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**TECHNICAL ASSISTANCE TO  
REGULATED INVESTMENT COMPANIES**

**Fiscal Agent Functions**

**Enterprise Restructuring and Privatization Project for  
Central and Eastern Europe**

**Contract 180-0014  
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## EXECUTIVE SUMMARY

The special demands of the Mass Privatization Program call for the creation of a "Fiscal Agent." Processing bearer securities on a large scale requires a Fiscal Agent to support the Warsaw Stock Exchange throughout the Mass Privatization Program process.

This document expands on existing discussions, with two main goals:

- To define the functions to be performed by a Fiscal Agent as KPMG envisions them and;
- To estimate the cost of required staffing and potential computer systems solutions for a Fiscal Agent operation.

Agreement has been reached that the following five core functions will be performed by the Fiscal Agent:

1. Receive dividends payable to share certificate shareholders.
2. Invest accrued dividends due to share certificate shareholders.
3. Dematerialize Share Certificates as they are deposited in brokerage accounts.
4. Distribute accrued dividends.
5. Escheat dividends.

In addition to these five core functions, KPMG believes the Fiscal Agent should be involved in the initial distribution of Share Certificates. These additional functions include:

6. Share Certificate inventory control.
7. Citizen eligibility control.

Part I and Part II of this report consist of KPMG Peat Marwick's description of functions that the Fiscal Agent should perform. Conclusions are as follows:

- The Fiscal Agent's main role is to aid in the dematerialization of Share Certificates as they are deposited in brokerage accounts. The Fiscal Agent will act as an intermediary between the brokers and the National Depository.
- The Fiscal Agent will also hold and invest the dividends of the holders of Share Certificates. There is no reason why the Fiscal Agent should be involved in the payment of dividends to dematerialized NIF shareholders.
- The investment of the dividends could easily be performed by an existing financial institution in Poland; there is no need for the Fiscal Agent itself to provide this service.
- The Fiscal Agent should be involved during the initial distribution phase. While a complete analysis of distribution options is well beyond the scope of this study,

tight control of the Share Certificate inventory and efficient verification of citizen eligibility argue for a centralized processing capacity. The Fiscal Agent is the natural candidate to carry out these duties. The high speed scanning equipment needed for Share Certificate validation can be employed during distribution to process Share Certificate stubs.

- Staffing and equipment costs for the Fiscal Agent are driven by two activities: Share Certificate inventory database maintenance during initial distribution, and dematerialization and validation during the trading phase.
- Costs depend upon the processing capacity designed for the Fiscal Agent. Depending on the scenario, staffing requirements range from 26 to 69 employees during the first year. Computer system costs range from about \$800,000 to over \$1.7 million. Scenarios varied according to the number of distributed share certificates, the length of the distribution period, and the share certificate life.
- Depending on the scenario chosen, from 39 to 50 percent of the equipment and staffing costs relate to initial distribution functions. Any decisions about the Fiscal Agent's involvement in distribution are critical to the cost and scale of its operations.

## INTRODUCTION

The proposed Mass Privatization Program is built on the existing securities market infrastructure. The Warsaw Stock Exchange has been trading shares for over a year, and the Ministry of Finance has created both a primary and secondary government securities market. Many of the basic institutions that support capital markets around the world are already in place.

However, the special demands of the Mass Privatization Program will result in the creation of a new entity, the "Fiscal Agent"<sup>1</sup>. Trading in the primary securities of the Mass Privatization Program and the shares in the National Investment Funds will take place through the Warsaw Stock Exchange<sup>2</sup>. All processing of these transactions will be handled using the existing Warsaw Stock Exchange infrastructure. However, the existence of bearer securities (Share Certificates) and parallel trading (off-exchange trading of the same shares that are on the Warsaw Stock Exchange) requires a Fiscal Agent to support the Warsaw Stock Exchange throughout the Mass Privatization Program process.

This document will expand on the existing discussions, with two main goals:

- To define the functions to be performed by a Fiscal Agent as KPMG envisions them and;
- To estimate the cost of required staffing and potential computer systems solutions for a Fiscal Agent operation.

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<sup>1</sup> The basic role of the Fiscal Agent has been discussed in two previous documents. These are:

*Term Sheet - Fiscal And Paying Agency Agreement draft* (White & Case, March 11, 1992).  
*Summary of Principal Trading and Settlement Issues-Study Report* (Touche Ross, May 7, 1992).

<sup>2</sup> In this document, Mass Privatization securities are defined as follows:

Share Certificate:	The bearer document distributed at the initial distribution.
Dematerialized Share Certificate:	The book-entry version of the Share Certificate, created when the Share Certificate is deposited in a brokerage account. These shares will trade on the Warsaw Stock Exchange.
National Investment Fund Share:	Book-entry shares in the National Investment Funds traded on the Warsaw Stock Exchange.

Agreement has been reached that the following five core functions will be performed by the Fiscal Agent:

1. Receive dividends payable to share certificate shareholders.
2. Invest accrued dividends due to share certificate shareholders.
3. Dematerialize Share Certificates as they are deposited in brokerage accounts.
4. Distribute accrued dividends.
5. Escheat dividends.

In addition to these five core functions, KPMG believes the Fiscal Agent should be involved in the initial distribution of Share Certificates. These additional functions are as follows and are discussed in Part II.

6. Share Certificate inventory control.
7. Citizen eligibility control.

This document is organized as follows:

- Part I: **Fiscal Agent Functional Detail** outlines in some detail the functions described above.
- Part II: **Distribution Control** outlines the arguments for Fiscal Agent involvement in the distribution process and describes those functions the Fiscal Agent should perform.
- Part III: **Costing: Staff and Computer Systems** estimates staffing and computer system costs for various scenarios.

Appendices 1 through 6 present the detailed background information used to develop the staffing and computer system cost estimates.

## PART I: FISCAL AGENT FUNCTIONAL DETAIL

In keeping with one of the goals of the Mass Privatization Program to further develop and strengthen the capital markets in Poland, the design of the Fiscal Agent is based upon the following premises.

- The Fiscal Agent operations should be kept as simple as possible.
- The Fiscal Agent should be a "temporary" entity, and in existence only as long as physical Share Certificates exist.
- The Fiscal Agent should not compete with existing financial institutions in Poland, and should employ existing Polish financial institutions whenever possible.
- The use of technology should be employed to automate operations and build expertise within the Polish financial services industry.

Parts I and Part II of this report contain KPMG Peat Marwick's description of the basic functions of the Fiscal Agent. The functions numbered 1. to 5. were also discussed in the White & Case Term Sheet draft. Part II describes additional functions related to distribution control.

### 1. Receive Dividends Payable to Share Certificate Shareholders

The Warsaw Stock Exchange and its member brokers are now able to pay dividends to dematerialized shareholders. If a citizen has opened a brokerage account, the National Depository maintains all of the information needed to distribute any dividends. The National Depository will forward to brokers the amounts due to their respective customers. However, no mechanism exists in Poland to pay dividends to citizens holding their Mass Privatization securities in their original bearer form. The Fiscal Agent will serve as the custodian for Share Certificate holders. The National Depository will forward the dividends due Share Certificate holders to the Fiscal Agent. The Term Sheet draft proposed a procedure to distribute National Investment Fund dividends as depicted in Exhibit A on the next page. KPMG proposes a different procedure, also depicted in Exhibit A.

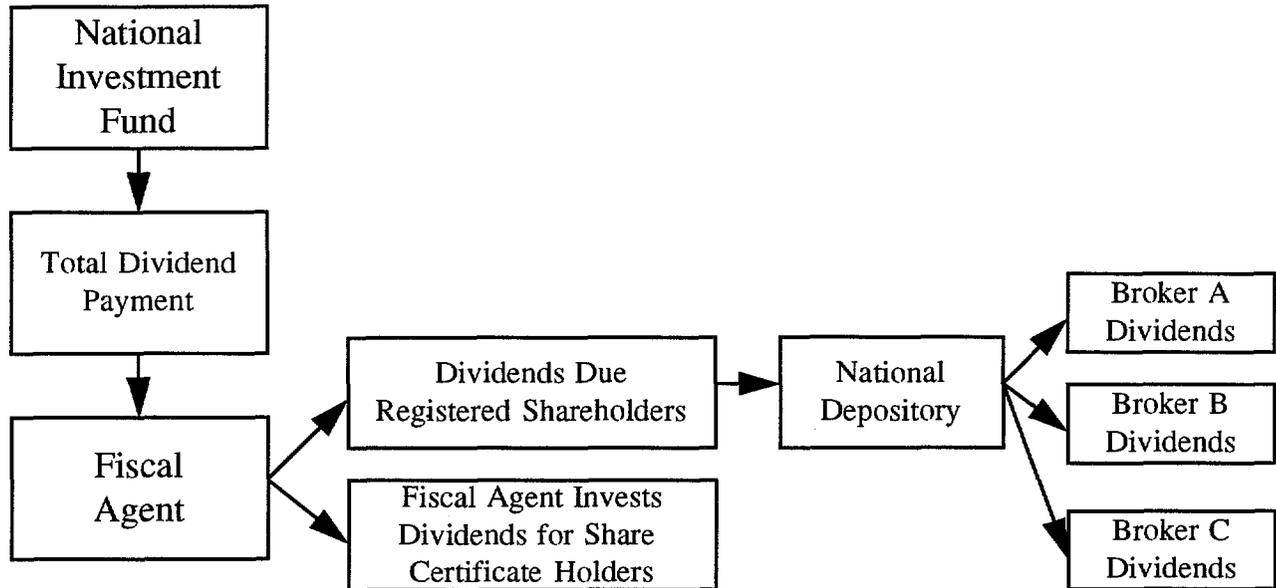
The Fiscal Agent will:

- *Receive notification of dividend payments* from the National Depository. This will include the number of share certificates eligible to receive dividends, the dividend amount per share and the total amount payable.

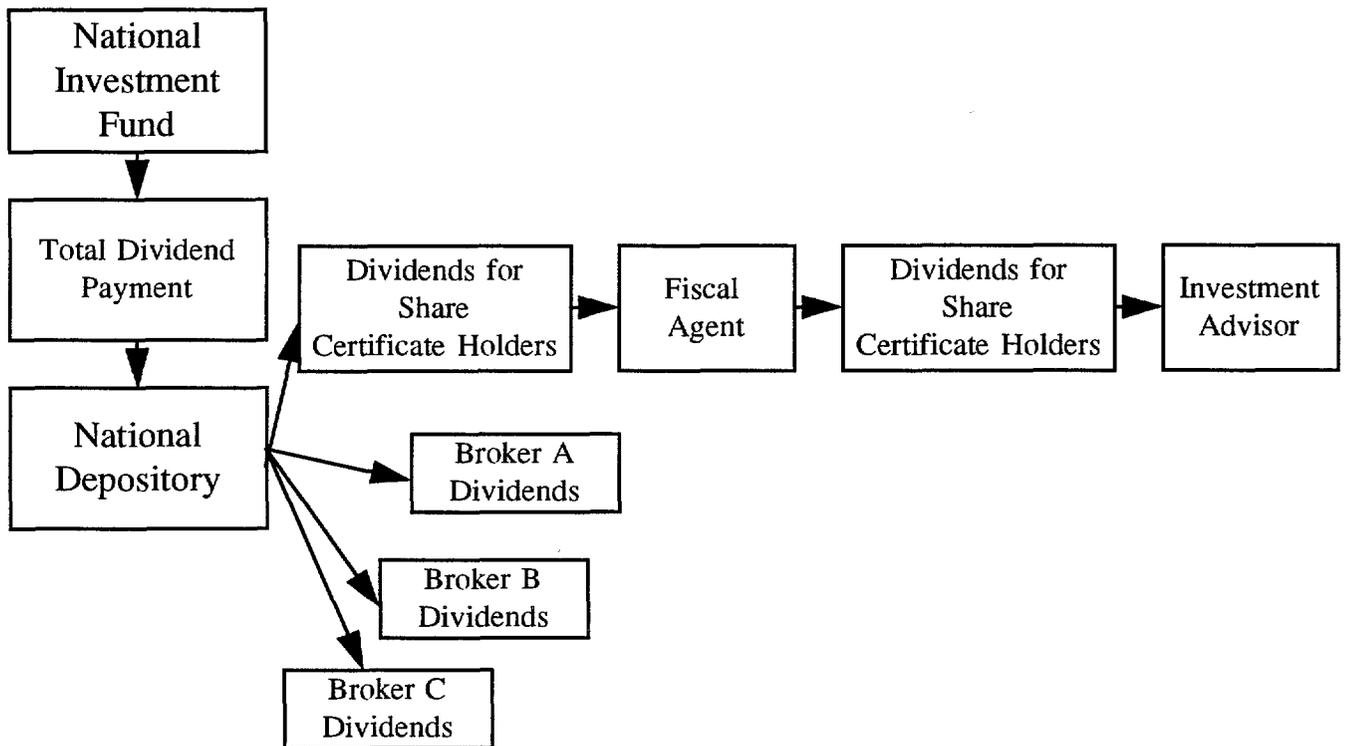
Exhibit A

Comparison of the Responsibility to Distribute National Investment Fund Dividends

Term Sheet Proposal



KPMG Peat Marwick Proposal



- *Receive notification from the settlement bank* of the total dividend amount credited to the Fiscal Agent account.
- *Reconcile this information against internal records* indicating the number of physical and dematerialized Share Certificate shares outstanding.
- *Update accounting records* to track each dividend payment lot.
- *Notify the investment advisor* of the dividend payment. (The use of an investment advisor is discussed below).

The Term Sheet draft includes as Fiscal Agent functions the receipt and payment of dividends by National Investment Funds and the conversion of Share Certificates and book-entry Share Certificates into National Investment Fund shares. These two functions would be more efficiently performed by the Warsaw Stock Exchange and the National Depository of Securities. Their is no clear need for the Fiscal Agent to be involved. The accounting to be carried out by the National Depository is detailed in Appendix 1.

The conversion of dematerialized Share Certificates into National Investment Fund shares is a book-entry accounting task that the National Depository can easily perform. When a broker notifies the Depository of the number of shares to conversion, the Depository only needs to verify that the broker has sufficient dematerialized Share Certificates to convert. The global securities account for dematerialized Share Certificates will be decreased by the number of exchanged shares, and the individual National Investment Fund global security accounts will be increased to show the change in share status. As discussed below, to pay accrued dividends it will be necessary for the National Depository to notify the Fiscal Agent whenever conversions occur.

## **2. Invest Accrued Dividends Due to Share Certificate Shareholders.**

If the National Investment Funds pay a dividend before the physical Share Certificates expire<sup>3</sup>, the Fiscal Agent will be responsible for investing accumulated dividends, serving as the custodian of the accumulated dividends for holders of Share Certificates. Since KPMG assumes the payment of dividends by National Investment Funds will be infrequent or non-existent for a number of years, we recommend employing a Polish financial institution to serve as the investment advisor. This advisor would invest the dividends that are due the Share Certificate holders, with oversight by the Fiscal Agent.

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<sup>3</sup> According to the draft law, the Minister of Privatization may decide to "call" the bearer Share Certificates at some future date. A Mass Privatization Program Time Line is presented as Appendix 2 detailing major program events.

As the funds are invested, a portfolio accounting system would be used to provide daily evaluation of the portfolio. The Fiscal Agent would have to provide a "dividend asset value" per Share Certificate each trading day. This is necessary because as requests for conversion are presented to the National Depository, the Fiscal Agent will have to disburse the dividend asset value (original dividends plus accrued earnings less any conversion charge) to the submitting broker for all Share Certificates converted. In addition, to facilitate the off-exchange trading of Share Certificates the dividend asset value will have to be published daily in national newspapers.

The investment advisor would carry out these services for the Fiscal Agent in exchange for a management fee. The investment advisor could also be responsible for other mass privatization related functions.

### **3. Dematerialize Share Certificates as they are Deposited in Brokerage Accounts.**

Dematerialization is a key function of the Fiscal Agent, and significantly impacts staffing and equipment needs. Licensed brokers (Warsaw Stock Exchange members) will submit physical Share Certificates to the Fiscal Agent for dematerialization. As the Share Certificates are dematerialized, the Fiscal Agent is responsible for updating the database of outstanding Share Certificates.

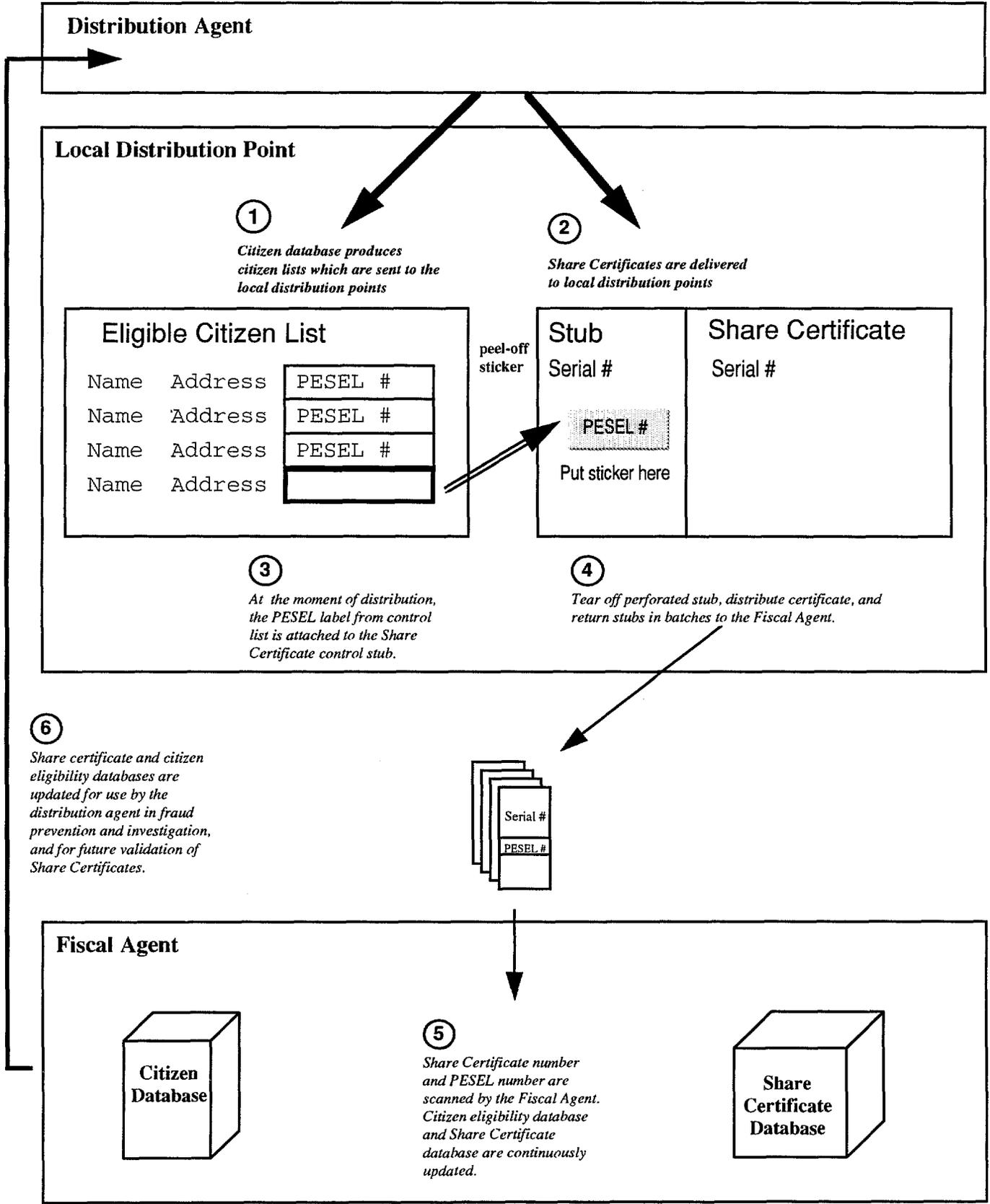
The dematerialization process will be greatly aided if the Share Certificate is designed utilizing material verification technology and has a scannable serial number, and if a Share Certificate inventory database is created. This will allow for the scanning of Share Certificates by the Fiscal Agent, and automatic certificate validation. After the validation process, the Share Certificate inventory file can be automatically updated to show status as canceled. Computerized implementation will considerably reduce the effort required for the Fiscal Agent to process each submitted Share Certificate and aid in distribution control.

The Fiscal Agent will receive the Share Certificate stubs from the local distribution point indicating that a certificate has been issued to an eligible citizen. (Review Exhibit B on the next page to understand the work flow of Share Certificate stubs.) This function will be discussed further in Part II, number 5, *Share Certificate Inventory Control*.

The tasks are as follows:

- a. *Receive Share Certificates from brokers.* The brokers will be responsible for delivering physical Share Certificates to the Fiscal Agent. Upon delivery, the Fiscal Agent will:
  - Count the Share Certificates submitted by the brokers;

# Exhibit B The Fiscal Agent in the Distribution Process



- Check the contents against the package inventory list and note discrepancies;
- Log the receipt of the package into the computer system. Information gathered will include date received, broker identification code, number of Share Certificates, and operator identification number; and
- Forward any discrepancies to the group responsible for research and resolution.

b. *Validate Share Certificates.* The Fiscal Agent will be the final authority regarding the validity of Share Certificates. Utilizing the Share Certificate inventory file and material verification technologies, each Share Certificate will be accepted as valid or rejected.

Validation will be a batch operation requiring the operator to input the broker code prior to loading the scanner with Share Certificates received from that broker. The scanner will read the serial numbers and electronically check the serial numbers against the Share Certificate inventory file. Authenticity of the Share Certificate will be performed automatically, utilizing the material verification technology designed into Share Certificate.

It is assumed that a small percentage of the Share Certificates will be rejected during the scanning process. Reasons for this include counterfeit Share Certificates or a serial number that is not readable. Any rejected Share Certificate will be rescanned before being sent to the discrepancy resolution group for investigation. This group will be responsible for final rejection of Share Certificates. Manual visual inspection will be necessary to authenticate the Share Certificates and manual data entry of the Share Certificate number may be required. All rejected serial numbers will be tracked for fraud control. Share Certificates that are rejected will be returned to the submitting broker along with an explanation.

c. *Cancel and destroy Share Certificates.* Since dematerialization is the final phase of the physical Share Certificate, it should be destroyed at the Fiscal Agent site. Destruction will eliminate any chance of canceled certificates being stolen and resold on the bearer market. At a minimum, all certificates should be canceled by the broker upon receipt from their customers using a multiple hole punch that punches the word "canceled" over the signature on the certificate. Only validated Share Certificates will be destroyed.

d. *Notify the National Depository.* After all Share Certificates are reviewed and the number of valid shares is known, the National Depository must be notified so that the

global security account can be updated to reflect the change in ownership from physical Share Certificates to dematerialized Share Certificates credited to each submitting broker.

Once all Share Certificates received that day have been scanned and processed the computer system will build a transmission file for the National Depository. Prior to transmitting this file to the National Depository, a reconciliation of this file against an individual broker summary report will be necessary. The final activity will be to transmit this file to the National Depository. The transmission disposition (successful or aborted) must be reviewed to ensure that the file reaches the National Depository.

If the broker had requested dematerialization and conversion into National Investment Fund shares, the Fiscal Agent will notify the National Depository of this request when dematerialization notification is sent. The National Depository will then make the necessary adjustments to the National Investment Funds global securities accounts. The confirmation to the Fiscal Agent and the broker would reflect dematerialization and conversion.

e. *Confirm to the submitting broker.* To enable the broker to reconcile his accounts, it will be necessary to confirm with the submitting broker the total number of valid Share Certificates accepted for dematerialization. This confirmation along with any rejected Share Certificates will finalize each broker submission and serve as a check against the National Depository confirmation.

This activity will occur after all Share Certificates have been processed each day. The system will produce a report for each broker showing the number of Share Certificates received, the number that were accepted, and the number that were rejected. This report along with any rejected Share Certificates and reasons report will be packaged for return to the broker. If electronic links exist to the brokers all information with the exception of the rejected Share Certificates can be transmitted to the brokers.

f. *Receive confirmation from the National Depository and the settlement bank.* To ensure that the National Depository received and executed the proper transactions, the Fiscal Agent will:

- Receive a confirmation (in the form of an electronic transmission file) back from the National Depository.
- Reconcile these files against the previously submitted files.
- Research and resolve any discrepancies.

#### 4. **Distribute Accrued Dividends**

If the Fiscal Agent in its role as custodian is holding any dividends and accrued earnings for Share Certificate holders, these funds must be distributed when the Share Certificate is converted into NIF shares. To perform this function, the Fiscal Agent must maintain a bank account at the Warsaw Stock Exchange settlement bank. This account will enable the Fiscal Agent to make use of the existing settlement mechanism of the Warsaw Stock Exchange.

Once the Fiscal Agent has received notification from the National Depository of each day's conversions into NIF shares, each broker's account will be credited with the total dividend and earnings amount. A confirmation of this transaction and funds movement will be sent to the broker and the settlement bank. The settlement bank will need to confirm back to the Fiscal Agent that the funds movement occurred for reconciliation purposes.

Since an investment advisor will be handling all investment activities, it will have to be notified of the total dividends to be payable. These funds will have to be transferred to the Fiscal Agent's account at the settlement bank on the same day as funds movement instructions are sent.

#### 5. **Escheat Dividends**

If the escheatment provisions of the draft Term Sheet are implemented<sup>4</sup>, some holders of Share Certificates potentially could lose their right to accrued dividends. With the current draft law language regarding the issuance and expiration of the Share Certificate, it will be possible for a National Investment Fund to declare and pay a dividend with more than two years remaining in the life of the Share Certificates. Thus, any Share Certificate holders who do not convert before the expiration date and after the escheatment period will lose their dividend. See Appendix 2 for the Mass Privatization Time Line.

KPMG does not recommend implementing the escheatment provisions as they are currently written for the following reasons:

*This specification will further complicate the Mass Privatization Program.* If escheatment is implemented, it will have to be widely publicized, so that eventual Share Certificate holders understand the penalty for not converting their Share Certificates into NIF shares for more than two years after the first dividend is paid.

*The imposition of escheatment, regardless of the unclaimed period used, will put at a disadvantage those citizens who chose to not convert their Share Certificates into NIF*

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<sup>4</sup> The draft Term Sheet specifies that dividends unclaimed for two years will be returned to a special fund set up for this purpose.

*shares.* To avoid eventually losing accrued dividends, the Share Certificate holder will have to convert his Share Certificate or sell his Share Certificate at a price which includes the value of any accrued dividends.

If escheatment is implemented, it should be performed by the investment advisor investing the dividends, not by the Fiscal Agent. Escheatment is a periodic function that can be almost entirely automated using a computer system to track the dividend lots. When funds become escheatable, the system can produce a report detailing the dividend lots to be escheated to the State Treasury.

The advisor would transfer the funds to a special fund set aside for that purpose after receiving approval from the Fiscal Agent. Confirmations would be sent to the Fiscal Agent for final reconciliation. This confirmation procedure will be needed for reconciliation. By the earliest time this transaction must occur (July 1996)<sup>5</sup>, it may be possible to use electronic transfer to move funds.

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<sup>5</sup> This date assumes that Share Certificate distribution begins in July 1994, eighteen months after the creation of the National Investment Funds. See Appendix 2 for a time line of major events in the Mass Privatization Program.

## PART II: DISTRIBUTION CONTROL

In addition to responsibilities during the trading period of the Mass Privatization Program, KPMG believes the Fiscal Agent should also have some responsibilities during the initial distribution phase.

Three potential levels of control can be imposed on the distribution process, to protect Certificates and their shareholders from the risks of theft and fraud:

1. *Pre-distribution inventory control.* Before Share Certificates can be distributed to the population, they must be transferred from the printer to regional and local warehouses, and finally to the local distribution points. High security will have to be imposed at all stages of the process, since large numbers of certificates are very vulnerable at each step.
2. *Distribution control.* Considerable attention has already been paid to problem of control at the point of distribution, to ensure that one person receives one and only one Share Certificate. Potential measures range from stamping ID cards to the preparation of lists of eligible citizens.
3. *After the fact distribution control.* Tracking the distribution of Certificates will allow for the investigation of any irregularities that are detected after distribution has occurred. While the deterrent effect of after the fact distribution will be weaker than a tight control of the earlier steps of the process, a combination of the two will minimize fraud to the maximum extent possible.

We assume that the Fiscal Agent will be involved to the maximum extent possible at the first and the third levels of control. In general, the maximum amount of control available will be used to prevent fraud and abuse. While a complete analysis of distribution options is well beyond the scope of this study, the functions discussed and costed below assume the following:

- *The Distribution Agent will be required to keep very tight control over the supply of unissued Share Certificates.* Because of its ability to process large amounts of paper-based information quickly, we assume that the Fiscal Agent will maintain the inventory database of Share Certificates for use by the Distribution Agent.
- *The Share Certificate database will be maintained centrally, and will be used for post-distribution verification.* We assume that a "stub" is attached to the Share Certificate that is torn off at the time of distribution. This stub will then provide information to track the distribution process after the fact. While ex-post distribution control is probably less effective than tight control at the local distribution point, the fact that every single distribution is being recorded and

analyzed should deter fraud and abuse. In addition, resources could be deployed to track down any detected problems.

- *Lists of eligible citizens will be produced and sent to each distribution point.* The stub sent to the Fiscal Agent will also be analyzed for any problems related to the individual, specifically to see whether or not one person has received more than one certificate.

Part II describes these additional functions for the Fiscal Agent. KPMG recommends that the same organization that performs the Fiscal Agent functions also perform some Share Certificate inventory control functions and maintain the citizen eligibility database. One computer system could be developed to support all functions related to Share Certificate distribution and validation (already described in Part I). This would result in cost savings, the more immediate validation of Share Certificates and greater control because it will provide a segregation of duties.

#### Cost savings

- The entire Fiscal Agent operation is already designed utilizing advanced technology. The Fiscal Agent must purchase hardware and database software for the functions outlined above. This hardware and software could also maintain the citizen eligibility database and the sole copy of the Share Certificate inventory database, thereby eliminating a duplicate purchase of hardware and software by another entity to exercise citizen and Share Certificate control.
- The Fiscal Agent must already purchase scanners for the Share Certificate validation process. This scanner equipment, like the database hardware and software, could also be employed in distribution control (Share Certificate stub processing). In addition, improved staff productivity will be realized if all scanning operations are centralized.

#### Immediate Validation

- Because validation of dematerialized certificates will be required from the first day of distribution, someone must be prepared to perform the validation and authentication of Share Certificates as soon as distribution begins. Thus, maintaining two separate Share Certificate databases (for example, one for the Distribution Agent and one for the Fiscal Agent) would require more coordination than it may be possible to achieve.

#### Segregation of Duties

- This division of duties provides for the separation of the distribution control process, and the validation and authentication function. It is proposed that the Fiscal Agent have responsibility for the computer system and the Share Certificate database. The Fiscal Agent will act as a check on the Distribution Agent, limiting internal fraud and abuse.

## 5. Share Certificate Inventory Control

To adequately control both distribution and validation (for dematerialization), it will be necessary to maintain a Share Certificate inventory in electronic database form. This database will need to reside on a computer with access available to both the Distribution Agent and the Fiscal Agent.

As already discussed above, the Share Certificate could be designed utilizing material verification technology and a scannable serial number on both the Share Certificate itself and a perforated stub attached to the Share Certificate as depicted in Exhibit B. Scannable numbers will facilitate data capture during distribution and validation.

The Share Certificate inventory control responsibilities could be split as follows:

### Distribution Agent Responsibilities

*Update the Share Certificate status and location on the database during distribution.* This would include updating the Share Certificate inventory database each time a bundle of Share Certificates is received for the printer, and when moved to a new location (warehouse or local distribution point).

*Report information about certificates that are stolen or lost before they are issued to citizens.* Stolen or lost certificates could then be identified by the Fiscal Agent as part of the validation and dematerialization process.

### Fiscal Agent Responsibilities

*Create the Share Certificate inventory database.* This will be a one time event requiring minimal of programming effort.

*Receive the perforated stubs detached from the Share Certificates from local distribution points indicating that the Share Certificate has been officially distributed.* This is the second major function that impacts staffing and equipment needs. (See Exhibit B). The volume of Share Certificate stubs to be processed is the main variable in the projection

of staffing needs. The activities related to the receipt of this stub and the update of the system are as follows:

- Open the stub submission package received from the local distribution point.
- Check the contents against the package inventory list and note discrepancies.
- Log receipt information into the computer system.
- Scan the stubs into the computer system to update the Share Certificate inventory database. After the stub has been scanned and the database updated to show status of "issued", that Share Certificate record will be "locked" and used for validation inquiry purposes only. This function will require the use of high speed scanners and be a batch operation. Each local distribution point submission will be processed separately to capture control information.
- Re-scan any rejected stubs and forward to the discrepancy resolution group.
- Review rejected stubs and input serial number and/or PESEL number as required.
- Destroy stubs (to reduce fraud opportunities).

Once the Share Certificate distribution period ends, final disposition (issued, reported stolen/lost or not issued) of all Share Certificates can be updated to the Share Certificate inventory database. It then will be used solely by the Fiscal Agent to validate Share Certificates submitted for dematerialization. As Share Certificates are presented for dematerialization, the serial numbers will be scanned, verified as "issued," and the database updated to reflect cancellation if the Certificate is accepted as valid.

## **6. Citizen Eligibility Control**

One of the major concerns of the Mass Privatization Program is how to ensure that each citizen receives only one Share Certificate. The maximum degree of control on the distribution process is probably imposed when a central eligibility database produces lists for local distribution points. While the debate continues as to how to produce such a database and related lists of eligible citizens, we assume that the lists will be produced. Control can be improved if this database is used after distribution, maintained on a computer system operated by the Fiscal Agent.

If the local distribution point lists are produced with a peel-off label for each citizen's PESEL number (in a scannable format) and the Share Certificate has a stub with the serial

number (in a scannable format) the two related numbers (PESEL and Share Certificate) can be matched at the local distribution point when distribution occurs and forwarded to the Fiscal Agent for data capture. The incoming stub with PESEL number could be scanned enabling automatic update of both the Share Certificate inventory database to indicate that the Share Certificate was distributed and the citizen database to show that the citizen has received one Share Certificate. (Please review Exhibit B.)

With a citizen eligibility database that is updated daily, the Distribution Agent could be tasked with resolving cases of citizens going to a local distribution point and not appearing on the list for that local distribution point. The citizen could complete a request to receive a Share Certificate at that location. The citizen (registry) database would be referenced (after the most recent updates have been received) to see if the citizen has obtained a Share Certificate at another local distribution point. If not, the citizen and the local distribution point would be notified of approval. In addition, the local distribution point where the citizen's name originally appeared will be notified prior to this approval to remove the citizen from their local list, thus preventing the citizen from obtaining another Share Certificate.

#### **Distribution Control: Conclusion**

Final decisions about the Fiscal Agent's involvement in the distribution process must await a final implementation plan for the entire distribution effort. However, given that bearer certificates will be involved, and no extensive dematerialized distribution system or information networks exist, rough outlines do emerge. One organization should be responsible for the computer system to automate the citizen eligibility database and the Share Certificate inventory database. Neither of these applications are very complicated, nor will they require a large systems development effort. A high level system design is discussed in Part III of this report. It outlines basic file structures and transactions. The high speed scanning equipment needed for Share Certificate validation can be utilized during distribution to process Share Certificate stubs. This will reduce the overall cost of the Mass Privatization Program.

### PART III: COSTING: STAFF AND COMPUTER SYSTEMS

The costs associated with Fiscal Agent staff and computer systems are estimated in the following sections. Several scenarios are presented varying the three major factors: number of distributed Share Certificates, length of distribution period, and Share Certificate life.

The cost estimates do not represent a complete description of all the costs related to operating a Fiscal Agent in Poland. Rather, these are the costs that are material to the design of the Fiscal Agent, and a description and understanding of the scale of its operations. Systems and staffing costs are the most variable, and most dependent on the expected number of participants in the Mass Privatization Program. A full analysis of fixed costs relating to facilities, telecommunications, and other elements must wait for a complete business plan for the Fiscal Agent.

#### Fiscal Agent Organizational Structure

A Fiscal Agent organizational structure is proposed in Appendix 3. This organizational structure was developed based upon the recommended functions and the necessity for segregation of duties for control purposes. This structure is used to develop the staffing projections.

Four major organization units are proposed:

Processing. This unit is responsible for tasks related to processing the Share Certificate stubs during distribution and Share Certificate validation during dematerialization. Due to the size of the Processing unit, it is comprised of the following three departments:

- *Discrepancy Resolution and Liaison* - This department will receive rejected stubs and Share Certificates from the scanning operations and manually process them. The department will serve as the liaison to the brokers and the local distribution points. There will be a group responsible for stub discrepancies and one for Share Certificate discrepancies.
- *Share Certificate Stub Processing* - This department will receive the Share Certificate stub packages from the local distribution points and automatically scan the stubs to update the databases. This will be a two shift per day operation. Any rejected stubs will be sent to the Discrepancy Resolution and Liaison department.
- *Share Certificate Validation* - Two groups exist within this department. Receipt and Scanning will be responsible for scanning Share Certificates received from brokers for dematerialization. Any Share Certificates that are rejected will be

forwarded to the Discrepancy Resolution and Liaison department. The Notification, Dividend Distribution and Confirmation group will be responsible for the daily activities related to validation. Once all Share Certificates have been processed each day, this group will review the computer system reports summarizing each day's activities prior to the notifications being sent to the brokers, Warsaw Stock Exchange and settlement bank. This group will release all notifications, payment instructions and confirmations after balancing the day's activities.

Reconciliation and Dividend Investment. This unit will perform control and oversight functions. When confirmations are received from the Warsaw Stock Exchange and settlement bank confirming instructions previously sent by the Fiscal Agent (Notification, Dividend Distribution and Confirmation group) they will be reconciled against the original instructions. This will provide control of these critical functions. In addition, this unit will be responsible for managing the dividend investment advisory function contracted to a Polish financial institution. Control and oversight mechanisms will be developed to supervise these activities.

System Operations. All operations related to computer hardware and software will be this unit's responsibility. This unit will have programmers for software support, equipment technicians for hardware support, and computer operators for monitoring system operations. For staffing purposes it was assumed that an operator will be on duty whenever the computer system is operating. Therefore, a two shift operation is envisioned.

Administration. This unit will provide administrative support for the Fiscal Agent. The accounting, human resource and payroll activities will occur in this unit. In addition, this unit would serve as the contract administrator and liaison to the Ministry of Privatization.

### **Staffing Projections**

The staffing costs for Fiscal Agent functions as outlined in Parts I and II are summarized in Exhibit C. The presents the staff costs of the Fiscal Agent functions as recommended in this report. The model that produced these estimates is presented in Appendix 4. The staff cost development assumptions are shown in Exhibit D.

Several scenarios were developed to project annual staffing and initial computer systems costs. Estimates depend on three significant variables:

- **Number of distributed Share Certificates.** The more certificates distributed, the more staff and the larger the computer required to process both stubs and dematerialized certificates.

**Exhibit C**

**Estimated First Year Staffing Costs**

Share Certificate Distribution Period	Share Certificates Distributed (millions)	Share Certificate Validation Period	
		3 years	5 years
6 months	27	\$438,000	\$416,000
	15	\$362,000	\$362,000
	8	\$306,000	\$306,000
1 year	27	\$376,000	\$354,000
	15	\$320,000	\$320,000
	8	\$290,000	\$290,000
No Involvement In Distribution Phase	27	\$217,000	\$205,000
	15	\$205,000	\$205,000
	8	\$201,000	\$201,000

**Estimated First Year Full Time Staff**

Share Certificate Distribution Period	Share Certificates Distributed (millions)	Share Certificate Validation Period	
		3 years	5 years
6 months	27	69	65
	15	53	53
	8	42	42
1 year	27	55	51
	15	44	44
	8	38	38
No Involvement In Distribution Phase	27	27	24
	15	24	24
	8	23	23

**Exhibit D**

**FISCAL AGENT STAFF COST DEVELOPMENT ASSUMPTIONS**

1. The Fiscal Agent will operate five days a week for eight hours per shift.
2. Six productive hours will be received from each employee per shift.
3. Two shifts may be utilized to increase equipment utilization and reduce equipment requirements (primarily scanner).
4. Automation will be used as much as possible to facilitate maximum efficiency of Fiscal Agent operations. This will include:
  - Utilizing material verification technology. Some techniques to be considered are robotic vision technology, mark sense (strobe marks), scannable character [bar code, Optical Character Recognition (OCR), or Magnetic Ink Character Recognition (MICR) lines] and material imbedding/specification in paper stock;
  - Encoding a machine readable serial number on the Investment Certificates; and
  - Using either a perforated stub or a peel-off label with a machine readable serial number as part of the Investment Certificate.
5. Supervisors will be responsible for no more than seven employees.
6. Unit managers will be responsible for direct employees when staffing levels do not justify supervisors.
7. One administrative staff person is added for every 15 employees, with a minimum of three total.
8. Annual employee costs were determined using the following compensation rates:

	<u>Annual Salary</u>
General Manager	\$30,000
Group Manager	20,000
Unit Manager	15,000
Systems Manager	15,000
Supervisor	10,000
Programmer	8,000
Computer Equipment Technician	6,000
Computer Operator	4,000
Staff	4,000

- **Length of Distribution Period.** For a given number of certificates distributed, the longer the distribution period, the lower the daily volume of stub processing. Distribution of certificates is assumed to proceed at a constant rate.
- **Share Certificate Life.** The longer the period over which Share Certificates can be dematerialized, the lower the daily rate of dematerialization, and the lower the staff and computer (scanner) requirements. Dematerialization is also assumed to proceed at a constant rate over the Share Certificate lifetime.

Several observations can be made about the Fiscal Agent staffing costs.

- Distribution drives both the number of staff and the cost. For example, if 15 million certificates are distributed, with a six month distribution period and a three year validation period, then 53 employees costing \$362,000 will be needed in the first year. If the Fiscal Agent is not involved in distribution, then the number of staff required falls to 24, costing \$205,000, a decrease in cost of over 43 percent.
- Under this set of assumptions, staffing costs rise more slowly than the number of distributed certificates. If the number of participants rises from 8 to 27 million (with a six month distribution period and a three year certificate life), the costs rise by only 43 percent.
- Share lifetime has little impact on annual average costs. Of course, with each additional year of certificate life, the Fiscal Agent must remain in business, raising total costs.
- If the Fiscal Agent is involved in distribution, the Fiscal Agent will be able to reduce staff size after initial distribution ends to the levels shown in Exhibit C in the "No Involvement in Distribution" category. Effectively, these are the annual staffing estimates for the years from the end of distribution through the end of Fiscal Agent operations.

### Computer Systems Projections

The computer system and related hardware estimates are directly related to the staffing projections. A computer system projection was developed for each staffing scenario. These projections (detailed in Appendix 6) are presented below in the same format as the staffing projections.

**Estimated Computer System Costs**

Share Certificates Distribution Period	Share Certificates Distributed (millions)	Share Certificate Validation Period	
		3 years	5 years
6 months	27	\$1,786,000	\$1,684,000
	15	\$1,576,500	\$1,576,500
	8	\$1,292,000	\$1,292,000
1 year	27	\$1,402,500	\$1,298,000
	15	\$1,295,500	\$1,295,500
	8	\$1,190,000	\$1,190,000
No Involvement In Distribution Phase	27	\$894,500	\$793,000
	15	\$793,000	\$793,000
	8	\$792,500	\$792,500

Detailed assumptions used to project computer system needs are listed in Exhibit E - Computer System Development Assumptions which follows this page.

**Computer Hardware Projections**

To estimate the computer systems, the two proposed databases (Share Certificate inventory and citizen eligibility) and related maintenance records had to be developed. In addition, the submission record (brokers and local distribution points) and code conversion table (local distribution point, transaction description and broker) specifications were needed. These are shown in Appendix 3 - Computer System File Specifications.

The number of Share Certificates issued was used to estimate the number of transactions and history records that will be produced. These effect data storage and daily transaction processing requirements. Appendix 4 - Distribution and Trading Control Activities details the various transactions envisioned and projected volumes for the "maximum" case, 27 million participating citizens.

Based upon the assumptions in Exhibit E, the file specifications in Appendix 3, and the transaction and record volumes presented in Appendix 4, computers with the operating characteristics of IBM AS/400 Models E60, E50 or E45 will be needed. An initial estimate of maximum DASD (direct access storage device) capacity was computed at 16 gigabytes. This DASD estimate assumes the data packing which is inherent in the AS/400 architecture and no mirroring of stored data.

## Exhibit E

### COMPUTER SYSTEM DEVELOPMENT ASSUMPTIONS

#### General Assumptions

1. A Share Certificate inventory database will be used to support distribution and validation functions.
2. A citizen eligibility database will be used to support distribution control.
3. The files and records will have data elements as shown in Appendix 3 - Computer System File Specifications.
4. The types and volumes of transactions will occur as outlined in Appendix 4 - Distribution Control and Trading Activities.
5. A history record will be created for each transaction except for file initialization.
6. There will be no more than 8,000 local distribution points, 50 transaction types and 50 brokers.

#### File Specific Assumptions

1. Share Certificate File
  - The PESEL number of the citizen who initially receives the Share Certificate will be captured. No further update to this field will be done.
  - Two key dates, date issued and date canceled, will be captured as part of the distribution process.
  - All Share Certificate movements will be updated to the database.
2. Distribution Control (Citizen Eligibility) File
  - A pre-registration date field has been provided. Actual need depends on final distribution methodology.
  - The file will contain the Share Certificate number, date issued, and the local distribution point location code where issued.
  - An approved by or issuing person field will be utilized to enhance distribution control.
3. Broker and Local Distribution Point Submission Records
  - Each submission from brokers and local distribution points will be captured in individual records for tracking, analysis and reporting purposes.

For costing purposes the list price of these machines configured for this application with 16 gigabytes of DASD is:

<u>AS/400 Model</u>	<u>List Price</u>
E60	\$825,000
E50	\$650,000
E45	\$560,000

If additional on-line storage is needed, disk drives for these models have 6.8 gigabytes of capacity and list at \$56,000.

The cost of peripheral equipment used for estimating purposes is as follows:

Scanner - \$100,000 for Kodak Image Link 900 (90 pages per minute).

High speed printer - \$16,000 for IBM 4234-012 dot band printer (800 lines/minute).

"Desk top" laser printer - \$2,500 for various vendor models. A ratio of one laser printer per eight terminals was used.

Terminal - \$500 for various vendor models. Upper level managers and some administrative personnel were assumed to not need terminals for estimating purposes.

### **Computer Software and Maintenance Projections**

The IBM AS/400 computer system was referenced because it is the system used by the Warsaw Stock Exchange, and because it is designed to specifically support high transaction volume database applications. As such the list prices stated above include all basic software to support the specified applications. The system includes operating system, terminal communication support and "query" (database inquiry). The Fiscal Agent would have to "build" the database file record structures and develop control programs. No additional software should be needed. If additional report generation/inquiry capability is deemed necessary, Structured Query Language software can be obtained for \$12,000 (list price).

The annual maintenance cost for the referenced E60 model is \$25,000. This is the list price for a standard maintenance contract in the United States. The maintenance costs of the smaller models (E50 and E45) will be lower. An actual estimate was not obtained.

### **Additional Issues and Next Steps**

There are several issues related to Fiscal Agent operations that were not fully researched and analyzed. As decisions are made regarding the final structure of Mass Privatization Program, these issues can be further researched and analyzed.

1. Potential use of the Warsaw Stock Exchange computer system

The Warsaw Stock Exchange currently uses an IBM AS/400 computer. It would be possible to upgrade this machine to support the Mass Privatization Program data processing requirements. The issue of operational responsibility arises. In addition, all automated functions of both the Warsaw Stock Exchange and Mass Privatization Program would reside on one computer, an undesirable outcome given the criticality of these operations.

From a business contingency planning perspective it may be more desirable to have the Fiscal Agent operate a computer system that could serve as a back-up to the Warsaw Stock Exchange system. Likewise, the Warsaw Stock Exchange system could serve as a back-up in the event of an outage of the Fiscal Agent computer. A detailed business contingency plan would have to be developed and tested.

## 2. Warsaw Stock Exchange implications

The Mass Privatization Program will generate a large number of transactions for the National Depository. Once better estimates of the number and frequency of transactions are made, the overall impact of the Program on the Depository and Warsaw Stock Exchange can be assessed. High volumes on the exchange may require an increase in functionality of the entire Warsaw Stock Exchange computer system. One possibility that needs to be explored is the establishment of a "common back office" for the Warsaw Stock Exchange member brokers.

In addition, transactions costs charged to the Fiscal Agent need to be estimated. Currently, the National Depository of Securities charges brokers 0.4% of the value of each side of a trade as a transaction fee. The Fiscal Agent will have to negotiate a fee structure for National Depository services when the outlines of the final program are more clear.

## 3. Investment Advisor Costs

This reports recommends that a Polish financial institution be employed to invest the dividends paid to Share Certificate holders. The costs of such services were not thoroughly researched due to the difficulty in projecting National Investment Funds dividend payments and frequencies. The Mass Privatization Department should pursue estimates for these services once the Mass Privatization Program is finalized.

## 4. Facilities costs

The Fiscal Agent will need a secured facility suitable for their operations. The cost of this facility was not estimated in the report. As more detailed analysis occurs and more accurate requirements are defined, a facility estimate can be prepared which should include initial design and construction costs, and operating and maintenance costs. To facilitate maximum operating efficiency this facility should have direct tele/data communication links to the Warsaw Stock Exchange.

## 5. Fiscal Agent Business Plan and Tender

Once final outlines of the Mass Privatization Program are known, a complete description of the operations of the Fiscal Agent must be prepared, including financing options and a full business plan. The

business plan could be prepared by the firm or consortium selected through tender to act as the Fiscal Agent.

6. Interfaces with other institutions

The Fiscal Agent will need to have interfaces between its operation and the institutions listed below. At this juncture it is difficult to assess whether or not some of these interfaces can be automated, given the current state of the tele/data communications infrastructure in Poland. No detailed investigation of tele/data communication infrastructure was undertaken to project when these interfaces will be fully automated.

The necessary interfaces are with the following organizations:

- National Depository of Securities - This would be an automated interface allowing the Fiscal Agent to notify the National Depository of changes in the global security accounts for the Share Certificates and National Investment Funds shares. This link is necessitated by the Share Certificate dematerialization functions to be performed by the Fiscal Agent.
- Warsaw Stock Exchange settlement bank (Bank Slaski) - The Fiscal Agent will need an interface to the settlement bank to disburse accumulated dividends and earnings accrued by the Share Certificates when dematerialization occurs. These funds would be credited to the broker accounts that submitted the Share Certificates.
- Brokers - This interface could be both manual and automated. The Fiscal Agent will need to have a method to receive Share Certificates to be dematerialized from the brokers. It would be beneficial for the Fiscal Agent to have an automated link to the brokers, so that after the dematerialization process the brokers could be notified of the number of shares that were reported as dematerialized to the National Depository. The brokers also will need confirmation of the amount of accrued dividends to which the dematerialized shares are entitled, and credited to their accounts at the Warsaw Stock Exchange settlement bank.

## Appendix 1

### Accounting for Mass Privatization Securities at the National Depository

#### Share Certificate Account

1. State Treasury Account (represents bearer Share Certificates)
2. Broker Accounts (represents dematerialized Share Certificates)
  - a. Broker A (Broker A position)
  - b. Broker B (Broker B position)
  - .
  - .
  - .
3. Converted to NIF Shares

#### NIF Accounts

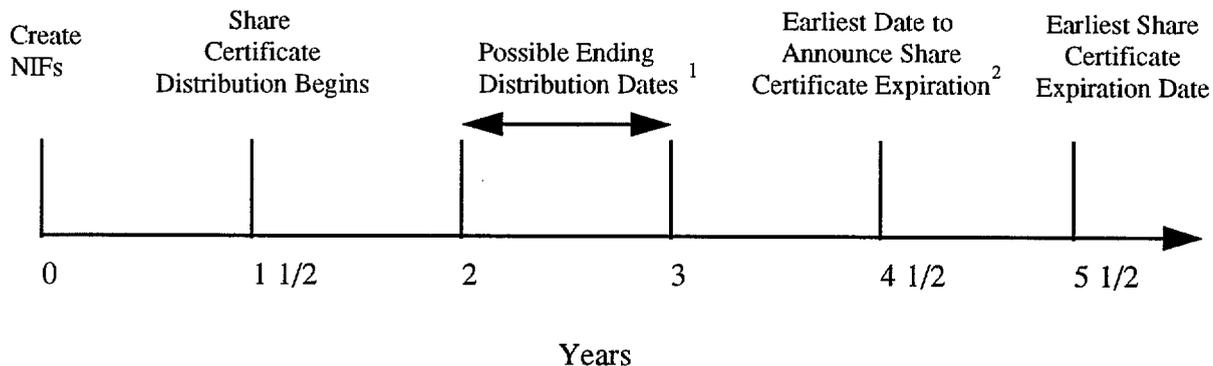
1. State Treasury (represents bearer Share Certificates not issued or converted)
2. State Treasury (represents dematerialized Share Certificates)
3. Broker Accounts (represents converted NIF shares)
  - a. Broker A (Broker A position)
  - b. Broker B (Broker B position)
  - .
  - .
  - .

#### **In all cases and at all times:**

SC Accounts		NIF Accounts
Account 1.	=	Account 1.
$\Sigma$ Accounts 2	=	Account 2.
Account 3.	=	$\Sigma$ Accounts 3.

## APPENDIX 2

### MASS PRIVATIZATION PROGRAM TRADING AND DISTRIBUTION TIME LINE



- 1 - The Ministry of Privatization has the discretion to extend the distribution period by up to twelve months.
- 2 - The Ministry of Privatization has the discretion to announce expiration of the Share Certificate three years after the start of the Share Certificate distribution. Expiration can occur no earlier than one year from the expiration announcement date.

Note: Based on the proposed Mass Privatization Program law pending in the Sejm.

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APPENDIX 3

COMPUTER SYSTEM FILE SPECIFICATIONS

<u>A. SHARE CERTIFICATE FILE</u>	<u>Number of Characters</u>
1. Share Certificate number	9
2. LDP location code	5
3. Issued to citizen's PESEL number	11
4. Status (not produced, received from printer/unissued, reported stolen/lost, issued, cancelled/dematerialized)	1
5. Date issued	10
6. Date cancelled (dematerialized)	<u>10</u>
<b>Total</b>	46
<u>B. SHARE CERTIFICATE MAINTENANCE HISTORY RECORD</u>	
1. Share Certificate number	9
2. Transaction code (2 + 3)	5
3. Field(s) before changes (variable)	20
4. Operator identification number	7
5. Approved by	35
6. Date	<u>10</u>
<b>Total</b>	86
<u>C. DISTRIBUTION CONTROL FILE</u>	
1. Registration	161
- name: last (30), first (20), middle initial (1)	
- address (2x35)	
- city (35)	
- postal code (5)	
2. PESEL number	11
3. Share Certificate number	9
4. Date - pre-registered	10
5. Date - issued certificate	10
6. LDP location code	5
7. Approved by (issuing person)	<u>35</u>
<b>Total</b>	241

## APPENDIX 3

### COMPUTER SYSTEM FILE SPECIFICATIONS

<u>D. DISTRIBUTION CONTROL MAINTENANCE HISTORY RECORD</u>		<u>Number of Characters</u>
1.	PESEL number	11
2.	Transaction code (2+3)	5
3.	Field(s) before changes (variable)	75
4.	Operator identification number	7
5.	Approved by	35
6.	Date	<u>10</u>
	<b>Total</b>	143
<u>E. BROKER SUBMISSION RECORD</u>		
1.	Broker code	5
2.	Number of Share Certificates received	9
3.	Number of Share Certificates accepted	9
4.	Number of Share Certificates rejected	9
5.	Number of Share Certificates to be exchanged for NIF shares	9
6.	Received by operator identification number	7
7.	Scanned by operator identification number	7
8.	Date	<u>10</u>
	<b>Total</b>	65
<u>F. LOCAL DISTRIBUTION POINT (LDP) SUBMISSION RECORD</u>		
1.	LDP location code	5
2.	Number of stubs received	7
3.	Number of stubs without PESEL number	7
4.	Scanned by operator identification number	7
5.	Date	<u>10</u>
	<b>Total</b>	36

## APPENDIX 3

### COMPUTER SYSTEM FILE SPECIFICATIONS

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<u>G. LOCAL DISTRIBUTION POINT (LDP) TABLE</u>		Number of <u>Characters</u>
1.	LDP location code	5
2.	LDP postal code	5
3.	LDP description (4 lines x 30 characters)	<u>120</u>
	<b>Total</b>	130

Assumption: There will be no more than 8,000 LDPs.

#### H. TRANSACTION DESCRIPTION TABLE

1.	Transaction code [2 (prefix) + 3 (suffix)]	5
2.	Transaction description (2 lines x 20 characters)	<u>40</u>
	<b>Total</b>	45

Assumption: There will be no more than 50 transaction types.

#### I. BROKER TABLE

1.	Broker code	5
2.	Broker name	35
3.	Broker address	110
	- street (2x35)	
	- city (35)	
	- postal code (5)	—
	<b>Total</b>	150

Assumption: Initially there will be no more than 50 brokers.

**APPENDIX 4**  
**DISTRIBUTION AND TRADING CONTROL ACTIVITIES**

File Name/ Use	Activity	Number of Records	Frequency	Field Affected	Field Ref.	No. of Char.	Action	Scan Oppor.	Time Frame
Share Certificate/ Inventory Control	Initialization	27 million (all)	1 time	SC number	A1	9	Autoload sequential numbers	N/A	1 week
				Status	A4	1	Autoload "not produced"		
	Receipt from Printer*	27 million (all)	1 time	Location code	A2	5	Change to warehouse location code	Y	6 months
				Status	A4	1	Change status to "received from printer/unissued"	N/A	
	Initial Distrib. to LDP*	27 million (all)	1 time	Location code	A2	5	Change sequences (blocks) of certificate records to reflect LDP location code	Y	6 months
	LDP to LDP Transfers*	2.7 million (10%)	1 time	Location code	A2	5	Change to reflect new LDP location code	?	6 months
	Stolen/lost Update	270,000 (1%)	1 time	Status	A4	1	Change to "reported stolen/lost"	N	6 months
Return to Warehouse*	2.7 million (10%)	1 time	Location code	A2	5	Change to a unique code to reflect returned at end of distribution period	Y	1-2 weeks	
			Date issued	A5	10	Capture return date	Y		
LDP Submit Record/ Issuance-Inv. Control	Citizen Recpt (stub process)	8,000	weekly	LDP location code	F1	5	Capture LDP location	N	6 months
				Number of stubs submitted	F2	7	Capture number of stubs submitted	Y	
				Number of stubs without PESEL number	F3	7	Capture number of stubs without PESEL number	Y	
				Operator ID number	F4	7	Capture oper ID num.(automatic)	N/A	
				Date	F5	10	Capture date (automatic)	N/A	

\*Distribution agent performs these activities.

SC=Share Certificate  
ID=identification  
LDP=local distribution point

**APPENDIX 4**  
**DISTRIBUTION AND TRADING CONTROL ACTIVITIES**

File Name/ Use	Activity	Number of Records	Frequency	Field Affected	Field Ref.	No. of Char.	Action	Scan Oppor.	Time Frame
Share Certificate/ Issuance-Inv. Control	Citizen Recept	27 million	1 time	Issued to PESEL number	A3	11	Capture citizen's PESEL number	Y	6 months
				Status	A4	1	Change to "issued"	N/A	
				Date Issued	A5	10	Capture date of issue (key entry) or date of update (automatic)	Partial Y	
Distribution Control/ Issuance	Citizen Recept	27 million	1 time	SC number	C3	9	Capture SC number	Y	6 months
				Date-issued certificate	C5	10	Capture issued date	N	
				LDP location code	C6	5	Capture LDP location	N	
				Approved by (issuing person)	C7	35	Capture name of person performing issuance	N	
Broker Submission Record/ Cancellation	Dematerializatr (SC validation)	50	daily	Broker code	E1	5	Broker broker ID	N	3 years
				Number of SCs received	E2	9	Capture number SCs received	Y	
				Number of SCs accepted	E3	9	Capture number SCs accepted	Y	
				Number of SCs rejected	E4	9	Capture number SCs rejected	Y	
				Number of SCs exchanged for NIF shares	E5	9	Capture number SCs exchanged for NIF shares	N	
				Received by op ID number	E6	7	Capture received by op ID number (automatic)	N/A	
				Scanned by op ID number	E7	7	Capture scanned by op ID number (automatic)	N/A	
				Date	E8	10	Capture receipt/process date (auto)	N/A	
Share Certificate/ Cancellation	Dematerializatr	27 million	1 time	Status	A4	1	Change to "cancelled/ dematerialized"	Y	3 years
				Date Cancelled	A6	10	Capture date (automatic)	N/A	

SC=Share Certificate

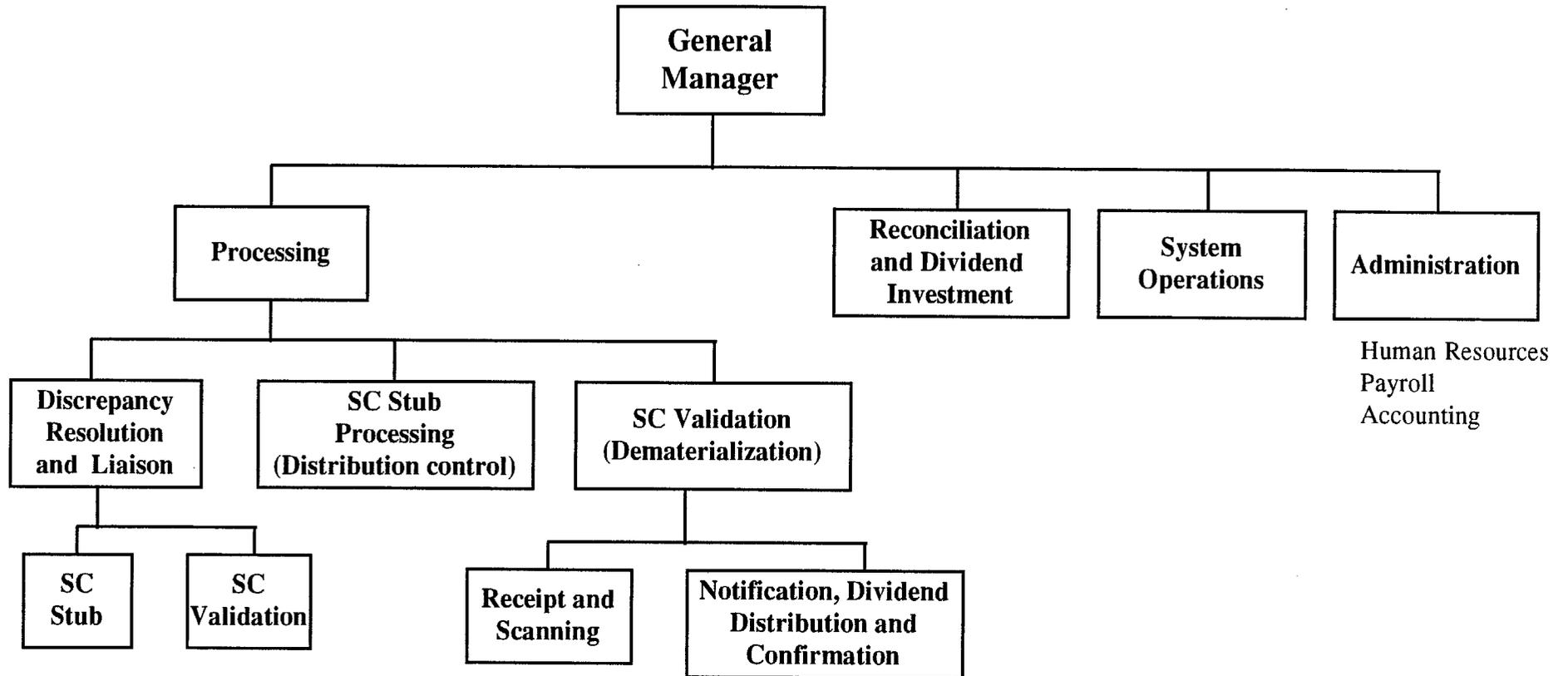
ID=identification

LDP=local distribution point

NIF=National Investment Fund

APPENDIX 5

FISCAL AGENT ORGANIZATIONAL CHART



Functions as described in Part I

3a  
3b

3a  
3b  
3c

3d  
3e  
4

1  
2  
3f  
4  
5

3

Functions as described in Part II

6

6

7

**APPENDIX 6**  
**FISCAL AGENT STAFF AND COMPUTER SYSTEM PROJECTIONS**

**SHARE CERTIFICATE-STUB PROCESSING AND VALIDATION**  
*27 million Share Certificates Distributed*

**Fiscal Agent Staff Projections**

Organization Unit	Level	6 Month/3 Year*		6 Month/5 Year		1 Year/3 Year		1 Year/5 Year	
		No.	Annual Cost	No.	Annual Cost	No.	Annual Cost	No.	Annual Cost
Fiscal Agent	General Manager	1	\$30,000	1	\$30,000	1	\$30,000	1	\$30,000
Processing	Group Manager	1	\$20,000	1	\$20,000	1	\$20,000	1	\$20,000
Discrepancy Resolution and Liaison	Unit Manager	1	\$15,000	1	\$15,000	1	\$15,000	1	\$15,000
-SC Stub	Supervisor	3	\$30,000	3	\$30,000	2	\$20,000	2	\$20,000
	Staff	19	\$76,000	19	\$76,000	10	\$40,000	10	\$40,000
-SC Valication	Supervisor	1	\$10,000	1	\$10,000	1	\$10,000	1	\$10,000
	Staff	4	\$16,000	2	\$8,000	4	\$16,000	2	\$8,000
SC Stub Processing	Unit Manager	1	\$15,000	1	\$15,000	1	\$15,000	1	\$15,000
	Shift Supervisor	2	\$20,000	2	\$20,000	2	\$20,000	2	\$20,000
	Staff	12	\$48,000	12	\$48,000	8	\$32,000	8	\$32,000
SC Validation	Unit Manager	1	\$15,000	1	\$15,000	1	\$15,000	1	\$15,000
-Receipt & Scanning	Supervisor	1	\$10,000	-		1	\$10,000	-	
	Staff	3	\$12,000	2	\$8,000	3	\$12,000	2	\$8,000
-Notification, Dividend Distribution and Confirmation	Supervisor	1	\$10,000	1	\$10,000	1	\$10,000	1	\$10,000
	Staff	3	\$12,000	3	\$12,000	3	\$12,000	3	\$12,000
Reconciliation and Dividend Investment	Unit Manager	1	\$15,000	1	\$15,000	1	\$15,000	1	\$15,000
	Staff	3	\$12,000	3	\$12,000	3	\$12,000	3	\$12,000
System Operations	System Manager	1	\$15,000	1	\$15,000	1	\$15,000	1	\$15,000
	Programmer	1	\$8,000	1	\$8,000	1	\$8,000	1	\$8,000
	Operator	3	\$12,000	3	\$12,000	3	\$12,000	3	\$12,000
	Equip Technicia	1	\$6,000	1	\$6,000	1	\$6,000	1	\$6,000
Administration	Unit Manager	1	\$15,000	1	\$15,000	1	\$15,000	1	\$15,000
	Staff	4	\$16,000	4	\$16,000	4	\$16,000	4	\$16,000
<b>Total Staffing</b>		<b>69</b>	<b>\$438,000</b>	<b>65</b>	<b>\$416,000</b>	<b>55</b>	<b>\$376,000</b>	<b>51</b>	<b>\$354,000</b>

**Computer System Projections**

Hardware	6 Month/3 Year*		6 Month/5 Year		1 Year/3 Year		1 Year/5 Year	
	No.	List Price	No.	List Price	No.	List Price	No.	List Price
Computer (E60/E50)		\$825,000		\$825,000		\$650,000		\$650,000
High Speed Printer	1	\$16,000	1	\$16,000	1	\$16,000	1	\$16,000
Scanners	9	\$900,000	8	\$800,000	7	\$700,000	6	\$600,000
Laser Printers	7	\$17,500	7	\$17,500	6	\$15,000	5	\$12,500
Terminals	55	\$27,500	51	\$25,500	43	\$21,500	39	\$19,500
<b>Total Hardware</b>		<b>\$1,786,000</b>		<b>\$1,684,000</b>		<b>\$1,402,500</b>		<b>\$1,298,000</b>

\*distribution period/validation period

**APPENDIX 6**  
**FISCAL AGENT STAFF AND COMPUTER SYSTEM PROJECTIONS**

**SHARE CERTIFICATE-STUB PROCESSING AND VALIDATION**  
*15 million Share Certificates Distributed*

**Fiscal Agent Staff Projections**

Organization Unit	Level	6 Month/3 Year*		6 Month/5 Year		1 Year/3 Year		1 Year/5 Year	
		No.	Annual Cost	No.	Annual Cost	No.	Annual Cost	No.	Annual Cost
Fiscal Agent	General Manager	1	\$30,000	1	\$30,000	1	\$30,000	1	\$30,000
Processing	Group Manager	1	\$20,000	1	\$20,000	1	\$20,000	1	\$20,000
Discrepancy Resolution and Liaison	Unit Manager	1	\$15,000	1	\$15,000	1	\$15,000	1	\$15,000
-SC Stub	Supervisor	2	\$20,000	2	\$20,000	1	\$10,000	1	\$10,000
	Staff	11	\$44,000	11	\$44,000	6	\$24,000	6	\$24,000
-SC Valication	Supervisor	1	\$10,000	1	\$10,000	1	\$10,000	1	\$10,000
	Staff	2	\$8,000	2	\$8,000	2	\$8,000	2	\$8,000
SC Stub Processing	Unit Manager	1	\$15,000	1	\$15,000	1	\$15,000	1	\$15,000
	Shift Supervisor	2	\$20,000	2	\$20,000	2	\$20,000	2	\$20,000
	Staff	9	\$36,000	9	\$36,000	7	\$28,000	7	\$28,000
SC Validation	Unit Manager	1	\$15,000	1	\$15,000	1	\$15,000	1	\$15,000
-Receipt & Scanning	Supervisor	-		-		-		-	
	Staff	2	\$8,000	2	\$8,000	2	\$8,000	2	\$8,000
-Notification, Dividend Distribution and Confirmation	Supervisor	1	\$10,000	1	\$10,000	1	\$10,000	1	\$10,000
	Staff	3	\$12,000	3	\$12,000	3	\$12,000	3	\$12,000
Reconciliation and Dividend Investment	Unit Manager	1	\$15,000	1	\$15,000	1	\$15,000	1	\$15,000
	Staff	3	\$12,000	3	\$12,000	3	\$12,000	3	\$12,000
System Operations	System Manager	1	\$15,000	1	\$15,000	1	\$15,000	1	\$15,000
	Programmer	1	\$8,000	1	\$8,000	1	\$8,000	1	\$8,000
	Operator	3	\$12,000	3	\$12,000	3	\$12,000	3	\$12,000
	Equip Technicia	1	\$6,000	1	\$6,000	1	\$6,000	1	\$6,000
Administration	Unit Manager	1	\$15,000	1	\$15,000	1	\$15,000	1	\$15,000
	Staff	4	\$16,000	4	\$16,000	3	\$12,000	3	\$12,000
<b>Total Staffing</b>		<b>53</b>	<b>\$362,000</b>	<b>53</b>	<b>\$362,000</b>	<b>44</b>	<b>\$320,000</b>	<b>44</b>	<b>\$320,000</b>

**Computer System Projections**

Hardware		List Price		List Price		List Price		List Price	
		No.		No.		No.		No.	
Computer (E60/E50)			\$825,000		\$825,000		\$650,000		\$650,000
High Speed Printer		1	\$16,000	1	\$16,000	1	\$16,000	1	\$16,000
Scanners		7	\$700,000	7	\$700,000	6	\$600,000	6	\$600,000
Laser Printers		6	\$15,000	6	\$15,000	5	\$12,500	5	\$12,500
Terminals		41	\$20,500	41	\$20,500	34	\$17,000	34	\$17,000
<b>Total Hardware</b>			<b>\$1,576,500</b>		<b>\$1,576,500</b>		<b>\$1,295,500</b>		<b>\$1,295,500</b>

\*distribution period/validation period

**APPENDIX 6**  
**FISCAL AGENT STAFF AND COMPUTER SYSTEM PROJECTIONS**

**SHARE CERTIFICATE-STUB PROCESSING AND VALIDATION**  
*8 million Share Certificates Distributed*

**Fiscal Agent Staff Projections**

Organization Unit	Level	6 Month/3 Year*		6 Month/5 Year		1 Year/3 Year		1 Year/5 Year	
		No.	Annual Cost	No.	Annual Cost	No.	Annual Cost	No.	Annual Cost
Fiscal Agent	General Manager	1	\$30,000	1	\$30,000	1	\$30,000	1	\$30,000
Processing	Group Manager	1	\$20,000	1	\$20,000	1	\$20,000	1	\$20,000
Discrepancy Resolution and Liaison	Unit Manager	1	\$15,000	1	\$15,000	1	\$15,000	1	\$15,000
-SC Stub	Supervisor	1	\$10,000	1	\$10,000	1	\$10,000	1	\$10,000
	Staff	6	\$24,000	6	\$24,000	3	\$12,000	3	\$12,000
-SC Valication	Supervisor	-		-		-		-	
	Staff	1	\$4,000	1	\$4,000	1	\$4,000	1	\$4,000
SC Stub Processing	Unit Manager	1	\$15,000	1	\$15,000	1	\$15,000	1	\$15,000
	Shift Supervisor	2	\$20,000	2	\$20,000	2	\$20,000	2	\$20,000
	Staff	7	\$28,000	7	\$28,000	6	\$24,000	6	\$24,000
SC Validation	Unit Manager	1	\$15,000	1	\$15,000	1	\$15,000	1	\$15,000
-Receipt & Scanning	Supervisor	-		-		-		-	
	Staff	2	\$8,000	2	\$8,000	2	\$8,000	2	\$8,000
-Notification, Dividend Distribution and Confirmation	Supervisor	1	\$10,000	1	\$10,000	1	\$10,000	1	\$10,000
	Staff	3	\$12,000	3	\$12,000	3	\$12,000	3	\$12,000
Reconciliation and Dividend Investment	Unit Manager	1	\$15,000	1	\$15,000	1	\$15,000	1	\$15,000
	Staff	3	\$12,000	3	\$12,000	3	\$12,000	3	\$12,000
System Operations	System Manager	1	\$15,000	1	\$15,000	1	\$15,000	1	\$15,000
	Programmer	1	\$8,000	1	\$8,000	1	\$8,000	1	\$8,000
	Operator	3	\$12,000	3	\$12,000	3	\$12,000	3	\$12,000
	Equip Technicia	1	\$6,000	1	\$6,000	1	\$6,000	1	\$6,000
Administration	Unit Manager	1	\$15,000	1	\$15,000	1	\$15,000	1	\$15,000
	Staff	3	\$12,000	3	\$12,000	3	\$12,000	3	\$12,000
<b>Total Staffing</b>		<b>42</b>	<b>\$306,000</b>	<b>42</b>	<b>\$306,000</b>	<b>38</b>	<b>\$290,000</b>	<b>38</b>	<b>\$290,000</b>

**Computer System Projections**

Hardware	No.	List Price						
High Speed Printer	1	\$16,000	1	\$16,000	1	\$16,000	1	\$16,000
Scanners	6	\$600,000	6	\$600,000	5	\$500,000	5	\$500,000
Laser Printers	4	\$10,000	4	\$10,000	4	\$10,000	4	\$10,000
Terminals	32	\$16,000	32	\$16,000	28	\$14,000	28	\$14,000
<b>Total Hardware</b>		<b>\$1,292,000</b>		<b>\$1,292,000</b>		<b>\$1,190,000</b>		<b>\$1,190,000</b>

\*distribution period/validation period

**APPENDIX 6**  
**FISCAL AGENT STAFF AND COMPUTER SYSTEM PROJECTIONS**

**SHARE CERTIFICATE VALIDATION**  
*27 million Share Certificates Distributed*

**Fiscal Agent Staff Projections**

Organization Unit	Level	3 Year*		5 Year	
		No.	Annual Cost	No.	Annual Cost
Fiscal Agent	General Manager	1	\$30,000	1	\$30,000
Processing	Group Manager	1	\$20,000	1	\$20,000
Discrepancy Resolution and Liaison	Unit Manager	1	\$15,000	1	\$15,000
-SC Stub	Supervisor Staff	-	-	-	-
-SC Valication	Supervisor Staff	4	\$16,000	2	\$8,000
SC Stub Processing	Unit Manager	-	-	-	-
	Shift Supervisor	-	-	-	-
	Staff	-	-	-	-
SC Validation	Unit Manager	1	\$15,000	1	\$15,000
-Receipt & Scanning	Supervisor Staff	3	\$12,000	2	\$8,000
-Notification, Dividend Distribution and Confirmation	Supervisor Staff	1	\$10,000	1	\$10,000
	Staff	3	\$12,000	3	\$12,000
Reconciliation and Dividend Investment	Unit Manager	1	\$15,000	1	\$15,000
	Staff	3	\$12,000	3	\$12,000
System Operations	System Manager	1	\$15,000	1	\$15,000
	Programmer	1	\$8,000	1	\$8,000
	Operator	1	\$4,000	1	\$4,000
	Equip Technician	1	\$6,000	1	\$6,000
Administration	Unit Manager	1	\$15,000	1	\$15,000
	Staff	3	\$12,000	3	\$12,000
<b>Total Staffing</b>		<b>27</b>	<b>\$217,000</b>	<b>24</b>	<b>\$205,000</b>

**Computer System Projections**

Hardware	No.	List Price	No.	List Price
Computer (E45)		\$560,000		\$560,000
High Speed Printer	1	\$16,000	1	\$16,000
Scanners	3	\$300,000	2	\$200,000
Laser Printers	3	\$7,500	3	\$7,500
Terminals	22	\$11,000	19	\$9,500
<b>Total Hardware</b>		<b>\$894,500</b>		<b>\$793,000</b>

\*validation period

**APPENDIX 6**  
**FISCAL AGENT STAFF AND COMPUTER SYSTEM PROJECTIONS**

**SHARE CERTIFICATE VALIDATION**  
*15 million Share Certificates Distributed*

**Fiscal Agent Staff Projections**

Organization Unit	Level	3 Year*		5 Year	
		No.	Annual Cost	No.	Annual Cost
Fiscal Agent	General Manager	1	\$30,000	1	\$30,000
Processing	Group Manager	1	\$20,000	1	\$20,000
Discrepancy Resolution and Liaison	Unit Manager	1	\$15,000	1	\$15,000
-SC Stub	Supervisor	-		-	
	Staff	-		-	
-SC Valication	Supervisor	-		-	
	Staff	2	\$8,000	2	\$8,000
SC Stub Processing	Unit Manager	-		-	
	Shift Supervisor	-		-	
	Staff	-		-	
SC Validation	Unit Manager	1	\$15,000	1	\$15,000
-Receipt & Scanning	Supervisor	-		-	
	Staff	2	\$8,000	2	\$8,000
-Notification, Dividend Distribution and Confirmation	Supervisor	1	\$10,000	1	\$10,000
	Staff	3	\$12,000	3	\$12,000
Reconciliation and Dividend Investment	Unit Manager	1	\$15,000	1	\$15,000
	Staff	3	\$12,000	3	\$12,000
System Operations	System Manager	1	\$15,000	1	\$15,000
	Programmer	1	\$8,000	1	\$8,000
	Operator	1	\$4,000	1	\$4,000
	Equip Technician	1	\$6,000	1	\$6,000
Administration	Unit Manager	1	\$15,000	1	\$15,000
	Staff	3	\$12,000	3	\$12,000
<b>Total Staffing</b>		<b>24</b>	<b>\$205,000</b>	<b>24</b>	<b>\$205,000</b>

**Computer System Projections**

Hardware	No.	List Price	No.	List Price
Computer (E45)		\$560,000		\$560,000
High Speed Printer	1	\$16,000	1	\$16,000
Scanners	2	\$200,000	2	\$200,000
Laser Printers	3	\$7,500	3	\$7,500
Terminals	19	\$9,500	19	\$9,500
<b>Total Hardware</b>		<b>\$793,000</b>		<b>\$793,000</b>

\*validation period

**APPENDIX 6**  
**FISCAL AGENT STAFF AND COMPUTER SYSTEM PROJECTIONS**

**SHARE CERTIFICATE VALIDATION**  
*8 million Share Certificates Distributed*

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**Fiscal Agent Staff Projections**

Organization Unit	Level	3 Year*		5 Year	
		No.	Annual Cost	No.	Annual Cost
Fiscal Agent	General Manager	1	\$30,000	1	\$30,000
Processing	Group Manager	1	\$20,000	1	\$20,000
Discrepancy Resolution and Liaison	Unit Manager	1	\$15,000	1	\$15,000
-SC Stub	Supervisor	-		-	
	Staff	-		-	
-SC Valication	Supervisor	-		-	
	Staff	1	\$4,000	1	\$4,000
SC Stub Processing	Unit Manager	-		-	
	Shift Supervisor	-		-	
	Staff	-		-	
SC Validation	Unit Manager	1	\$15,000	1	\$15,000
-Receipt & Scanning	Supervisor	-		-	
	Staff	2	\$8,000	2	\$8,000
-Notification, Dividend Distribution and Confirmation	Supervisor	1	\$10,000	1	\$10,000
	Staff	3	\$12,000	3	\$12,000
Reconciliation and Dividend Investment	Unit Manager	1	\$15,000	1	\$15,000
	Staff	3	\$12,000	3	\$12,000
System Operations	System Manager	1	\$15,000	1	\$15,000
	Programmer	1	\$8,000	1	\$8,000
	Operator	1	\$4,000	1	\$4,000
	Equip Technician	1	\$6,000	1	\$6,000
Administration	Unit Manager	1	\$15,000	1	\$15,000
	Staff	3	\$12,000	3	\$12,000
<b>Total Staffing</b>		<b>23</b>	<b>\$201,000</b>	<b>23</b>	<b>\$201,000</b>

**Computer System Projections**

Hardware	No.	List Price	No.	List Price
Computer (E45)		\$560,000		\$560,000
High Speed Printer	1	\$16,000	1	\$16,000
Scanners	2	\$200,000	2	\$200,000
Laser Printers	3	\$7,500	3	\$7,500
Terminals	18	\$9,000	18	\$9,000
<b>Total Hardware</b>		<b>\$792,500</b>		<b>\$792,500</b>

\*validation period

**APPENDIX 6  
FISCAL AGENT STAFF AND COMPUTER SYSTEM PROJECTIONS**

**FISCAL AGENT STAFF PROJECTION DETAIL**

**SHARE CERTIFICATE STUB PROCESSING**

<b>6 MONTH DISTRIBUTION PERIOD</b>										
TOTAL STUBS	STUBS PER DAY	STUB SCANNING					REJECTION PROCESSING			TOTAL FTEs
		BATCHES PER DAY	BATCH TIME	SCAN TIME	TOTAL TIME	FTEs	NUMBER REJECTED	TOTAL TIME	FTEs	
27,000,000	225,000	1,600	1,600	2,500	4,100	11.39	6,750	6,750	18.75	30.14
15,000,000	125,000	1,600	1,600	1,389	2,989	8.30	3,750	3,750	10.42	18.72
8,000,000	66,667	1,600	1,600	741	2,341	6.50	2,000	2,000	5.56	12.06

<b>1 YEAR DISTRIBUTION PERIOD</b>										
TOTAL STUBS	STUBS PER DAY	STUB SCANNING					REJECTION PROCESSING			TOTAL FTEs
		BATCHES PER DAY	BATCH TIME	SCAN TIME	TOTAL TIME	FTEs	NUMBER REJECTED	TOTAL TIME	FTEs	
27,000,000	112,500	1,600	1,600	1,250	2,850	7.92	3,375	3,375	9.38	17.30
15,000,000	62,500	1,600	1,600	694	2,294	6.37	1,875	1,875	5.21	11.58
8,000,000	33,333	1,600	1,600	370	1,970	5.47	1,000	1,000	2.78	8.25

<b>Assumptions:</b>	20 Days/Month	8,000 LDPs	1.00 Batch Prep Time(Min)
	3.0% Rejection Rate	20% LDPs Submitting/Day	90 Scan Rate (Stubs/Min)
		1.00 Rejection Process Time (Min/SC)	

SC= Share Certificate  
FTE= full time equivalent staff  
LDP= local distribution point

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**APPENDIX 6  
FISCAL AGENT STAFF AND COMPUTER SYSTEM PROJECTIONS**

**FISCAL AGENT STAFF PROJECTION DETAIL**

**SHARE CERTIFICATE VALIDATION PROCESSING**

<b>3 YEAR SHARE CERTIFICATE LIFE</b>												
TOTAL SCs	SCs/DAY	RECEIPT BATCHING			VALIDATION SCANNING				REJECTION PROCESSING			TOTAL FTEs
		BATCHES PER DAY	BATCH TIME	FTEs	PREP TIME	SCAN TIME	TOTAL TIME	FTEs	NUMBER REJECTED	TOTAL TIME	FTEs	
27,000,000	36,735	50	250	0.69	75	408	483	1.34	1,102	1,102	3.06	5.09
15,000,000	20,408	50	250	0.69	75	227	302	0.84	612	612	1.70	3.23
8,000,000	10,884	50	250	0.69	75	121	196	0.54	327	327	0.91	2.14

<b>5 YEAR SHARE CERTIFICATE LIFE</b>												
TOTAL SCs	SCs/DAY	RECEIPT BATCHING			VALIDATION SCANNING				REJECTION PROCESSING			TOTAL FTEs
		BATCHES PER DAY	BATCH TIME	FTEs	PREP TIME	SCAN TIME	TOTAL TIME	FTEs	NUMBER REJECTED	TOTAL TIME	FTEs	
27,000,000	22,041	50	250	0.69	75	245	320	0.89	661	661	1.84	3.42
15,000,000	12,245	50	250	0.69	75	136	211	0.59	367	367	1.02	2.30
8,000,000	6,531	50	250	0.69	75	73	148	0.41	196	196	0.54	1.64

<b>Assumptions:</b>	6 Hours per Day per FTE	1 Locations per Broker	90 Scan Rate (SC's/Min)
	245 Business Days/Year	5 Batch Prep Rate (Min)	3.0% Scan Reject Rate
	50 Brokers	1.5 Scan Prep (Min/Batch)	1 Reject Process Time (Min/SC)

SC= Share Certificate

FTE= full time equivalent staff

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