


**SUMMARY REPORT
FOR
THE MASTER PLAN STUDY
FOR
THE STRENGTHENING OF DATA PROCESSING AND INFORMATION
ON
TRADE AND COOPERATIVES
IN
THE DEPARTMENT OF TRADE AND COOPERATIVES
THE REPUBLIC OF INDONESIA**

SEPTEMBER 1982

JAPAN INTERNATIONAL COOPERATION AGENCY

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PREFACE

In response to the request of the Government of the Republic of Indonesia, the Government of Japan decided to conduct the Master Plan Study for the Strengthening of Data Processing and Information on Trade and Cooperatives and entrusted the study to the Japan International Cooperation Agency (JICA).

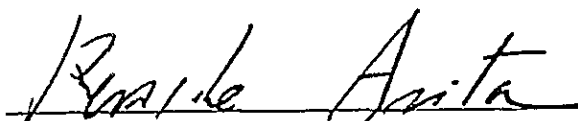
JICA dispatched a study team to Indonesia from February 14th to March 15, 1982 to collect data and information necessary for the Master Plan Study, and to have intensive consultations with the officials concerned of the Government of the Republic of Indonesia.

The study was conducted with close cooperation of the officials concerned of Indonesia. Upon its return to Japan, the team made further studies and has prepared the present report.

I hope this report will contribute to the development of the project and to the promotion of friendly relations between our two countries.

I wish to express my sincere appreciation to the officials concerned of the Government of the Republic of Indonesia for their close cooperation extended to our survey team.

August, 1982

A handwritten signature in black ink, appearing to read 'Keisuke Arita', is written over a horizontal line.

Keisuke ARITA
President
Japan International Cooperation Agency

TABLE OF CONTENTS

	<u>Page</u>
INTRODUCTION	1
CHAPTER 1 GENERAL	2
CHAPTER 2 ANALYSIS AND REVIEW OF THE PRESENT SYSTEM	3
2-1. Operations to be Studied	3
2-2. Fact Finding Survey	3
CHAPTER 3 ROLE AND SCOPE OF THE INFORMATION SYSTEM	6
CHAPTER 4 CONCEPTUAL DESIGN OF THE INFORMATION SYSTEM	9
4-1. Input Data Items and Output Reports	9
4-2. Hardware	20
4-3. Software	21
CHAPTER 5 STAFF TRAINING PLAN	22
CHAPTER 6 SCHEDULES FOR THE IMPLEMENTATION OF THE MASTER PLAN	24
CHAPTER 7 COST ESTIMATION	27
CHAPTER 8 CASE STUDIES	28
CHAPTER 9 CONCLUSIONS AND RECOMMENDATIONS	32

INTRODUCTION

This report is the result of the Master Plan Study performed to strengthen the capabilities of data processing and information on trade and cooperatives in the Republic of Indonesia, performed by the Master Plan Team dispatched by Japan International Cooperation Agency (JICA). Work in Indonesia was performed during the period February 15th through March 13th, 1982. The submission of the report is in accordance with the requirements stipulated in the Minutes of Meetings dated December 17th, 1981, and outlines the work as defined in the Scope of Work contained in the Minutes.

There are four study subjects consisting of 7 areas of 11 system modules as shown below.

4 Subjects	Field/System Modules
1. Statistical Data	1. Foreign Trade 2. Domestic Trade 3. Pricing Related Items - Consumer Price Index - Commodity Price - Check Price
2. Registration of Enterprises	4. Registration of Enterprises (General Trader's License)
3. Performance Analysis of Cooperatives	5. Cooperatives
4. Administration System	6. Secretariat Related Items - Personnel Administration - Inventory Administration - Project Administration 7. Middle East Work Force

In addition to the Master Plan Study, there will be two case studies selected to perform in-depth analysis within the Scope of Work of the Master Plan and to confirm that the two case studies can be implemented within the meaning of the Master Plan. The description of the two case studies selected for implementation out of 11 system modules after discussion held between the Government of Indonesia will be of preliminary nature.

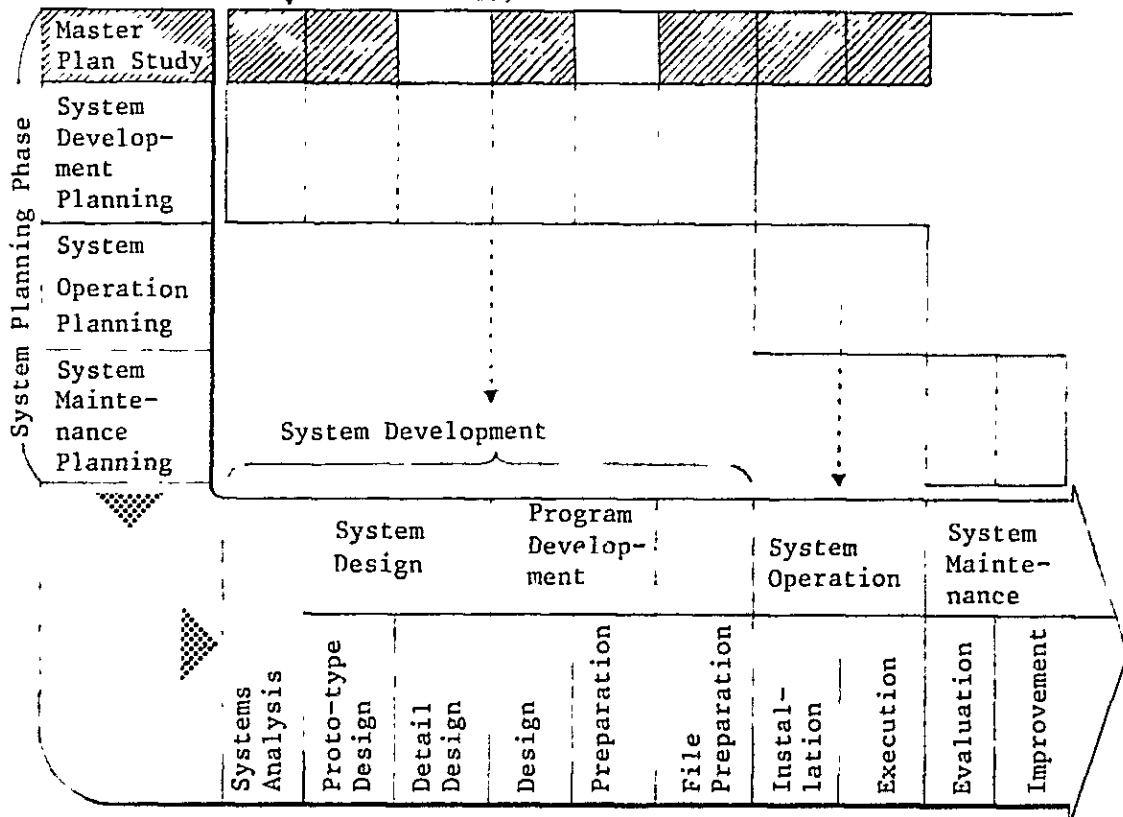
CHAPTER 1
GENERAL

There are seven tasks to be covered within the Master Plan Study, they are:

- a. Analysis and review of the present system.
- b. Role and scope of the information system.
- c. Conceptual design of the information system.
- d. Staff training plan.
- e. Implementation schedule.
- f. Cost estimation.
- g. Conclusions and recommendations.

In this study, investigations were made for each individual system modules on the bases of items (a.) thru (c.), and all of the system modules were studied as a whole on the bases of items (d.) thru (g.). In the selection of the two case studies, emphasis were placed on items (c.) thru (f.), bearing in mind the overall scope of the Master Plan. The Master Plan Study will be the first step to be made in the process of formulating an information system. In order to make it into an effective management tool, it will require all phases of planning, systems analysis, system design, development of user programs, system operations, and maintenance, all in a continuous train of activities.

FIGURE: Master Plan Study in System Life Cycle
↙ (studied area)



CHAPTER 2
ANALYSIS AND REVIEW OF THE PRESENT SYSTEM

2-1. Operations to be Studied

Fact finding survey of 6 operation units amounting to 11 operation items were conducted under the coordination of the Agency for Research and Development of the Trade and Cooperatives. Following are the 11 studied operation items and operation units in charge:

<u>Name of Operation</u>	<u>Name of Operation Unit</u>
i. Foreign Trade	Directorate General for Foreign Trade
ii. Domestic Trade	Directorate General for Domestic Trade
iii. Consumer Price Index	Agency for Research and Development of Trade and Cooperatives
iv. Commodity Prices	Agency for Research and Development of Trade and Cooperatives
v. Check Prices	Directorate General for Foreign Trade
vi. Registration of Enterprises (General Trader's License)	Directorate General for Domestic Trade
vii. Concerning Cooperatives	Directorate General for Cooperatives
viii. Personnel Administration	Secretariat General
ix. Inventory Administration	Secretariat General
x. Project Administration	Secretariat General
xi. Concerning the Middle East	Coordinating Team on the Middle East

2-2. Fact Finding Survey

The review of the the current system was conducted in accordance with the flow concerning (i) (physical) operation for generating the information, (ii) generation of information, (iii) information processing, and (iv) reporting, for each operation.

Characteristics of the current operation, existing problems of the current operation, and requirements for the systematization are listed by each operation in the following table.

TABLE: Results of the Fact Finding Survey

Name of Operation	Characteristics of Current Operation	Problems of the Current Operation	Requirements for the Systematization
1. Foreign Trade	<ul style="list-style-type: none"> - Export control by utilizing the information which can be obtained from export declaration (PEB) and foreign trader's license (APE). - To check the performances of exporters engaged in coffee, pepper, and timber/logs, and their record of exportation. - To check the performance of lubricating oil importers and the record of importation. 	<ul style="list-style-type: none"> - The information obtained from PEB is not utilized thoroughly. - Not all of the PEB information is obtained at the Head Office. - The current manual processing of the information requires too much time. 	<ul style="list-style-type: none"> - The requirements for the systematization is quick preparation of reports, more coverage of information/reports, realization of complex processing of export/import information, accurate information processing for the operation.
2. Domestic Trade	<ul style="list-style-type: none"> - Information of market prices of 5 major commodities (clove, copra, cooking oil, fertilizer, cement) are collected by provinces to check the weekly price trends. - Information of inter-island shipment of cloves and copra obtained from special trade license are recorded and analyzed. - Distribution of fertilizer and cement, and performance of the distributors are checked. - Performance record of cement manufacturers are also being checked. 	<ul style="list-style-type: none"> - Current information obtained at the Head Office is not sufficient to understand the market situation in detail. More information on these commodities such as production volume should be obtained. - The preparation of reports by manual operation takes too much time for adequate policy making. 	<ul style="list-style-type: none"> - The requirements for the systematization are more coverage of information/reports accurate information processing, quick preparation of reports, and realization of sophisticated or complicated processing for the operation.
3. Concerning Price Information	<ul style="list-style-type: none"> - Consumer price index is calculated based on the information on consumption expenditures of important commodities in major 17 cities. - Trends of commodity prices are checked from the information obtained on important commodities in each province and the world market price trends. - Check prices are determined based on the world market commodity prices. 	<ul style="list-style-type: none"> - Information concerning consumer price index are obtained from C.B.S. which has the delay of 2 to 3 month. - The time required for the processing is relatively long since the data volume is large. 	<ul style="list-style-type: none"> - The requirements are more coverage of information/reports, accurate information processing, quick preparation of reports, realization of mass processing, and realization of sophisticated processing for the operation.
4. Registration of Enterprises (General Trader's License)	<ul style="list-style-type: none"> - Three types of registration forms are obtained for tabulating three types of tables for checking the overall situation of the enterprises, which is currently being processed by an external organization monthly and annually. The reports are used for policy making. 	<ul style="list-style-type: none"> - The data volume for the registration of enterprises is very large which makes the processing of the information difficult. - Since the processing is now being sub-contracted, the processing of the mass data and information retrieval cannot be performed on demand. 	<ul style="list-style-type: none"> - Requirements for the systematization are more coverage of information/reports, accurate information processing, quick preparation of reports, and realization of mass processing for the operation.

TABLE: Results of the Fact Finding Survey

Name of Operation	Characteristics of Current Operation	Problems of the Current Operation	Requirements for the Systematization
5. Concerning Cooperatives	<ul style="list-style-type: none"> - Performance of all of the cooperatives are being checked from the annual reports. - Performance of KUD is checked from the monthly and annual reports on KUD. 	<ul style="list-style-type: none"> - Since the data volume on cooperatives are so large, it requires too much time for the processing of these data. - The method for data check is not established. 	<ul style="list-style-type: none"> - The requirements are more coverage of information/reports, accurate information processing, quick preparation of reports, and realization of mass processing for the operation.
6. Personnel Administration	<ul style="list-style-type: none"> - Personnel record documents which contains various items concerning past records/history and present status of each staff is obtained for the administration of personnel and staffing. - The personnel record is updated each year. - The totalization is performed by computer of an external organization. 	<ul style="list-style-type: none"> - The data volume concerning personnel administration is relatively large, which makes it difficult to retrieve the necessary information quickly. - The personnel history items are not processed currently. - Since the computer processing is performed by an external organization, the processing cannot be performed on demand. 	<ul style="list-style-type: none"> - The requirements are more coverage of information/reports, accurate information processing, quick preparation of reports, and realization of mass processing for the operation.
7. Inventory Administration	<ul style="list-style-type: none"> - Evaluation of the asset condition possessed by the Department is being performed manually. - The reports being prepared are on equipment, four wheel vehicle, two wheel vehicle, office buildings, and resident/buildings. 	<ul style="list-style-type: none"> - The time required for the processing is too long since there are many items to be managed. 	<ul style="list-style-type: none"> - The requirements are more coverage of information/reports, accurate information processing, quick preparation of reports, and realization of mass processing for the operation.
8. Project Administration	<ul style="list-style-type: none"> - A project evaluation report is being prepared based on the project plan and the quarterly project progress report. 	<ul style="list-style-type: none"> - Evaluation of the progress of a project requires complicated calculation and judgement which makes the manual processing difficult regardless of the number of projects. 	<ul style="list-style-type: none"> - The requirements are more coverage of information/reports, accurate information processing, quick preparation of reports, and realization of mass processing for the operation.
9. Middle East Work Force	<ul style="list-style-type: none"> - The current status of the work force dispatched to the Middle East countries are being checked based on the information obtained from labor suppliers or the domestic contractors. 	<ul style="list-style-type: none"> - The time required for the processing is too long since the data volume is so large. - The method for checking the input data is not established. 	<ul style="list-style-type: none"> - The requirements are more coverage of information/reports, accurate information processing, quick preparation of reports, and realization of mass processing for the operation.

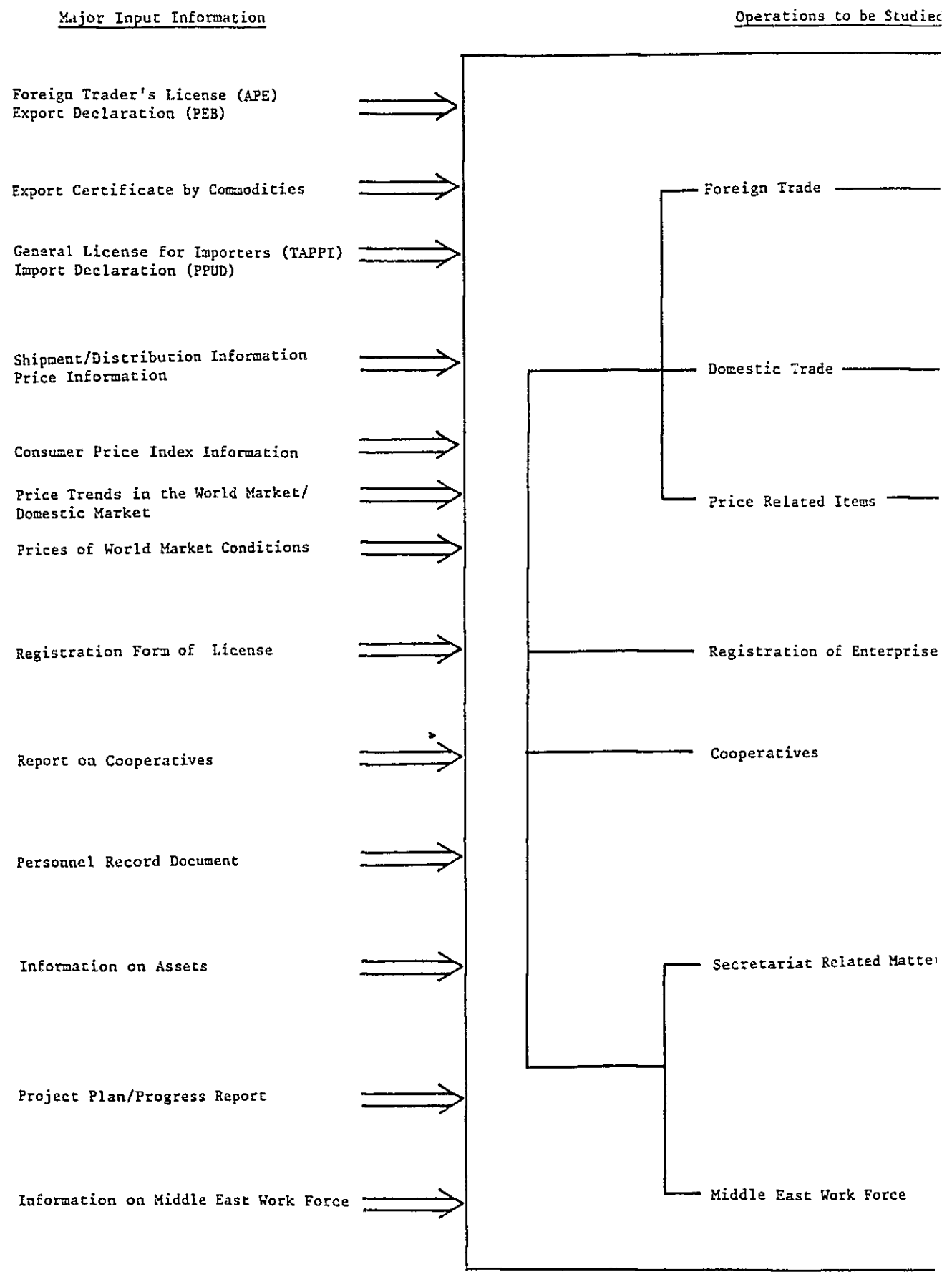
CHAPTER 3
ROLE AND SCOPE OF THE INFORMATION SYSTEM

The basic principles of the systematization is mentioned giving the premise for the conceptual design of information system to be worked out in Chapter 4 which follows. It is natural that the purpose and means of systematizing the operation is aimed at the following effects:

- i. More coverage of information and/or reports for the operation.
- ii. Accurate information processing for the operation.
- iii. Quick preparation of reports for the operation.
- iv. Realization of mass processing for the operation.
- v. Realization of sophisticated (or complicated) processing for the operation.

Major input/output information, their utilization, and expected effects for the systematization are mentioned by each operation in the figure which follows.

FIGURE: Scope of the Information System

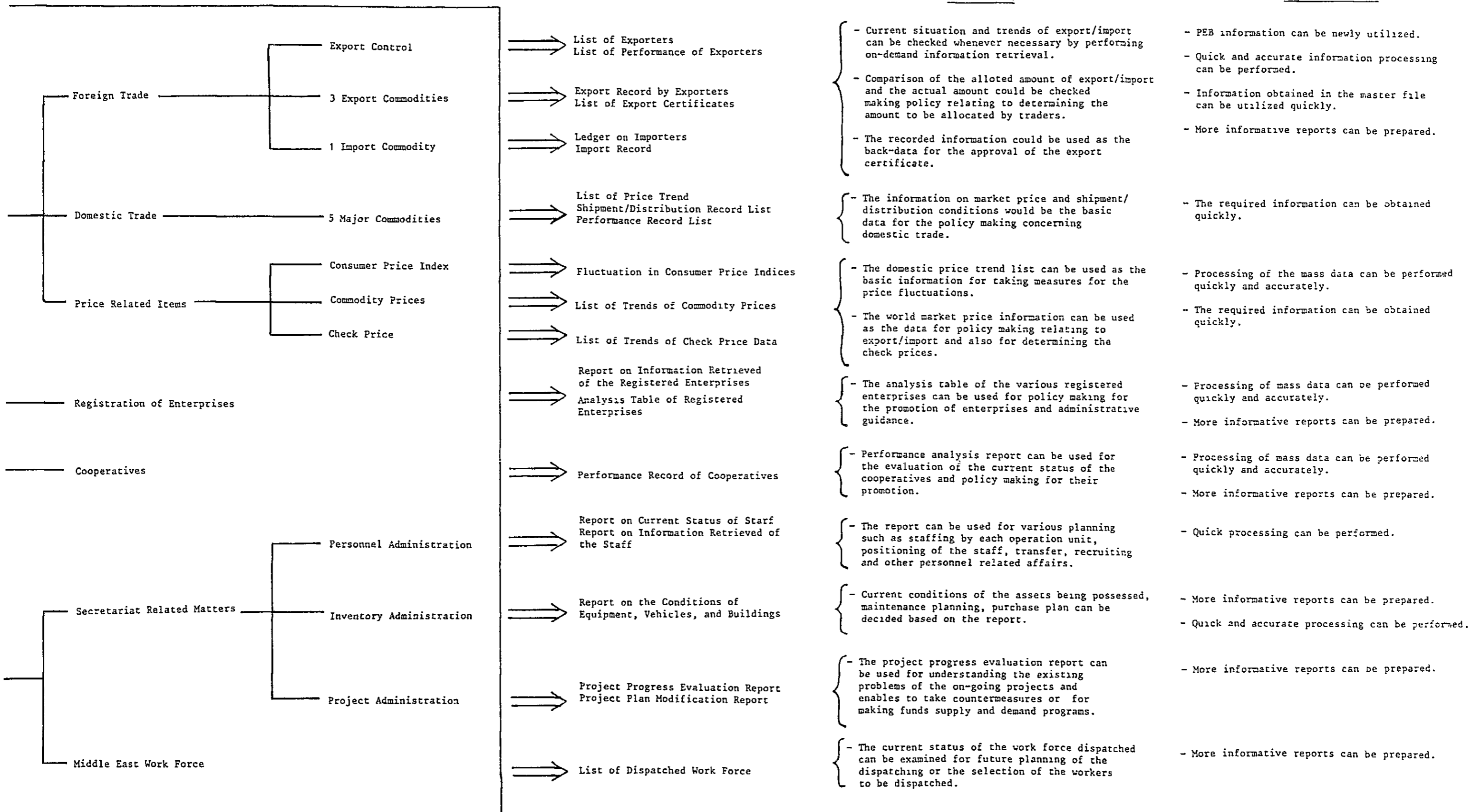


Operations to be Studied in the Master Plan

Major Output Reports

Utilization

Expected Effects



CHAPTER 4

CONCEPTUAL DESIGN OF THE INFORMATION SYSTEM

The conceptual design of the information system was performed in this chapter. Input data items and output reports by each operation, hardware configuration and its layout, layout of the associated facilities, and the softwares required for the information system are mentioned.

4-1. Input Data Items and Output Reports

Input data items and the frequency obtained at the head office, and also the output reports and its reporting frequency are listed by each operation items in the following table.

TABLE: Input Data Items and Output Reports

1. FOREIGN TRADE

(1) Information Concerning Export Control

(Input Data Items/Frequency Obtained at the Head Office)

- APE (monthly): Name and address of exporter, name of representative, past records, APE number, term of validity, business activity and commodity, capitalization and assets, performance, etc.
- PEB (monthly): Name and address of exporter, APE number, exporting commodity, number of packages, weight, description and quality of the cargo, FOB value and check price, country of destination, etc.

(Output Reports/Reporting Frequency)

- List of Exporters by Provinces (semiannual/annual)
- List of Exporters Retrieved by Term of Validity of APE (on demand)
- List of Export Record by Provinces (semiannual/annual)
- List of Performance of Exporters (on demand)

(2) Three Exporting Commodities

(Input Data Items/Frequency Obtained at the Head Office)

- Export Certificate (monthly): Name and address of exporter, certificate number and APE number, quantity of shipment, type of commodity, country of destination, etc.

(Output Reports/Reporting Frequency)

- Overseas Market Price (annual)
 - Retail Price (annual)
 - Producer Price (annual)
 - List of Export Certificate (monthly)
 - List of Exporters (annual)
 - Area of Planting and Production Volume by Provinces (annual)
-

(3) One Import Commodity

(Input Data Items/Frequency Obtained at the Head Office)

- TAPPI (monthly): Name and address of importer, name of representative, TAPPI number, term of validity, kind of commodity, etc.
- PITP (monthly): Name and address of importer, trade mark, term of validity, kind of commodity, name of exporting company, etc.
- PPUD (monthly): PPUD number, name and address of importer, kind of commodity, quantity of import, CIF value, port of origin, exporting country, etc.

(Output Reports/Reporting Frequency)

- Ledger of Lubricating Oil Importers (semiannual/annual)
- Import Record of Lubricating Oil (monthly)
- Import Record of Lubricating Oil by Port of Entry (monthly)

2. DOMESTIC TRADE

(1) Clove

(Input Data Items/Frequency Obtained at the Head Office)

- Special Trade License for: Name of province, name and address of Clove (half-monthly) inter-island trader. PAP number. quantity of shipment. quality of clove, port of origin, port of destination, name and address of consignee, term of validity, etc.
- Information on Auction: Name of province, name of successful (weekly) bidder, quantity, unit price, quality, name of KUD/PUSKUD, etc.

(Output Reports/Reporting Frequency)

- Shipment Record by Province (monthly/annual)
-

-
- Inter-provincial Shipment Records (monthly/annual)
 - List of Traders by Provinces (monthly)
 - Time Series Data by Traders and by Provinces (annual)
 - Results of Auction by Provinces (weekly)
 - Results of Auction by Traders (weekly)

(2) Copra

(Input Data Items/Frequency Obtained at the Head Office)

- Special Trade License for: Name of province, name and address of
Copra (half-monthly) inter-island trader, PAP number,
quantity of shipment, quality of copra,
port of origin, port of destination,
name and address of consignee, term of
validity, etc.

(Output Reports/Reporting Frequency)

- Shipment Record by Provinces (monthly/annual)
- Inter-provincial Shipment Records (monthly/annual)
- List of Traders by Provinces (monthly)
- Time Series Data by Traders and by Provinces (annual)

(3) Fertilizer

(Input Data Items/Frequency Obtained at the Head Office)

- Supply, Demand, Stock Information: Name of province, type of
(half-monthly) fertilizer, quantity of fertili-
zer supplied, demand of ferti-
lizer, stock volume of fertili-
zer, etc.

(Output Reports/Reporting Frequency)

- Supply, Demand, Stock Conditions by Provinces (monthly/annual)
- Time Series Data of Supply, Demand and Stock (annual)

(4) Cement

(Input Data Items/Frequency Obtained at the Head Office)

- Performance Record of Distributors: Name of province, name of distributor, initial stock, supply, demand, final stock, selling price, etc.
(weekly)
- Performance Record of Manufacturers: Name and address of manufacturer, demand by distributor, initial stock, production volume, costs, final stock, demand by region, etc.
(half-monthly)

(Output Reports/Reporting Frequency)

- Performance Record of Distributors by Provinces (monthly/annual)
- Time Series Data of Performance Record of Distributors (monthly/annual)
- Performance Record of Manufacturers (monthly/annual)
- Time Series Data of Performance Record of Manufacturers (monthly/annual)

(5) Market Price Information

(Input Data Items/Frequency Obtained at the Head Office)

- Price Telex (weekly): Name of province, name of commodity, market price of each commodity, etc.

(Output Reports/Reporting Frequency)

- Price Table by Provinces (weekly)
- Price Trends by Provinces (monthly/annual)

3. CONCERNING PRICE INFORMATION

(1) Consumer Price Index

(Input Data Items/Frequency Obtained at the Head Office)

- Computer Output List from: Consumption expenditures for 115-150 C.B.S. (monthly) commodities in 17 provinces.
-

(Output Reports/Reporting Frequency)

- Fluctuations in Consumer Price Indices (monthly)
- Fluctuation of Household Consumption Expenditure (monthly)
- Ranking of Fluctuation in Consumer Price Index (monthly)

(2) Commodity Prices

(Input Data Items/Frequency Obtained at the Head Office)

- Publications from ANTARA News: Daily price information on the Agency (daily) world commodity market.
- Report on Commodity Prices: Weekly, half-monthly, and monthly (weekly/half-monthly/monthly) commodity prices in each provincial capital. Commodities for each type of transaction do not overlap.

(Output Reports/Reporting Frequency)

- Daily Trends of Commodity Price Lists (daily/weekly)
- Weekly Trends of Commodity Price (monthly)
- Weekly Price Trends (monthly)
- Half-monthly Price Trends (monthly)
- Monthly Price Trends (monthly)

(3) Check Price

(Input Data Items/Frequency Obtained at the Head Office)

- Publications from ANTARA News: Monthly prices of 17 commodities Agency (monthly) of the world market conditions.

(Output Reports/Reporting Frequency)

- Monthly Trends of Commodity Prices (monthly)
- Monthly Indicators by Commodities (monthly)

4. REGISTRATION OF ENTERPRISES (GENERAL TRADER'S LICENSE)

(Input Data Items/Frequency Obtained at the Head Office)

-
- Registration Form for Approved: Reason for the application, name and License (monthly) address of enterprise, SIUP number, NPWP number, type of enterprise, location of head office/branch office, name of representative, date of establishment, size of enterprise, commodities handled and field of business activity, number of employees, date approved, etc.

(Output Reports/Reporting Frequency)

- Report on Information Retrieved by Specific Items (on demand)
- Detailed Table of Registered Enterprise by Districts and Provinces (semiannual)
- Analysis Table of Registration Made by Districts and Provinces (semiannual)
- Analysis Table of Registered Enterprises Classified by the Different Number of Years after Their Establishment by Provinces and Districts (annual)
- Analysis Table of Registered Enterprises Classified by Business Activities by Provinces and Districts (annual)
- Analysis Table of Registered Enterprises Classified by Type of Enterprises by Provinces and Districts (annual)
- Analysis Table of Registered Enterprises Classified by Commodities Handled by Provinces and Districts (annual)
- Table of Enterprises Whose License will Expire by Provinces and Districts (monthly)

5. CONCERNING COOPERATIVES

(Input Data Items/Frequency Obtained at the Head Office)

- Annual Report on Cooperatives: Name, address and category of cooperatives, number of members, existence of manager, assets, liabilities, annual accounts, etc. (annual)
 - Monthly Report on KUD: Name, monitor number, address of KUD, number of full members and new members, capitalization, activity category of KUD, production activity, credit conditions, performance, etc. (monthly)
-

-
- Annual Report on KUD: Name, monitor number, address of KUD, number of (annual) full members and new members, capitalization, activity category of KUD, credit conditions in relation with production activity, purchase/loan of credit, performance concerning basic commodities, balance sheet, organization and business performance, financial capability, etc.

(Output Reports/Reporting Frequency)

- Number of Cooperatives by Province and Type (annual)
- Number of Members by Province and Type (annual)
- Amount of Savings by Province and Type (annual)
- List of Fixed Assets of the Cooperatives (annual)
- List of Cooperatives with Managers (annual)
- Address List of Cooperatives (annual)
- Performance of KUD (monthly/annual)
- Recapitulation of Credit by Province (monthly/annual)
- Recapitulation of Credit at the National Level (monthly/annual)
- List of Number of Members of KUD (monthly/annual)
- Amount of Products Managed by KUD (monthly/annual)
- Ledger of KUD (annual)

6. PERSONNEL ADMINISTRATION

(Input Data Items/Frequency Obtained at the Head Office)

- Personnel Record Information: Employee number, name, date of birth, (annual) sex, religion, marital status, official status and background, transfer or original hire, date employed by the Department, record of class and rank, record and dates of promotions, record of sections assigned, record of assignments and functions, record and dates appointed to assignments, record and dates appointed to official positions, school records and academic career,
-

domestic/overseas training record, number of thesis published, number of wives and children, record of transfer to diplomatic service, blood group, name of spouse, record of professional career before and after entering the Department, etc.

(Output Reports/Reporting Frequency)

- Report on Current Status of Staff by Classification (annual)
- Report on the Current Staffing Status (annual)
- Report on the Retrieved Information of the Staff (on demand)

7. INVENTORY ADMINISTRATION

(Input Data Items/Frequency Obtained at the Head Office)

- Office Equipment Information: Registration number, trade mark/name of equipment, serial number, equipment number, year of manufacture, year of purchase, classification code for financial management, annual maintenance cost, code number stating current condition, etc.
 - Four Wheel Vehicle Information: Registration number, license number, trade mark, type code, year manufactured, year purchased, chasis number, engine number, purchased price, classification code for financial management, present value, annual maintenance cost, code number stating current condition, name of user, etc.
 - Two Wheel Vehicle Information: Registration number, license number, trade mark, type code, year manufactured, year purchased, body number, engine number, purchased price, classification code for financial management, present
-

value, annual maintenance cost, code number stating current condition, name of user, etc.

- Resident/Building Information: Registration number, operation unit (monthly) code, plottage, building code, number of stories, type code, classification code, building life classification code, code number stating current condition, appraised value, year built, classification code for financial management, etc.

- Office Building Information: Registration number, operation unit code, (monthly) plottage, building code, number of stories, building life classification code, code number stating current condition, appraised value, year built, classification code for financial management, etc.

(Output Reports/Reporting Frequency)

- Report on Office Equipment (annual)
- Report on Four Wheel Vehicle (annual)
- Report on Two Wheel Vehicle (annual)
- Report on Residents and Buildings (annual)
- Report on Office Buildings (annual)

8. PROJECT ADMINISTRATION

(Input Data Items/Frequency Obtained at the Head Office)

- Project Plan Information: Project number, code number of operation unit (on demand) undertaking the project, code number of project site, project period, total budget, quarterly budget allocation, name of project, project authorization number, code number/name/ scheduled period/budget allocation of each process, code number/required quantity/budget allocation of each resource, code number/

required volume/budget allocation by each process and scheduled period, etc.

- Project Progress Information: Project number, total amount of SPM (quarterly)
 - disbursed, total SPM outstanding,
 - total amount of SPJ appropriated,
 - total amount of un-appropriated SPJ,
 - balance of credit on hand, code number/ correct condition by each process, code number/amount procured/total amount of SPM disbursed/total amount of outstanding SPM for the resources already procured by each process, etc.

(Output Reports/Reporting Frequency)

- Report of Registered Project Plans (on demand)
- Registration of Modifications to Project Plan Report (quarterly)
- Project Progress Evaluation Report (quarterly)

9. MIDDLE EAST WORK FORCE

(Input Data Items/Frequency Obtained at the Head Office)

- Report on the Work Force: Name, age, sex, marital status, occupational (monthly)
 - classification, salary, birth place, country to be dispatched, name of firm receiving the worker, term of contract, name of dispatching firm, date to be dispatched, etc.

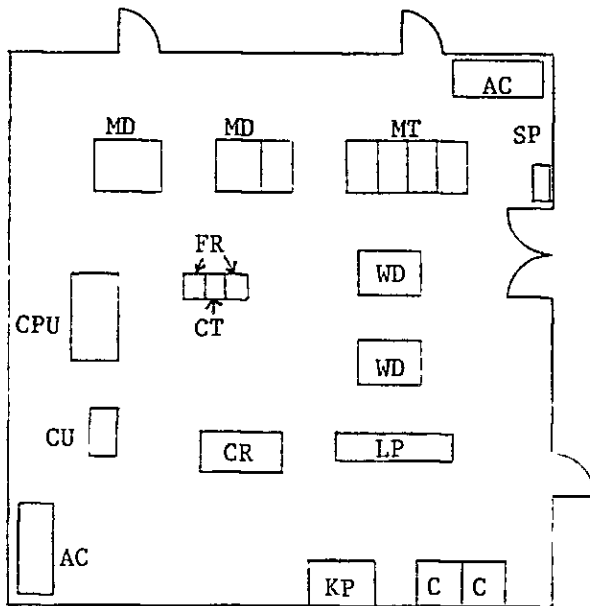
(Output Reports/Reporting Frequency)

- List of Work Force (annual)
- Report on Information Retrieved by Specific Items (on demand)

4-2. Hardware

The following two figures show the layout of the equipment within the computer room and that of the associated facilities.

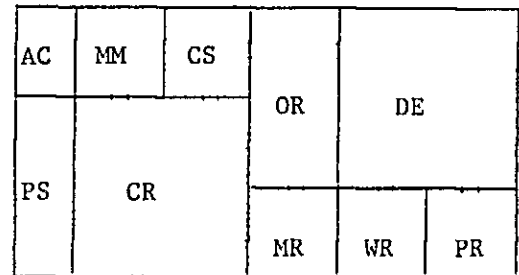
FIGURE: Layout of
Computer Room



Notes:

- AC - Air Conditioning Unit
- C - Cabinet
- CPU - Central Processing Unit (2MB)
- CR - Card Reader Unit
- CT - Console Terminal
- CU - Control Unit
- FR - Floppy Disk Reader Unit (2 units)
- KP - Key-Punch Unit
- LP - Line Printer
- MD - Disk Pack Unit (3 units)
- MT - Magnetic Tape Unit (4 units)
- SP - Switch Panel
- WD - Work Desk

FIGURE: Layout of
Associated Facilities



Notes:

- AC - Air Conditioning Room
- CR - Computer Room
- CS - Computer Supply Store Room
- DE - Data Entry Room

Equipment to be installed inside the data entry room are key-punch unit (KP), and 25 key-to-floppy disk units (KF).

- MM - Secondary Memory Media Store Room
- MR - Room for Maintenance Staff
- OR - Office Room, Reception
- PR - Key Punchers Resting Room
- PS - Electric Power Supply Room
- WR - Work Room for Programmers

Equipment to be installed inside the work room for programmers are 3 CRT display units (CD).

* The total area required for the above mentioned rooms is 430 - 455 m².

4-3. Software

(1) Basic Software: Basic softwares are indispensable for the operation of the computer system. There are two types of basic softwares as shown below.

- i. Control program which are for the control of execution of the program and the consolidated file management. (Operating System: OS)
- ii. Language processors which are for generating the machine language statements from the programming language statements such as Assembler, COBOL Compiler, and FORTRAN Compiler.

(2) Application Program: These are programs necessary for the operation of the computer system which support the operation of the system or the execution of user programs such as the service programs and the support programs.

- i. Application Program for Program Development and Maintenance: Following application programs are used at the system development/maintenance phase. Linkage Editor, Editor/Screen Editor, Program Source Code Management System, RPG, Statistical Analysis Package/Scientific Calculation Library, Screen Image Definition Program, and Software Testing/Evaluation Tool.
- ii. Application Program for Execution: Following application programs are used at the time of execution, which are usually provided by the computer makers. SORT/MERGE Program, FILE UTILITY, and DBMS are popular application programs.

(3) Programming Language: Various programming languages are available depending on the processing requirements. Therefore, it is an important factor to select the suitable programming languages such as those mentioned in above (1)-ii.

(4) User Programs: Most of the programs necessary for the operations must be designed and developed by the Department of Trade and Cooperatives themselves.

CHAPTER 5
STAFF TRAINING PLAN

Following staffs would be required at the Department of Trade and Cooperatives at the minimum when implementing the information system. They should be divided into two groups, namely the development group and the operations group. The former group will be in charge of the works concerning the development, and the latter group concerning the operation. Each group has personnel exclusively assigned for each job.

TABLE: Staff Requirement and Training Plan

Job Classification	Number of Staff	Total Months of Curriculums (per staff)	Total Months for OJT (per staff)	Total Months for Training (per staff)
(Development Group)				
a. Development Manager	1	3	3	6
b. Systems Analyst	6	3	3	6
c. Systems Engineer	9	5	3	8
d. Programmer	13	4	3	7
(Operations Group)				
e. Operations Manager	1	2	3	5
f. Scheduler	1	2	3	5
g. Librarian	1	1	3	4
h. Resources Handler	1	1	3	4
i. Computer Operator	5	2	3	5
j. Key Operator		1	3	4
Floppy Operator	50			
Key Puncher	2			
Total	90	-	-	-

Following table shows the curriculums required by each job classification.

TABLE: Curriculum by Job Classifications

Job Classification	A	B	C	D	E	F	G	H	I	J	K	L
a. Development Manager		0	0	0	△	0	0	0	0			
b. Systems Analyst	0	0	0	0		0		△				
c. Systems Engineer	0	0	0	0	△	0	0	0	0			0
d. Programmer	0		0		0	0	0	0				0
e. Operations Manager			0			0	0	△	0	0		△
f. Scheduler			0			0	0			0	0	
g. Librarian			0			0				0		
h. Resources Handler			0			0				0		
i. Computer Operator			0			0	0				0	0
j. Key Operator			△			△						0

Legend: 0 Very Important
 △ Important

Notes to above table:

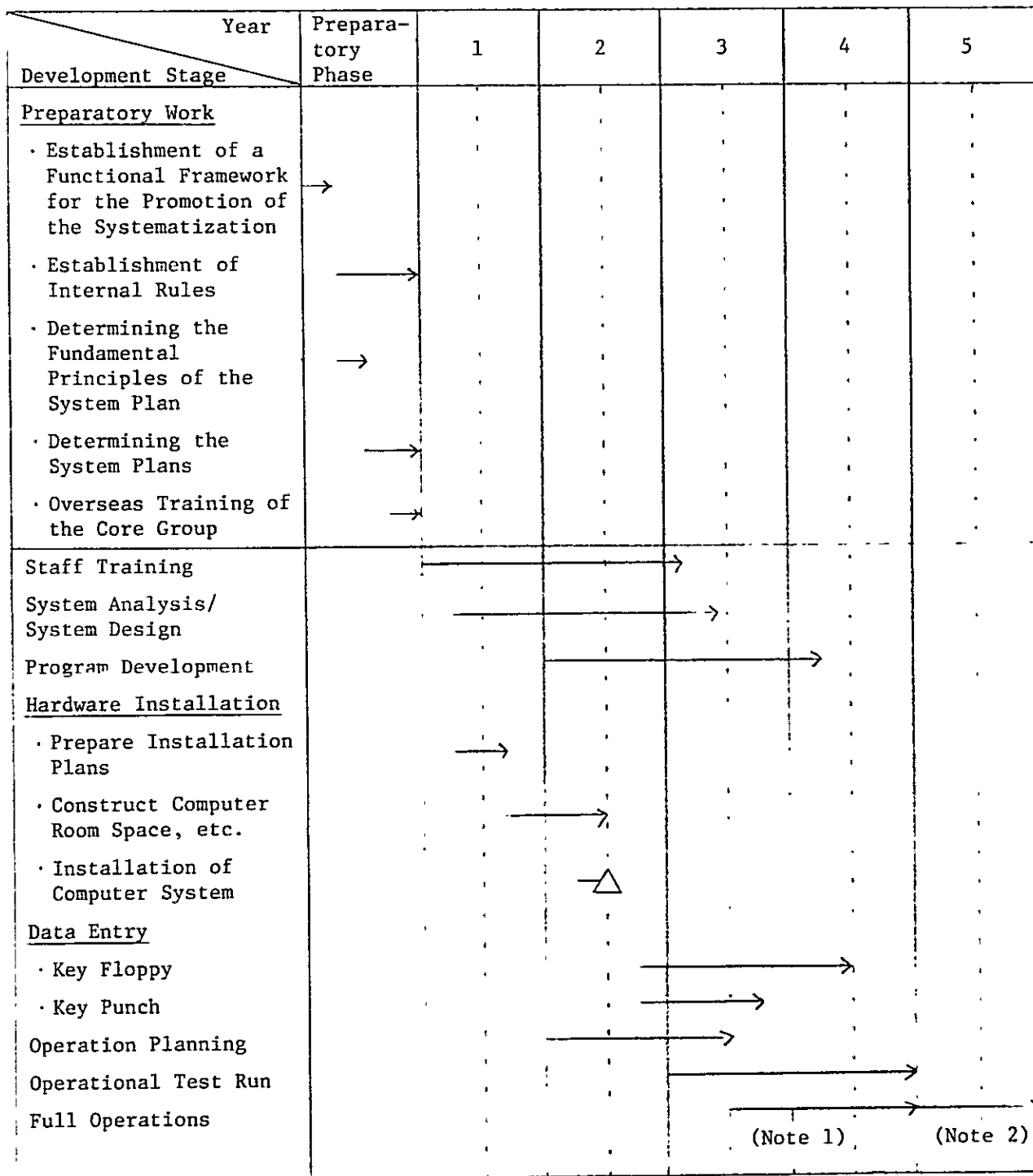
- A. Basic Mathematics/Statistics.
- B. Systems Engineering.
- C. General Course on Information Processing.
- D. Systems Analysis, Design, Evaluation Techniques.
- E. Programming Language and Programming Techniques.
- F. Introduction to Hardware.
- G. Concept of the Operating System.
- H. Production Management of Software.
- I. Project Management Techniques.
- J. Management of Computer Room and Resources.
- K. Operation of the Computer System.
- L. Key Operation.

CHAPTER 6

SCHEDULES FOR THE IMPLEMENTATION OF THE MASTER PLAN

The schedules for the implementation of the Master Plan can be shown as indicated in the bar chart.

FIGURE: Implementation Schedule

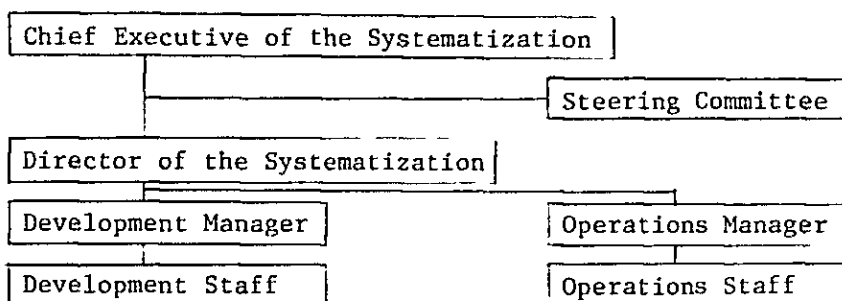


Note 1: Partial Run

Note 2: Full Scale Run

Following matters must be settled during the preparatory period.

- (1) Establishing a Functional Framework for the Promotion of the Systematization:



- (2) Determining the Fundamental Principles of the System Plan by the Functional Framework for the Promotion of the Systematization:

- a. A thorough study must be performed by the section in charge of the systematization based on the Master Plan in order to form fundamental principles for the systematization.
- b. The Steering Committee must review the fundamental principles for the systematization and comment strongly to the Chief Executive of the systematization.
- c. The Chief Executive of the systematization must make decision based on the comments made by the Steering Committee.

- (3) Following system plans must be formulated taking the procedures said in (2):

- a. System Development Plan (function of the information system, development method, development schedule).
- b. System Operation Plan (hardware configuration, space for the installation, operation method, operation schedule).
- c. System Maintenance Plan (maintenance method of the information system, maintenance schedule).

- (4) Functional Framework and rules required at the Department of Trade and Cooperatives for the implementation of the system plan must be adjusted.

Following matters must be performed by the functional framework for the promotion of the systematization when the implementation schedule is proceeded.

- (1) Detailed breakdown of the system plan must be examined and determined by performing systems analysis, etc.

(2) Examination and Promotion of the Following Matters: (a) Operating rules of the computer room, (b) rules for the registration and management of the data files/programs, (c) rules relating to the transfer, check and protection of the data within the Department as well as for other organizations, (d) standardization of the programs, files, documents, and operation, (e) installation of the equipment/facilities, (f) maintaining the space and construction for the installation, (g) rules relating to the shift of operators and health care, (h) others.

CHAPTER 7
COST ESTIMATION

Estimation of the costs required for the introduction of this information system will be studied. The cost estimates indicated hereon are all calculated based on the current export prices effective in Japan. Following table shows the cost estimates for each item. The costs incurred for inviting the instructor from abroad or training the staff overseas (such as travelling expenses and living expenses), internal personnel expenses of the Department of Trade and Cooperatives, and costs arising from maintaining the space required for installing the hardware and other equipment costs for importing the hardware, and power/water supply costs are not included in the estimates. Furthermore, if the programming of user programs are to be entirely sub-contracted to an external organization, additional ¥400,000,000 (only for the personnel expenses) would be necessary. Exchange rate of U.S.\$1.00 = ¥250 is used.

TABLE: Cost Estimates

Item	Initial Cost	Operating Cost (annual)
Hardware:	¥695,000,000 (\$2,780,000)	¥23,000,000 (\$92,000)
Software:		
Basic Software	¥15,000,000 (\$60,000)	¥1,050,000 (\$4,200)
Application Program	¥21,000,000 (\$84,000)	¥1,540,000 (\$6,160)
Staff Training:		
Instructor's Fee	¥35,000,000 (\$140,000)	-
Teaching Materials	¥1,870,000 (\$7,480)	-
Others:		
Material Costs for Development of User Programs	¥3,512,000 (\$14,048)	} ¥4,109,500 (\$16,438)
Material Costs for Development of Data Files	¥12,150,000 (\$48,600)	
Fixtures	¥1,986,000 (\$7,944)	-
Total	¥785,518,000 (\$3,142,072)	¥29,699,500 (\$118,798)

CHAPTER 8
CASE STUDIES

The main purpose of the case study is to perform in-depth analyses within the Scope of Work. Two operation items, "Registration of Enterprises" and "Personnel Administration," were selected for conducting the case studies.

The case studies will be conducted based on the basic functions required for the information system of each operation as described in Chapter 4. And, the possibilities of realizing these basic functions will be examined from both sides of interrelationship between the personnel working on the operation and the computer processing (man-machine interface), and the actual computer processing procedures required. Furthermore, comment will be made on the problems to be solved at the stage of system development planning, system operation planning, and system maintenance planning. Also, hardware, software, staff training plan, implementation schedules, and cost estimation will be studied, which will give the ideas to whether the proposed plan can be realized or not. Following summarizes the outline of the results of the case studies.

TABLE: Results of the Case Studies

	<u>RE</u>	<u>PA</u>		<u>RE</u>	<u>PA</u>
<u>Hardware Configuration (unit)</u>			<u>Cost Estimates</u>		
CPU (2MB)	1	1	(Initial Cost)		
Card Reader	1	1	Hardware	¥664,000,000	¥644,800,000
Floppy Disk Reader (1MB)	2	2		(\$2,656,000)	(\$2,579,200)
Magnetic Tape (6,250BPI)	3	2	Basic Software	¥10,000,000	¥10,000,000
Disk Pack (300MB)	2	3		(\$40,000)	(\$40,000)
Line Printer	1	1	Application Programs	¥12,000,000	¥12,000,000
CRT Display	2	2		(\$48,000)	(\$48,000)
Key Punch	2	2	Instructor's Fees	¥23,750,000	¥22,750,000
Key-to-Floppy (1MB)	17	2		(\$95,000)	(\$91,000)
			Teaching Materials	¥692,100	¥366,100
				(\$2,768)	(\$1,464)
<u>Software to be Introduced</u>			Development Cost of	¥1,486,000	¥1,486,000
Operating System	○	○	User Programs	(\$5,944)	(\$5,944)
COBOL Compiler	○	○	Development Cost of	¥2,400,000	¥1,038,000
Linkage Editor	○	○	Data Files	(\$9,600)	(\$4,152)
Editor/Screen Editor	○	○	Furnishings	¥1,256,000	¥1,172,000
Program Source Code	○	○		(\$5,024)	(\$4,688)
Management System	○	○	Total	¥715,584,100	¥693,612,100
Screen Image Definition	○	○		(\$2,862,336)	(\$2,774,448)
Program	○	○	(Annual Operating Cost)		
Software Testing/	○	○	Hardware	¥21,000,000	¥21,000,000
Evaluation Tool	○	○		(\$84,000)	(\$84,000)
SORT/MERGE Program	○	○	Basic Software	¥700,000	¥700,000
FILE UTILITY	○	○		(\$2,800)	(\$2,800)
<u>Recommended Programming Language</u>			Application Programs	¥890,000	¥890,000
COBOL	○	○		(\$3,560)	(\$3,560)
			Development Cost of	¥1,411,500	¥785,800
			Data Files	(\$5,646)	(\$3,143)
			Total	¥24,001,500	¥23,375,800
				(\$96,006)	(\$93,704)
<u>User Programs to be Developed Internally</u>			(Cost for sub-contracting the programming of user		
Number of Programs	13	10	programs are not included in the above figures.)		
Total Steps of Programs (k)	20	20	Programming Cost when	¥60,000,000	¥60,000,000
			sub-contracted	(\$240,000)	(\$240,000)
<u>Staffs Required (persons)</u>					
Development Manager	1	1			
Systems Analyst	1	1			
Systems Engineer	1	1			
Programmer	2	2			
Operations Manager	1	1			
Scheduler	1	1			
Librarian	1	1			
Resources Handler	1	1			
Computer Operator	2	2			
Floppy Operator	34	2			
Key Puncher	1	1			
Total	46	14			

Legend: RE - Registration of Enterprises

PA - Personnel Administration

CHART: Flow of Input/Output Information (Registration of Enterprises)

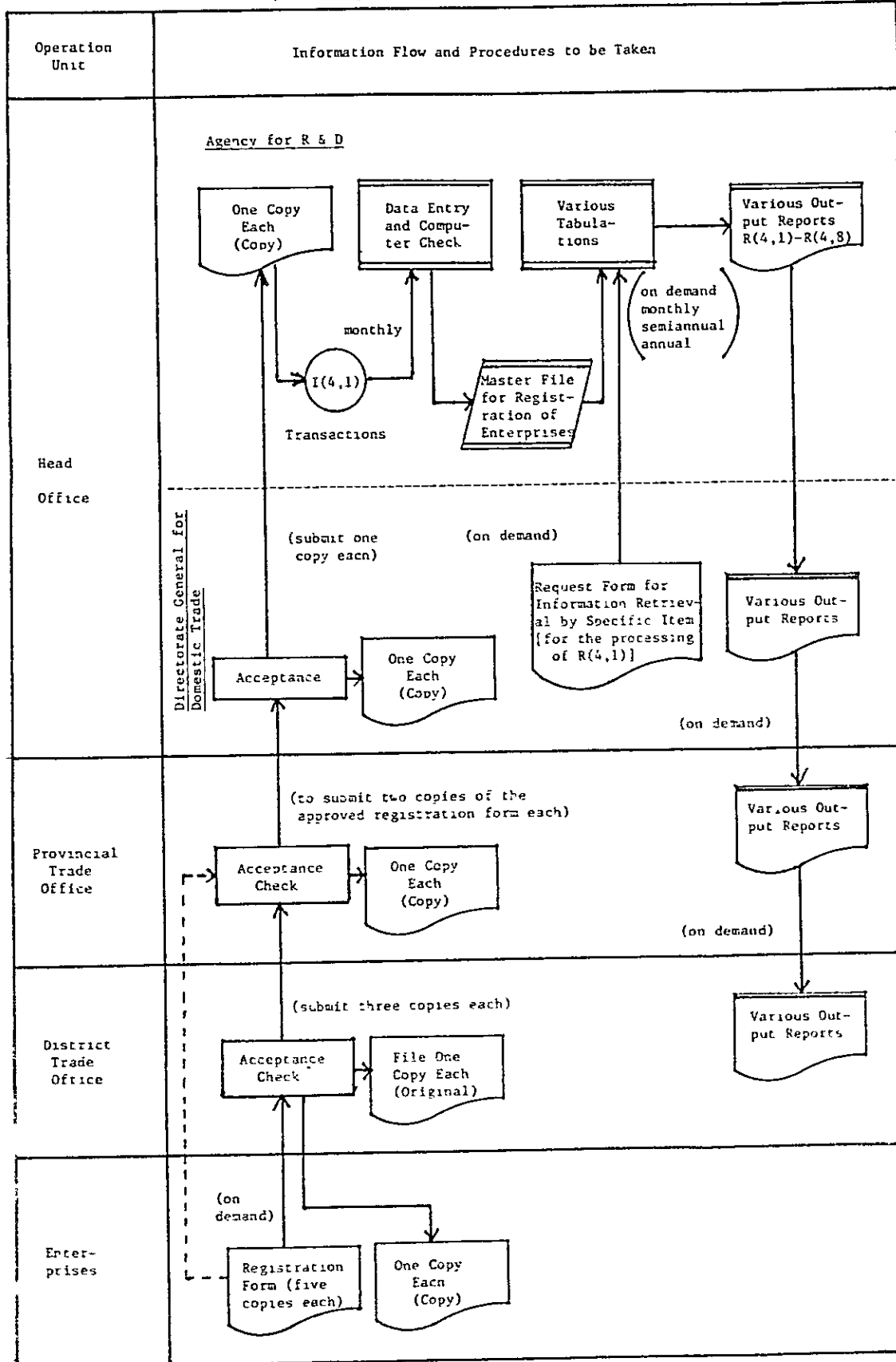
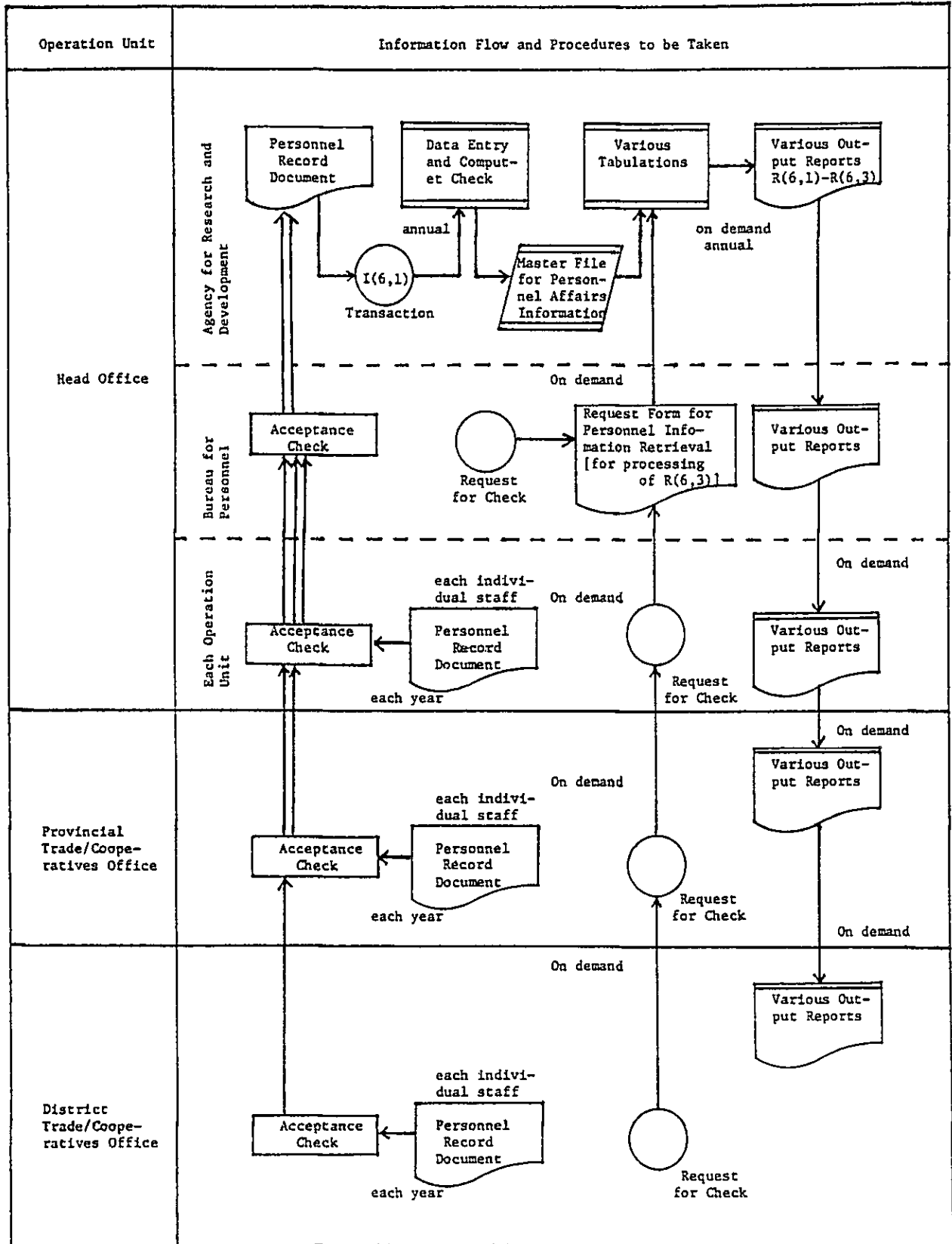


CHART: Flow of Input/Output Information (Personnel Administration)



CHAPTER 9

CONCLUSIONS AND RECOMMENDATIONS

Establishment of an information system is expected to prove very significant by means of increasing the efficiency of the administration of Department of Trade and Cooperatives, and also by means of providing the Department with various basic information relating to the administrative planning and policy making. However, the foundations for establishing an information system such as the infrastructure, organization, staff, and data management system is not satisfactory at the mean time. For effective use of the computer, and for formulating a useful information system, the following points must be considered.

(1) Establishing an Functional Framework for the Promotion of the systematization

Above all others, a functional framework entrusted with a strong authorized power for the promotion of the systematization must be established. Details of this functional framework is as already described in Chapter 6. Especially, the Chief Executive for the systematization must be entrusted with positive responsibility and authorized power for carrying out the task from the overall point of view of the Department. Furthermore, the Steering Committee must function as a strong counseling committee to the Chief Executive for the systematization.

(2) Establishing Internal Rules

Next thing to be considered is to establish internal rules of the Department of Trade and Cooperatives in order to authorize the activities of the personnel engaged in the promotion of the systematization and the functional framework. Furthermore, it is an important factor that various internal rules of the Department will be established for carrying out the system plan and its execution.

(3) Training of Staff

The development of the information system should generally be performed by a group of staff mainly consisting of the personnel who will be the users

of the information system. Therefore, the training of all of the staff engaged in the promotion of the systematization is a key factor and an urgent need.

It is an important task to analyze the activities of each operation for the computerization. But it must also be analyzed to seek what kind of an information system is desired from the point of requirements by the entire Department of Trade and Cooperatives. Training of staffs who can make decisions concerning the information system from the point of view of the entire Department is highly desired.

(4) Establishing a System for Data Collection

Establishment of a data collection system is the basic condition for the information system. Therefore, a positive route for receiving the data must be established. For those necessary data which cannot be obtained within the Department of Trade and Cooperatives, close relation with other organizations (especially with C.B.S., the Department of Agriculture, the Department of Industry, the Department of Finance, the Central Bank, and the Department of Transport and Perumtel) should be established, and it should be made possible to obtain the data in the form of magnetic tapes or floppy disks as soon as possible.

(5) Improving the Condition of the Data

If the reliability and the thoroughness of the data is not sufficient, the system will not work well even if the system itself is entirely capable of processing the information. The following points should be considered:

- i. To establish a system to check the data at each provincial trade/cooperatives office, operation unit, and operations group (data cleaning).
- ii. For the staff of the operations group to understand the contents and conditions of the data.

(6) Cooperation between the Development and Operations Group

For the efficient promotion of the information system, cooperation between the operations group undertaking the external negotiations, budgeting, hardware planning, data management, and the development group undertaking system development, system maintenance is required.

(7) Importance of Development of User Programs

For establishing the information system, many user program will have to be developed by themselves and a large number of manpower must be allocated for this. Although almost all computer makers supply basic software and application programs to their users, many user programs must be developed to satisfy particular applications and need.

According to the initial estimate of the Master Plan Team, there will be a large number of developmental staff and a large number of manpower required. Therefore, training of the developmental staff, software development management staff will be very important factors in the system development.

(8) Positioning of the User Group

For the efficient promotion of the information system, not only the efforts by the systematization group, but also the cooperation of the user group of the information system will become necessary. The user group is not only responsible for providing the high quality data for the information system but also in a position to utilize the output information. In this sense, the promotion of the systematization will be based on the needs of the user group, and therefore, the information system must be made open to the user group.

(9) The Importance of Utilizing Policy Planning Information

The basic purpose of establishing an information system is to utilize its output information. The input/output information covered in this Master Plan Study does not cover the entire information being managed by the Department of Trade and Cooperatives, however, it does cover many important information. And these information include many type of information relating to the short and long term policy planning. Therefore, it can be said that this information system will be the first step in establishing a data base on trade statistics and a system with various information processing functions, which is so called a "policy planning information system".

(10) Processing Capacity of the Information System

It is likely that new requirements for the information system will be raised by the user group as the information system will be utilized. The hardware described in this Master Plan study does not have enough capacity to meet

the newly raised requirements. It rather has many limitation for future expansion. This is because this Master Plan is aimed at systematizing only the certain operations of the Department with the minimum hardware requirements. When expanding the system in the future for systematizing other operations of the Department, the effective method of expanding the system must thoroughly be considered. This is also true when introducing on-line processing functions utilizing the terminals other than the batch-processing. The hardware and software mentioned in this Master Plan Study is not meant to meet the requirement for future expansion of the system.

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