:

- Warranty Criteria, Period and Support
- Acceptance Criteria, Period and Support
- Implementation Plan and Support
- Maintenance Plan and Support
- Transfer of Source Code Proprietary rights to SHCIL

14.2 Vendor Infrastructure

The final, short-listed vendor is also expected to help SHCIL in:

- Formulating the Business Functions of the Depository
- Evaluating Hardware and Telecommunication Solutions for SHCIL
- Conducting Benchmarks

Vendors will be evaluated according to the following criteria:

- Financial Stability

- Experience in handling Large Software Projects
- Infrastructure for handling large projects (Project Management, Quality Assurance, Manpower, Training, Hardware/Software Resources)
- Experience in the Securities Industry
- Experience on major hardware platforms
- Experience in 3GL, 4GL, Relational Databases, UNIX, GUI
- Experience in Data Communications and Networking
- Experience in evaluating Hardware and Telecommunications Solutions
- Experience in Site Preparation, Facilities Management and providing Training on a national basis to a large number of persons

14.3 Financial Evaluation

The financial evaluation will consider not only a one-time development or purchase cost but it will also keep-in mind costs incurred to maintain the system in the long-term.