

PN-ACC-025

**Review of the Cash Settlement Process
and Proposed Securities Depository for
The Stock Exchange, Mumbai (BSE)**

**Financial Institutions Reform and
Expansion (FIRE) Project**

September 1997

**Financial Institutions Reform and Expansion
(FIRE) Project
US Agency for International Development
(USAID/India)
Contract #386-0531-C-00-5010-00
Project #386-0531-3-30069**

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Price Waterhouse LLP



September 1, 1997

Mr. M. G. Damani
President,
The Stock Exchange, Mumbai
Phiroze Jeejeebhoy Towers
Dalal Street
Mumbai

Dear Mr. Damani,

**Re: The Stock Exchange Mumbai (BSE) -- Review of the Cash Settlement
Process and Proposed Securities Depository**

At your request and as a part of our contract with the USAID, Ms. Susan Hertel, Former Vice President with the Midwest Clearing Corporation/ Midwest Securities Trust Company of the US and a consultant to Price Waterhouse Capital Markets, has completed the next part of our activity towards assisting BSE in improving and establishing efficiencies in processes related to the clearance and settlement of trades.

Purpose of Activity

The primary purpose of this activity was assisting BSE in streamlining and improving efficiencies under current processes related to the clearance and settlement of trades and to provide assistance in the development of BSE's proposed depository, in reviewing and commenting on the concept paper draft (s) on this topic.

Approach to Work

Price Waterhouse - FIRE (PW) project has been working with BSE over the last few months to develop an approach to bringing international standards in trading and settlement to the Exchange. During her last trip Ms. Hertel met with the BSE to identify a reasonable scope of work in assisting BSE to streamline their current clearance and settlement processes. PW and BSE agreed to the following three-pronged scope of work:

- Improvement of the cash settlement process at BSE as currently performed by Bank of India Shareholding Ltd.

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- Streamlining of the overall securities clearing process.
- Conversion of "A" scrips to a five-day rolling settlement cycle.

The above work will support BSE's overall immediate corporate objectives. The cash settlement functions were included in this scope and this deliverable addresses that issue. Ms. Susan Hertel the consultant assigned to this work has extensive experience with a U.S. depository in the area of cash management and daily cash settlement.

An outline for information was provided to the BSE. Based on the information that was provided by the BSE, the current process used in clearing and settlement by the BSE were outlined. A set of questions were framed arising from this exercise, and meetings were held with Kalpana Maniar and C. D. Khambatta to discuss the same.

Meetings were also held to discuss the trading cycle and delivery of the physical shares and discussions took place on how to compress the current time line. The cash settlement process must coincide with both the current environment and the proposed changes.

In addition to the above scope of work outlined, BSE also desires assistance from PW in developing a depository. PW will assist in reviewing and commenting on the concept paper draft (s) on this topic. PW will also help with the overall thought process associated with defining BSE's depository services through ongoing discussions and responses to specific questions about depository concepts. To assist BSE with the thought process in developing this paper, PW has provided a recommended outline. (See "Product Definition/Concept Paper")

BSE is to re-draft the paper based on the above comments and recommendations, and distribute it to the PW consultants for another review.

Observations and Recommendations

It is recommended that BSE include the following enhancements in establishing this automated process:

- Full automation of the Processing of cash debits and credits to members using file transmissions from BSE to BOI.



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- Netting of all cash debits and credits due from and to members for trade settlement as well as other categories of cash activities in members' accounts.
- Work with the banking industry in the following areas critical to the cash settlement process:
 - ▶ Securing bank agreements with clearing members to facilitate the automation of the processing of settlement debits.
 - ▶ Development of electronic funds transfer between banks.

Next Steps

Ms. Susan Hertel shall return to India in the third week of September 1997, to continue her assistance to the BSE in streamlining its settlement and clearing processes.

She will continue to work with BSE in all of the above areas as well as all facets of the defined three-pronged scope of work related to clearance and settlement:

- Cash settlement.
- Clearance and settlement of physical securities against trades.
- Rolling settlement.

In addition, PW will continue to provide guidance to BSE in development of the Exchange's concept paper on the creation of a securities depository. Drafts of the paper will be reviewed by PW consultants who will provide comments and recommendations. PW consultants are also available to BSE staff members preparing the document to discuss ideas and answer questions based on the experience of the consultants.

PW will continue to assist BSE with the depository concept process as well as with the more immediate objectives related to the current clearance and settlement process. Having an effective clearing process should be primary with BSE as this is critical to depository processing whether the depository is at BSE or BSE becomes a clearing member of another depository.

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For the success of this project the participation and cooperation of your management and staff is essential. We would like to thank you and your colleagues at the BSE for the time, courtesy and cooperation extended to us during the course of this project.

Please get in touch with us at the FIRE project for any clarifications you may require.

Thanking you,

Yours sincerely,

WD Grubb

W. Dennis Grubb
Principal Consultant

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***Review of the Cash Settlement Process
and Proposed Securities Depository
for The Stock Exchange, Mumbai (BSE)***

***Price Waterhouse LLP
Mumbai***

September 1997

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- A. Recommended Product Definition/ Concept Paper Outline**
- B. Sample Action Plan for Cash Settlement**

I. EXECUTIVE SUMMARY

The Stock Exchange, Mumbai (*BSE*) has requested assistance from the Price Waterhouse - FIRE project (*PW*) in improving certain processes related to trade clearance and settlement. Subsequently, BSE and PW have had several discussions on directions that the Exchange should take to begin to meet international standards in this area. Based on these discussions and considering BSE's immediate objectives, the following three-pronged scope of work was developed:

- Improvement of the cash settlement process.
- Streamlining the clearance of the physical securities.
- Conversion of "A" scrips to five-day rolling settlement.

Two consultants from PW have been assigned to this work based on their experience in specific areas: One on the clearance and settlement of physical securities; the second, on cash settlement. This deliverable specifically addresses the cash settlement process.

To meet international standards, BSE's goal must be to effect cash settlement on the same day that securities are delivered against trades. This factor combined with finality of payment would greatly minimize risk to the Exchange, its clearing members, and the industry as a whole.

Cash settlement and securities clearance are currently performed by the clearing house Bank of India Shareholding Ltd. (*BISL*), a joint venture by BSE and the Bank of India (*BOI*). The procedures at BISL and BOI were reviewed to determine where improvements might be made. The processing of individual checks and drafts for trade settlement as well as other member obligations to BSE is manually intensive. BSE and BISL have begun to address this through providing certain credit details to BOI via floppy diskettes. It is planned to expand this procedure to all credits. Debits will be added after BOI secures new agreements with the clearing members.

The bank follows standard banking deadlines in India in processing the checks and drafts. Notification is given to BISL by 6:30 P.M. on the day of deposit. BISL then notifies BSE of these items. The Exchange takes whatever action against the defaulting member(s) is deemed appropriate.

Based on the review of both BISL and BOI procedures related to the cash settlement process, PW has made the following recommendations:

- **Processing of cash debits and credits to members** - BSE/BISL has definitely moved in the right direction by beginning to automate the funds processing where possible. It is recommended that the floppy diskettes be replaced with complete automation in the form of file transmissions from BSE/BISL to BOI as soon as possible. This will

significantly increase the efficiency of the settlement process and avoid errors/problems related to the creation of "floppies".

- **Netting of all cash settlement debits and credits** - It is recommended that BSE consider creating a net settlement figure that includes not only debits and credits related to trade settlement, but all obligations and miscellaneous credits due from and to members. This one amount would then be presented to the bank for processing to the members' accounts. This change in would make the overall cash settlement process more efficient, reduce processing costs for BSE, BOI, and clearing members, and minimize risk by utilizing credits to offset debits due from members. Netting would also support the daily settlement of all types of cash debits and credits, improving BSE's cashflow, and is necessary under rolling settlement.
- **Work with the banking industry** - It is recommended that BSE work with the banking industry in the following areas critical to the cash settlement process:
 - ▶ **Securing bank agreements with clearing members to facilitate the automation of the processing of settlement debits.** Completion of this needed step seems to be experiencing delays. BSE needs to clearly understand what these delays are and work with the Exchange members to overcome them where appropriate.
 - ▶ **Development of electronic funds transfer between banks** - Currently, it is required that clearing members hold an account at the BOI Stock Exchange Branch to facilitate cash settlement with BSE. This will increasingly become a burden to all involved with BSE settlements. The difficulty lies in funding by check transfer of funds. The transfer of funds by check from one bank to another requires a minimum of one day for the receiving bank to ensure the availability of funds. Immediate transfers of funds can only be accomplished electronically.

As BSE expands its activity nationwide and, more importantly, moves to rolling settlement, it will become increasingly impossible for members to meet their ongoing settlement obligations in the current scenario. BSE should take an active part with their bank in promoting this capability within India to the central bank and any other party as necessary. Organizations such as BSE can significantly increase the awareness of the need for electronic funds transfers within India to support the activity of the financial community both within the country and globally.

In relationship to the clearing and settlement process, BSE has made the decision to move forward with the development of a securities depository. Assistance from PW has been requested by BSE in this project also. To begin this process, PW has required that a concept paper be developed by BSE. PW is prepared to assist BSE by providing guidance in this

effort, reviewing and commenting on drafts as prepared by BSE staff members. To that end, PW has already provided BSE with a sample outline for both the concept paper and action plan (Appendix A). Comments on the first draft have also been given to BSE, and several discussions have been held between PW and BSE on general depository processes.

PW will continue to assist BSE with the depository concept process as well as with the more immediate objectives related to the current clearance and settlement process. Having an effective clearing process should be primary with BSE as this is critical to depository processing whether the depository is at BSE or BSE becomes a clearing member of another depository.

II. BACKGROUND

Price Waterhouse - FIRE (PW) project has been working with BSE over the last few months to develop an approach to bringing international standards in trading and settlement to the Exchange. Recently, PW and BSE agreed to the following three-pronged scope of work:

- Improvement of the cash settlement process at BSE as currently performed by Bank of India Shareholding.
- Streamlining of the overall securities clearing process.
- Conversion of "A" scrips to a five-day rolling settlement cycle.

The above work will support BSE's overall immediate corporate objectives. The scope outlined also meets PW's requirement for a manageable project. This paper will focus on the cash settlement process portion of the scope of work. The consultant assigned to this work has extensive experience with a U.S. depository in the area of cash management and daily cash settlement.

NOTE: *The other two areas noted above will be addressed in a separate report or reports. Work on all three facets of this scope will be cross-checked for consistency and compatibility.*

Currently, the cash settlement at BSE takes several days to complete (from settlement day to finality of payment). To meet with international standards, it is critical that BSE move to cash settlement on the same day as trade settlement and/or delivery of securities against trades. Also important is the insurance of finality of payment (no possibility of subsequent reversal) on pay-in day. These two factors will greatly minimize risk to both the Exchange and its clearing members.

The following narrative discusses the current cash settlement process at BSE and PW recommendations in this area, including suggestions to BSE on the approach to and control of this project.

In addition to the above scope of work outlined, BSE also desires assistance from PW in developing a depository. At this time, assistance will primarily be in reviewing and commenting on the concept paper draft (s) on this topic. PW will also help with the overall thought process associated with defining BSE's depository services through ongoing discussions and responses to specific questions about depository concepts. To that end, suggestions have already been made by PW on the format of such a paper. (See "Product Definition/Concept Paper")

III. CURRENT CASH SETTLEMENT PROCESS

A. BSE Procedures

In September, 1989, BSE and Bank of India (BOI) entered into a joint venture to establish Bank of India Shareholding, LTD.(BISL). Structured organizationally as a clearing house, BISL facilitates the settlement of trades executed on the BSE. One of the areas supported by BISL is the cash settlement between BSE and its members.

Currently, members of BISL are assigned individual accounts through which all money settlement activities during the day are reflected. These activities may be directly related to trade settlement or represent miscellaneous cash debits and credits. Entries in both categories include:

- Delivery/receipt of securities for a specific settlement period and related cash.
- Daily margin requirements.
- Mark-to-market on trades.
- Settlement of auction items and related cash.
- Refunds for cash paid for short deliveries (fails) when securities are later delivered.
- Contributions required under the Trade Guarantee Fund and contingency fund.
- General billing for exchange and clearing house services.
- Credit notes between members.
- Auction close-outs (shortages/fails as a result of shares offered under the auction process).
- Penalties/charges levied by BSE for arbitration, wrong objections, non-collection of securities, etc.
- Auction commission.

Debits and credits in each of the above categories are netted and reported to members through a summary report entitled "Form 31". This is available to the members through this system-generated statement at 9:00 A.M. on each Monday and at 10:00 A.M. each Tuesday for settlement on the following Thursday.

Note: *With the exception of credit notes (kaptis) between members, all of the cash-related activities are generated through some form of automated input. This activity is downloaded to members each morning.*

Until recently, money settlement through BISL has been effected through a system of checks and drafts. It has been the practice to require separate checks paid and drafts prepared/presented by members for settlement of each type of activity as reflected on the Form 31 statement. This requires the issuance, deposit, and tracking payment of several checks for one day's cash settlement activity by BISL, BSE and BSE's members.

Note: *In recognition of how cumbersome this process is, BSE has taken steps to begin to automate pieces of this process. See "BSE/BOI Proposal for Automation".*

Checks in payment of each debit are delivered by members to the clearing house on Thursday evening for the related trade settlement period. (There is no time deadline for delivery of these instruments.) BISL forwards checks received from members to the bank for deposit on the following Friday morning.

BSE provides to the clearing house a list of credits to be paid to members and a cover check in payment of these credits drawn on BSE's bank account. The clearing house then issues the individual checks to the members, using the cover check from BSE as the cash offset at the clearing house.

BOI notifies the Clearing House of any unpaid checks by on Friday, the day of deposit, by 6:30 P.M. This information is then forwarded to BSE by 7:00 P.M. on that same day for appropriate action by the respective department of the exchange to which the payment is owed. At the same time, entries are made to members accounts to reflect the unpaid items, and the Clearing House is reimbursed by BSE.

Payments by members are considered to be final once the above report from the bank is received. There is no known possibility for payment reversals after the bank confirmation.

Note: *The above timings are generally related to trade settlement and cash obligations of members that are due on the same day as the trade settlement. Conceivably, because of the different categories of obligations reported on Form 31, there could be amounts due from members throughout the week.*

Prior to the confirmation of payment of checks by the bank, the pay out of credits to members has not occurred. BSE may make a business decision to process credits before all the debits are known to be paid. To provide liquidity to the settlement process, BSE relies first on cash float. BSE also maintains a credit line with its bank to cover any shortfall experienced because of unpaid settlement debits. In the event that the cash float and credit line are not sufficient, BSE may also draw on its contingency funds. The guarantee fund is invested, but

could be available for use by BSE within one business day. Steps would then be taken to attempt to recover funds from the defaulting broker.

All BSE members are required to maintain bank accounts with the BOI Stock Exchange Branch to facilitate the above cash settlement processes. Likewise, BSE maintains an account with this branch of the bank.

B. Related Bank Procedures

The BSE uses the Bank of India (BOI) for cash settlement purposes. The BOI follows three procedures for the clearance of checks as established by the Indian banking community. In all cases, the Reserve Bank of India (RBI) Clearing House acts as the middle man between the payee and payor banks. These three procedures are:

1) Mumbai Fort Area Clearing

Mumbai Fort Area Clearing- Checks are delivered to the Fort Area branch of BOI between 10:30 A.M. and 2:30 P.M.

Note: *The "BOI Stock Exchange Branch" referred to above is within the "Mumbai Fort Area".*

After routine MICR encoding, the checks are sent to BOI's service branch by 4:00 P.M. for subsequent delivery to the RBI on the next business day. Confirmation of payment of these checks is received by 1:30 P.M. on that second day (deposit date + 1 business day).

NOTE: *Payment of checks presented to the bank on Saturday is known on Monday.*

2) Mumbai Fort Area High Value Clearing

Mumbai Fort Area High Value Clearing - Checks for amounts over Rs. 100,000 are handled separately to facilitate a quicker clearance. In this case, checks are accepted by BOI between 10:30 and 11:00 A.M., and forwarded to the Service Branch by 11:30 A.M. for further processing including delivery to the RBI.

This expediting of checks processed under the high value clearing scenario allows for confirmation of payment by 4:30 P.M. on the same day they are deposited.

3) Non-Fort Area Normal Clearing

Non-Fort Area Normal Clearing - Checks drawn on banks outside of the Fort Area are accepted for deposit by the bank between 10:30 A.M. and 2:30 P.M. Processing of these checks follows the same procedures as the Fort Area checks (MICR encoding, delivery to

BOI's Service Bank, delivery to RBI, etc.), but with later deadlines. As a result, confirmation of payment is not received until the second business day after the deposit date.

Since it is mandatory for all BSE members to maintain accounts with the BOI Stock Exchange Branch for the purposes of cash settlement with BSE, checks processed under this settlement would be considered either "Fort Area" or "Fort Area - High Value" clearing. The non-fort area clearing procedure would not apply.

The requirement of all accounts held at the BOI Stock Exchange Branch facilitates the finality of payment. With all accounts within the one branch, the bank can easily insure that funds are in the account to pay debit settlement amounts.

It should also be noted that the only method currently available to fund these bank accounts is through transfer of funds from another account by check. There are no electronic transfer of funds between banks at this time in India.

The existence of different check clearance times in India is very similar to what exists in the U.S. However, in addition to clearing checks through the central bank, the Federal Reserve Bank, U.S. banks have relationships with each other through which funds movement resulting from check processing is minimized. Checks are sent directly to the paying bank by the receiving bank, bypassing the FRB's check clearing house. Correspondent or "due to/due from" accounts are established between banks to facilitate the posting and netting of funds related to this type of check clearance.

C. Proposal for Future Procedure

Currently under consideration by BSE and BOI is a full conversion to the automated processing of debits and credits. The individual data for each member and each type of cash obligation (trade settlement, billing, margin, etc.) would be submitted to BOI on separate floppy diskettes (by obligation type) for input to the bank's internal system.

Certain credits to members are already being effectively processed under this new method. BSE plans to continue to convert all credits over the next few months. BSE also desires to process debits in this manner. However, this requires new agreements between BOI and its clients (BSE members) which have not yet been negotiated.

IV. OBSERVATIONS AND RECOMMENDATIONS

A. *Current Process - BSE*

Timing of bank notification on payment of checks - An immediate step that should be taken by BSE is to review the timing of notification of unpaid checks by BOI. The bank has stated that under the "High Value Clearing" process confirmation of payment of checks is available "by" 4:30 P.M. Per BISL, this notification is being received until 6:30 P.M., with notification not made to BSE until 7:00 P.M. It appears that BSE has at least two hours of risk that can be eliminated. This two hours can make a significant difference when dealing with a failing member.

BSE should understand why this delay is being experienced and ensure that it is an acceptable business decision to wait the additional time before receiving the final notification from the bank. A compromise may be that BOI notifies BISL by 4:30 of what is definitely paid and what is still open. BISL can then consult BSE on how to proceed with the open items.

Settlement by obligation type - Under the current cash settlement process, both BSE and its members must issue and receive/deposit multiple checks and drafts for each day's settlement and based on individual cash obligation types (except where credits have been converted to the "automated" method). The time required for these processes is increased by the tracking of checks as performed by BOI, the Clearing House, and BSE for confirmation of payment and subsequent actions that must be taken where checks are returned unpaid. Even under the proposed "automated" process, individual amounts for each type of settlement obligation are to be processed.

In U.S. clearing corporations, all cash debits and credits such as those processed separately by BSE are combined into one final net settlement figure. This one amount is then paid to or received from participants at the end of each business day. This netting results in the efficient processing and monitoring of cash settlement obligations by the clearing corporations, its participants, and the banks. Further, netting minimizes the risk associated with the collection of debits by utilizing credits due to participants as offsets to the amounts owed.

NOTE: *Since the conversion to Same Day Funds in the U.S., all final cash settlement amounts are processed through the Federal Reserve Bank. Previously, participants of clearing corporations could elect to use any one of several banks for this purpose. It is this earlier model that will be used to draw comparisons as it is more appropriate for the current Indian environment.*

BSE has the basis already in place to move to such a netted cash settlement. "Form 31" provides the summary details for each category of debit or credit. The individual amounts only need to be combined into one final figure for each member. Internal or "contra"

accounts can be used to support the transfer of monies to the appropriate departments within BSE. This can even be extended to automatically crediting and debiting the related BSE bank account if different from the settlement bank account.

Movement to the practice of net cash settlement would significantly improve the overall efficiency of this process for BSE, its members and BOI. Time would be saved in the initial issuance of checks, deposits, and subsequent tracking for confirmation of payment. The opportunity for errors resulting from this extensive manual process would be significantly reduced. This time-savings and error reduction would convert to cost savings both in personnel costs transaction fees at both BOI and BSE/BISL.

Under the rules of U.S. clearing corporations, the settlement of this final net figure becomes the obligation of each participant. Non-payment of debits or checks returned by banks as unpaid place the participant in default. Participants are then subject to appropriate actions based on the default and as also defined in the clearing corporation rules.

It appears that BSE rules provide for similar requirements of its members as those followed in the U.S. However, a review of related rules would be prudent, and changes made to strengthen this area if necessary (including both the cash settlement obligation and actions that may be taken in the event of default).

Banking restrictions - The current requirement to hold an account at the BOI Stock Exchange Branch will increasingly become a burden to all involved with BSE settlements. The difficulty lies in funding by check transfer of funds. As BSE expands its activity nationwide and, more importantly, moves to rolling settlement, it will be impossible for members to meet their ongoing settlement obligations.

The transfer of funds by check from one bank to another requires a minimum of one day for the receiving bank to ensure the availability of funds. Immediate transfers of funds can only be accomplished electronically. BSE should take an active part with their bank in promoting this capability within India to the central bank and any other party as necessary. Organizations such as BSE can significantly increase the awareness of the need for electronic funds transfers within India to support the activity of the financial community both within the country and globally.

B. BSE/BOI Proposal for Automation

Price Waterhouse commends BSE for taking steps to automate the processing of settlement debits and credits. If BSE had not already started this process, it certainly would have been a recommendation within this paper.

It is recommended that BSE include the following enhancements in establishing this automated process:

- Net settlement - As noted under "IV. OBSERVATIONS AND RECOMMENDATIONS", BSE should consider netting all cash obligations into one net figure either on trade settlement day or for various activities during the week. This netting process increases the efficiency of the cash process while reducing risk by using cash credits to offset cash debits.
- Full automation - BSE should move toward automation through file transmissions to their bank, reducing the use of floppy diskettes to emergencies only. The routine use of "floppies" is time-consuming in the creation and delivery of this media. An automated file transmission will move the cash settlement process along more quickly and efficiently.

V. PRODUCT DEFINITION/CONCEPT PAPER

To assist in making decisions under the cash settlement and depository projects (and any other major BSE undertakings), PW has strongly recommended that BSE prepare an internal document describing what needs to be done and why to achieve the desired results. This document may be in the form of a "product definition" or concept paper. The following information has been offered to BSE staff members charged with creating this document to provide insight on what such a paper is and suggestions on how to develop the working document. In addition, PW is continuing to provide guidance to BSE in this area.

A concept paper should be written for each project to create a new service or enhance an existing one. All facets of the project should be described in detail. Areas that are to be included are:

- ▶ Background information on proposed service/product.
- ▶ Detailed descriptions of functions to be performed and who does them.
- ▶ Technical needs.(hardware and software) and the impact on the current environment.
- ▶ Internal and external regulatory and other legal issues that need to be considered.
- ▶ The financial impact on the developing organization. This includes expenses vs. potential revenues under the new or changed service.
- ▶ An action plan for the project that includes tasks and target dates.
- ▶ Any future enhancements that need to be considered in developing business and technical processes.
- ▶ Identified open issues that must be addressed before implementation date.

A sample outline for the concept paper may be found in Appendix A. This outline is intended to generate ideas within BSE. The final paper should not necessarily be limited to those topics suggested.

Creating the concept paper is BSE's opportunity to clearly describe the desired results under the project in one organized format. BSE should not hesitate to create new ideas through "brainstorming" and "blue-sky" approaches. (This paper cannot be too detailed.) Components of the service(s) being developed can be categorized as definitely needed, desirable, and items that would be nice to have. From there, decisions can be made on what will be included at the time of implementation and what may be addressed in the future.

It is also very important for BSE to show sensitivity to user needs within this document. Members and participants should be solicited for ideas to incorporate into the final products. Such ideas should be clearly identified within the product definition. This input will be key to the success of the project and the implemented services.

Finally, it should be recognized that this is a working document that is periodically updated as needed. This is especially true during the early stages of the project when everyone involved in the project will be learning about new processes to be incorporated into the services being designed and BSE's technical system. Because of the amount of detailed information documented, a good concept paper becomes a valuable ongoing reference for everyone working on the project.

It is recommended that BSE prepare such a document on the proposed changes to cash settlement. This may be a "stand alone" document or be incorporated into a comprehensive paper covering all three areas of the defined scope of work (improving cash settlement, streamlining securities clearing process, movement toward 5-day rolling settlement). A concept paper also needs to be prepared for the depository that BSE is proposing to develop.

Price Waterhouse is prepared to assist in the creation of concept papers for cash settlement (in conjunction with the streamlining on the clearing process and 5-day rolling settlement) and the proposed BSE depository. Papers drafted by BSE will be reviewed by PW consultants for comment and recommendations.

VI. ACTION PLAN

The concept paper outline provides for an action plan for the proposed project. Through the action plan, a comprehensive list of tasks is identified. These tasks are those steps needed to accomplish the primary objective(s) of implementation of the product/service. Summary statements are used to indicate each task. The concept paper is used as a reference for more detailed information needed to complete the task. The action plan provides a quick checklist for the project team.

Target start and completion dates are developed for each task. These tasks and their related dates should be in logical, chronological order. Thought must be given as to which steps need to be completed before other tasks can be addressed.

It should be remembered that the initial creation of the action plan calls for establishing "target" dates. This means that these dates can be reasonably adjusted during the life of the project as necessary and as approved by BSE's senior management.

Similarly, the list of tasks may need to be changed over a period of time. It may be found that steps initially believed to be necessary actually do not need to be done. Often new tasks arise as work is done on the project. These new items need to be added to the action plan to ensure they are addressed and not forgotten.

Actual completion dates for each task should also be included in updated action plans. This provides the project team and senior management with a sense of how well the project is progressing. Individuals assigned may also be reflected on the action plan for reference.

The action plan should be reviewed on a regular basis by the project team and senior management for needed changes and progress. Early in a long-term project, a monthly review may be sufficient. Later, or for a more short-term project, weekly reviews ensure continued organization and progress of the project.

While the action plan should be taken seriously and all attempts made to meet assigned dates, it should also be remembered that it is a working document. As a project progresses, the project team and senior management continually improve their understanding of the requirements and limitations that need to be addressed. The action plan is one tool used to provide structure to the project. However, efficiency and quality must not be compromised simply to meet a target date.

Based on the above recommendations for BSE's cash settlement, a sample action plan for such a project may be found in Appendix B. This is just a beginning. An actual action plan will be dependent on the concept paper and/or decisions made by BSE in this area. The action summarizes the steps needed to complete the project as described in more detail within the Concept paper.

VII. SUMMARY AND NEXT STEPS

In the area of cash settlement, BSE needs to take the following actions:

- Full automation of the Processing of cash debits and credits to members using file transmissions from BSE to BOI.
- Netting of all cash debits and credits due from and to members for trade settlement as well as other categories of cash activities in members' accounts.
- Work with the banking industry in the following areas critical to the cash settlement process:
 - ▶ Securing bank agreements with clearing members to facilitate the automation of the processing of settlement debits.
 - ▶ Development of electronic funds transfer between banks.

PW will continue to work with BSE in all of the above areas as well as all facets of the defined three-pronged scope of work related to clearance and settlement:

- Cash settlement.
- Clearance and settlement of physical securities against trades.
- Rolling settlement.

In addition, PW will continue to provide guidance to BSE in development of the Exchange's concept paper on the creation of a securities depository. Drafts of the paper will be reviewed by PW consultants who will provide comments and recommendations. PW consultants are also available to BSE staff members preparing the document to discuss ideas and answer questions based on the experience of the consultants.

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APPENDICES

List of Appendices

- A. RECOMMENDED PRODUCT DEFINITION/ CONCEPT PAPER
OUTLINE**
- B. SAMPLE ACTION PLAN FOR CASH SETTLEMENT**

APPENDIX A

RECOMMENDED PRODUCT DEFINITION/ CONCEPT PAPER OUTLINE

I. Executive Summary

Background on service to be provided to the industry. Identify users of the service and their related needs. Describe how provider can be a leader in developing a model for the industry.

Identify any sub-set of responsibilities to address within this service. Include such broad categories as general trading and trade recording concepts, income distributions, corporate actions, objections, banking procedures, etc.

II. Identification of functions under sub-set of responsibilities in I

Categorize under A,B,C,etc.

Address how each facet of the sub-set of responsibilities will be handled (operational requirements). Include departmental assignments if appropriate. Clearly define how each process will work, adjustments to current environment that are needed, and any known obstacles with potential resolutions. (See also "VII. Open Issues")

III. Technical needs

Discuss both hardware and software needs. Include impact on current hardware capacity and any need for new hardware. Identify specific processing requirements. Include all requirements that would be in requests for proposal from potential vendors.

IV. Regulatory issues

Identify internal rules and external regulations that need to be considered. Also discuss any potential areas for expansion or reform.

V. Business plan

Forecast financial impact. See attached recommended outline.

VI. Action plan

Identify tasks to be completed. Develop target start and completion dates. Accommodate actual dates. Individuals responsible for each task may/may not be included at this time.

The action plan must be reviewed on a regular basis. Tasks may be added or deleted.

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Dates may be adjusted as needed and where justified. This is a working document to help in maintaining organization of the project.

VII. Future considerations

State/re-state capabilities that are desirable but cannot be implemented at this time. This is especially important if system considerations should be made now for future enhancements.

VIII. Open Issues

Identify any decisions that still need to be made. Include whether they are policy decisions, operational process still to be defined, regulatory items to address, etc. Assign responsibility to address/resolve to each issue.

Open issues should also be reviewed on a regular basis to insure that each item is cleared as needed before implementation of the new service.

REMINDER: The above document will be a continually evolving paper over the course of the project. As more is learned about the service being developed, the concept paper should be expanded to accommodate additional facets of the project. The creation of an action plan under the concept paper also does not mean that tasks and dates are fixed. They may be adjusted as needed to accomplish the project and as acceptable to senior management.

APPENDIX B

SAMPLE ACTION PLAN FOR CASH SETTLEMENT

NOTE: *This is a preliminary document. It does not necessarily cover all of the tasks that will be listed in the final sample to be included in the report to BSE.*

TASK	TARGET START DATE	TARGET COMPLETE DATE	ACTUAL COMPLETE DATE
Identify current processes.	6/97	7/97	
Identify bank capabilities.	6/97	7/97	
Develop alternate methods to process cash.	7/97	8/97	
Review legal aspects of proposed changes.	7/97	8/97	
Present proposal to Board for comment	8/97	8/97	
Present proposal to membership for comment.	8/97	8/97	
Finalize proposal.	9/97	9/97	
Secure Board approval for changes	9/97	9/97	
File/obtain approval for rule changes	10/97	11/97	
Make system changes	10/97	12/97	
Obtain agreements from banks and membership	11/97	12/97	

(authorization to
debit/credit).

Implement changes.

1/98

2/98