JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)

DIRECTORATE GENERAL OF CUSTOMS & EXCISE

MINISTRY OF FINANCE

REPUBLIC OF INDONESIA

THE STUDY

OF

IMPROVEMENT OF CUSTOMS SYSTEM

IN

INDONESIA

FINAL REPORT

VOLUME I SUMMARY

MARCH, 1999

NTT DATA CORPORATION

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Exchange Rate of Currency

November 30th, 1998

US$1=Rp.7,375

PREFACE

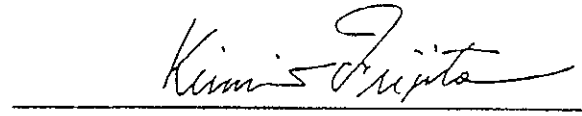
In response to a request from the Government of Indonesia, the Government of Japan decided to conduct the Study of Improvement of Customs System and entrusted the study to the Japan International Cooperation Agency (JICA).

JICA selected and dispatched a study team headed by Mr. Seiichi HAYATA of NTT DATA CORPORATION to Indonesia, three times between December 1997 and February 1999. In addition, JICA set up an advisory committee headed by Mr. Hironori ASAKURA, Professor of Tokyo International University in order to obtain technical advice.

The team held discussions with the officials concerned of the Government of Indonesia and conducted field surveys at the study area. Upon returning to Japan, the team conducted further studies and prepared this final report.

I hope that this report will contribute to the promotion of this project and to the enhancement of friendly relationship between our two countries.

Finally, I wish to express my sincere appreciation to the officials concerned of the Government of Indonesia for their close cooperation extended to the Team.



March 1999

Kimio Fujita

President

Japan International Cooperation Agency

Mr. Kimio Fujita
President,
Japan International Cooperation Agency

March 1999

Dear Mr. Fujita:

LETTER OF TRANSMITTAL

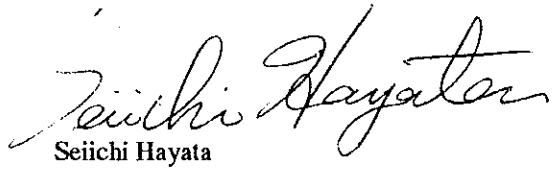
We are pleased to submit to you the final report on "The Study of Improvement of Customs System in Indonesia". This study was performed by NTT DATA CORPORATION in accordance with the contract made with Japan International Cooperation Agency. The report contains the study results of the First Stage carried out from December 1997 to March 1998, and of the Second Stage carried out from July 1998 to February 1999.

The report describes the system design for "Customs Intelligent database System (CIS)", which is purposed for promoting speed and accuracy in Customs operations and for expanding the export and import, and also describes the proposal of the implementation plan for "Customs Service System (CSS)".

All members of the study team wish to express grateful acknowledgement to your Agency, Advisory Committee and the related organizations of Japanese Government for the guidance and assistance they have extended to the study team. Furthermore, we would like to express grateful appreciation to Directorate General of Customs and Excise of Indonesia and other authorities of Indonesian Government for their continuous cooperation and support during the Study in Indonesia.

We hope that the results of the study will contribute to the growth of society and economy of Indonesia.

Very truly yours,



Seiichi Hayata
Team Leader,
The Study of Improvement of
Customs System in Indonesia

ACKNOWLEDGEMENTS

Materials on Appendix B in Volume I are quoted from McDaniel, G., "IBM Dictionary of Computing," McGraw-Hill Inc., 1993.

Final Report

Table of Contents

Volume I Summary

Study on Improvement of Customs System in Indonesia

Study Period	: December 1997 – March 1998 July 1998 – February 1999
Counterpart	: Directorate General of Customs and Excise

EXECUTIVE SUMMARY

1. Background of the Investigation

1) The Indonesian government has carried out its policy to promote the computerization of the work procedures in each ministry and governmental agency on the basis of self-help efforts. In particular, the computerization of Customs procedures is one of the high priorities in conjunction with a joint proclamation of AFTA, which requires each Asian developing country to take prompt measures to speed up and simplify Customs clearance procedures. Likewise, as effective measures to develop and improve trade and investment environments, Indonesia has undertaken the establishment of the law, beginning with the enforcement of the New Customs Law effective in April 1996. Furthermore, the implementation of policies includes computerization utilizing information technology as an indispensable component.

2) Among those changes related to the Customs administration, Indonesia has started to implement verification & audit procedures in April 1997. However, prevention job against the anti-social crime should be facilitated immediately as well. In this manner, there is a necessity of improvement in enforcement of these jobs, especially through developing a comprehensive Customs database system (hereinafter referred to as CIS: Customs Intelligent Database System).

3) Up to the present, the Customs computer clearance system (hereinafter referred to as CFRS: Customs Fast Release System) has been developed by Indonesian government under its own terms. However, its software is very complicated due to many development stages and hardware replacement. The complicated software makes improvement of CFRS difficult. Therefore, CFRS needs a total system renovation.

4) Based on the above-mentioned facts, Indonesia has called for a system design required to develop CIS, together with a strategic survey to pursue a certain project scheme for the improvement of CFRS.

2. Objectives

1) The JICA Study Team shall carry out system design of CIS in consideration of the requirements proposed by Indonesia, in order to promote speed and accuracy in Customs operations, as well as to expand export and import. Simultaneously, the JICA Study Team shall propose an implementation plan for the Customs Service System (hereinafter referred to as CSS, current CFRS).

2) The JICA Study Team shall carry out technical transfer to the counterparts who work for the Directorate General of Customs and Excise (hereinafter referred to as DJBC: Direktorat Jenderal Bea dan Cukai), of Indonesian Ministry of Finance. The JICA Study Team shall carry out technical transfer to the counterparts with the cooperation of JICA experts during the study by the courtesy of the Customs and Tariff Bureau of the Japanese Ministry of Finance.

3. Outline of the Plan

1) CIS

CIS is a database, which systemizes various Customs information as electronic data in order to carry out Customs procedures adequately and efficiently. Figure 1 shows the concept of CIS. CIS will be introduced to the head office and Tanjung Priok area, which handles large amount of goods in the first stage, and other 11 regional offices in and after the second stage. Figure 2 shows the system structure in the first stage, and Figure 3 shows the system structure in and after the second stage.

2) CSS

The current system (CFRS) computerizes Customs declarations only. In addition to Customs declarations, the new system (CSS) computerizes declaration-related procedures adequately and efficiently from arrival of goods to release of goods for import, and from bringing-in of goods to loading of goods for export. Figure 4 shows the concept of import procedures, and Figure 5 shows the concept of export procedures.

3) Hardware to be installed

In the first stage, a CIS server will be installed in the head office, and client-server system will be constructed in the head office and Tanjung Priok. In and after the second stage, CIS servers will be installed in regional offices to construct distributed database. For CSS, servers will be placed in regional offices or service offices, and LAN will be constructed. Table 1 shows the number of hardware to be introduced for CIS, and Table 2 shows the number of hardware to be introduced for CSS.

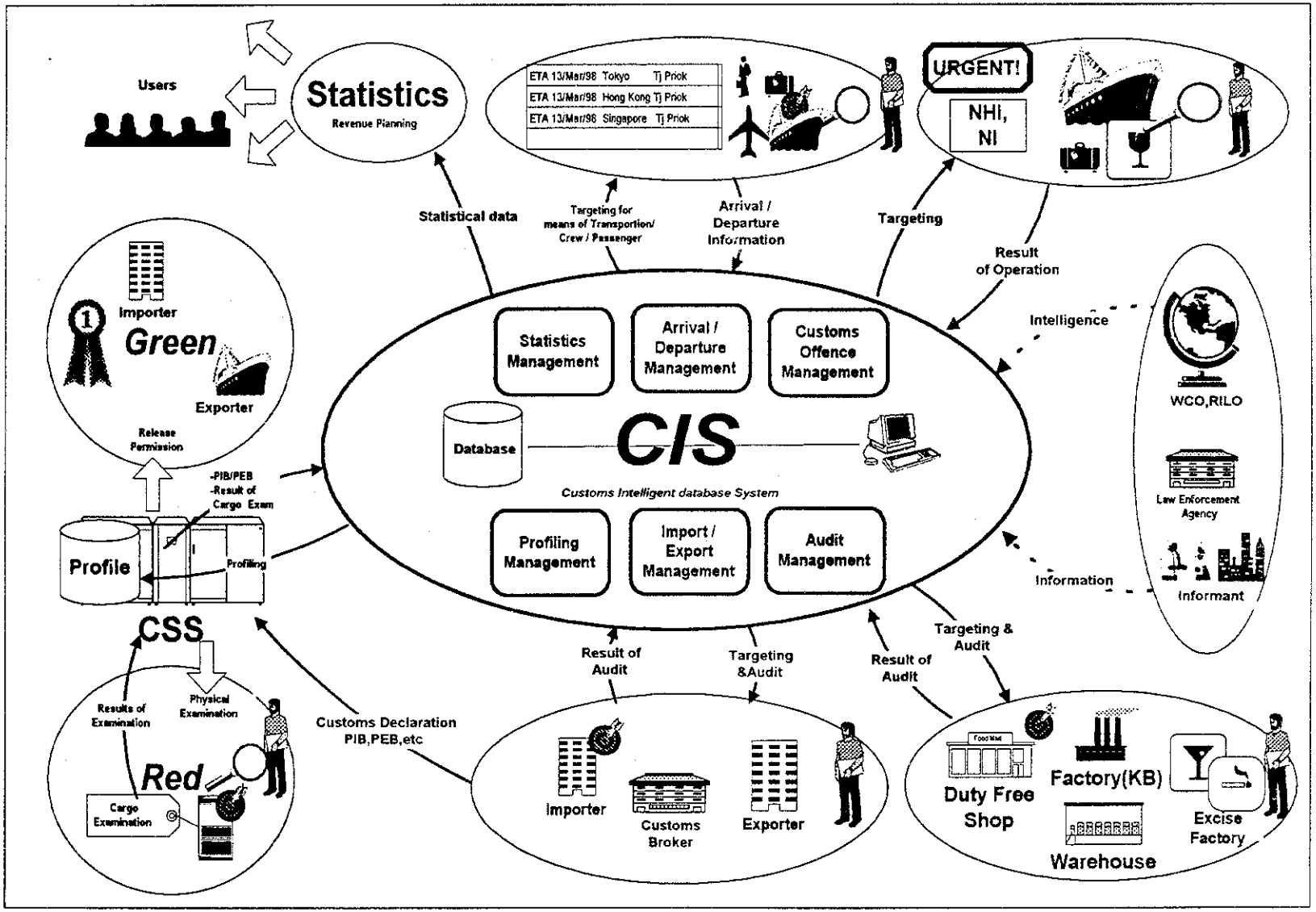


Figure 1: Computerization Concept for CIS

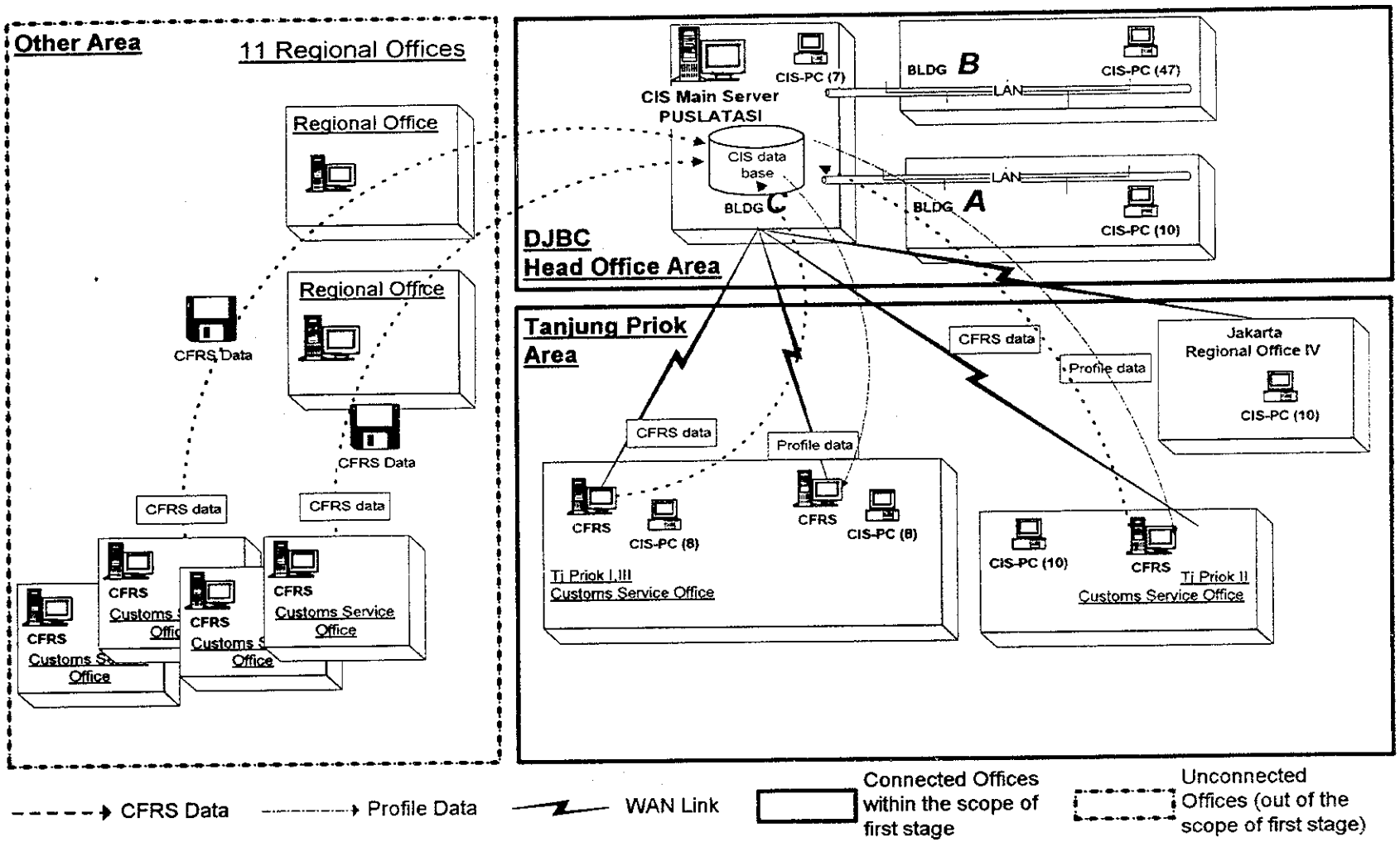
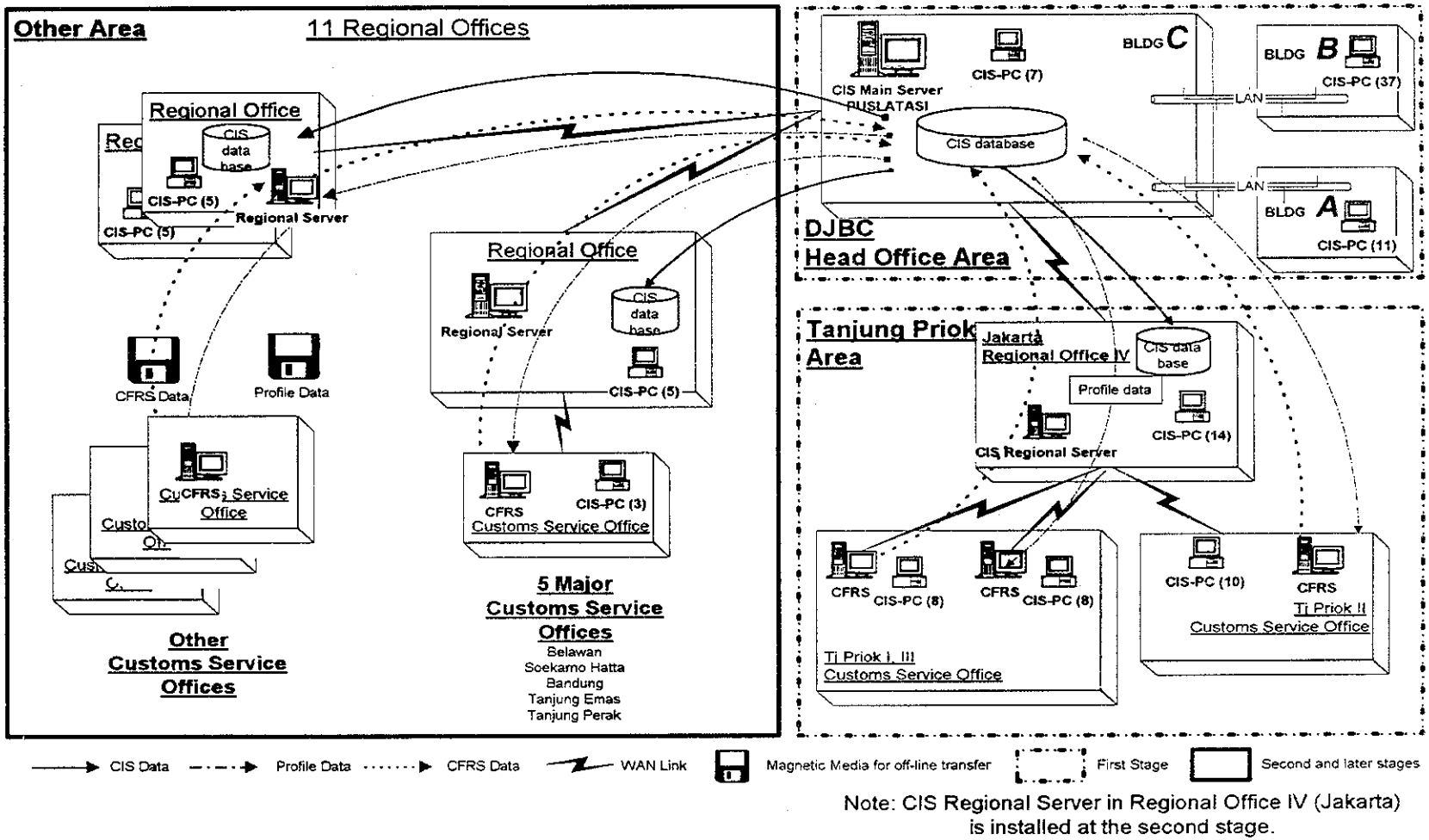


Figure 2: System Outline of CIS in the First Stage



Note: CIS Regional Server in Regional Office IV (Jakarta) is installed at the second stage.

Figure 3: System Outline of CIS at the Second Stage and Later

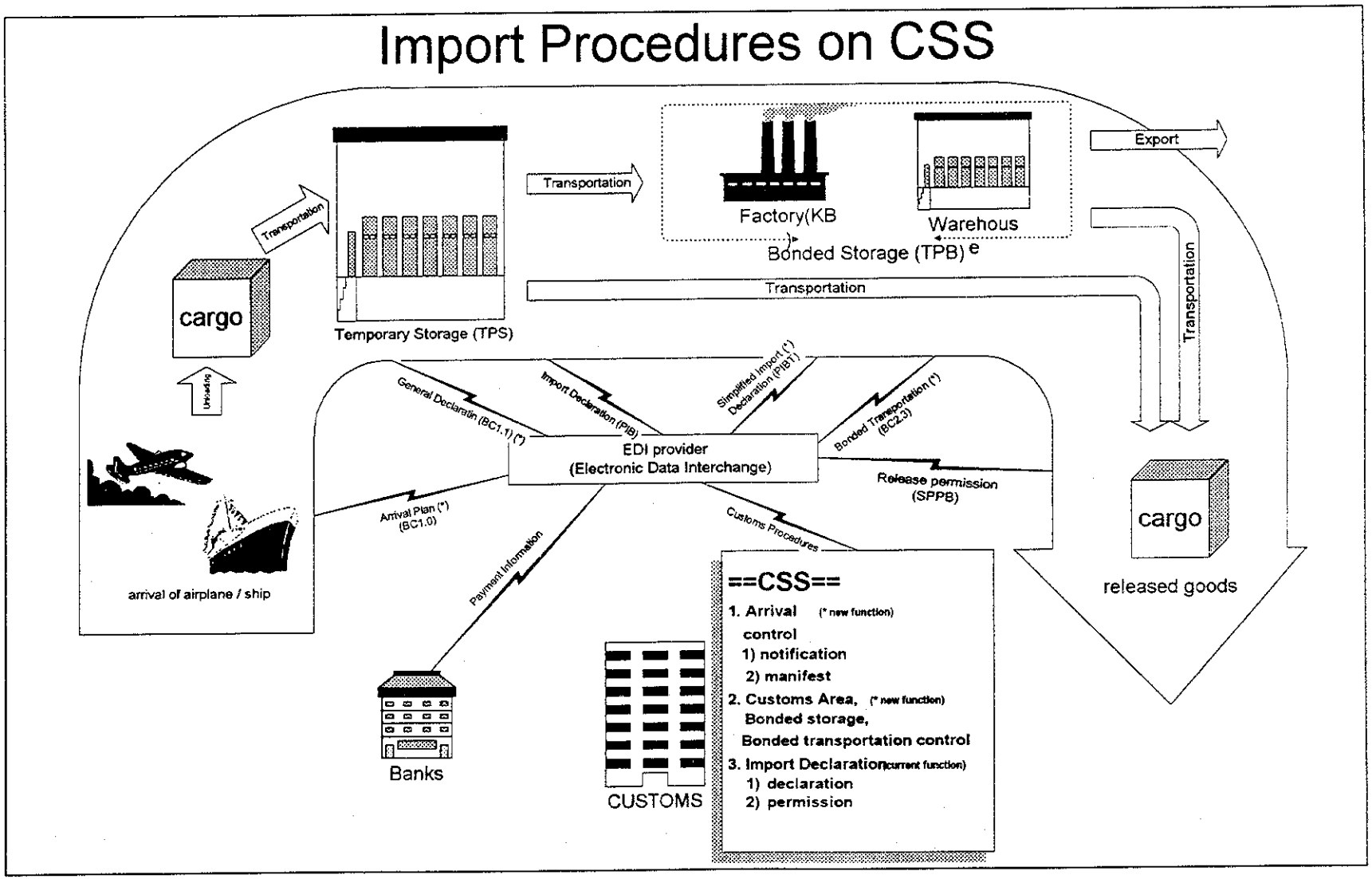


Figure 4: Import Procedure on CSS

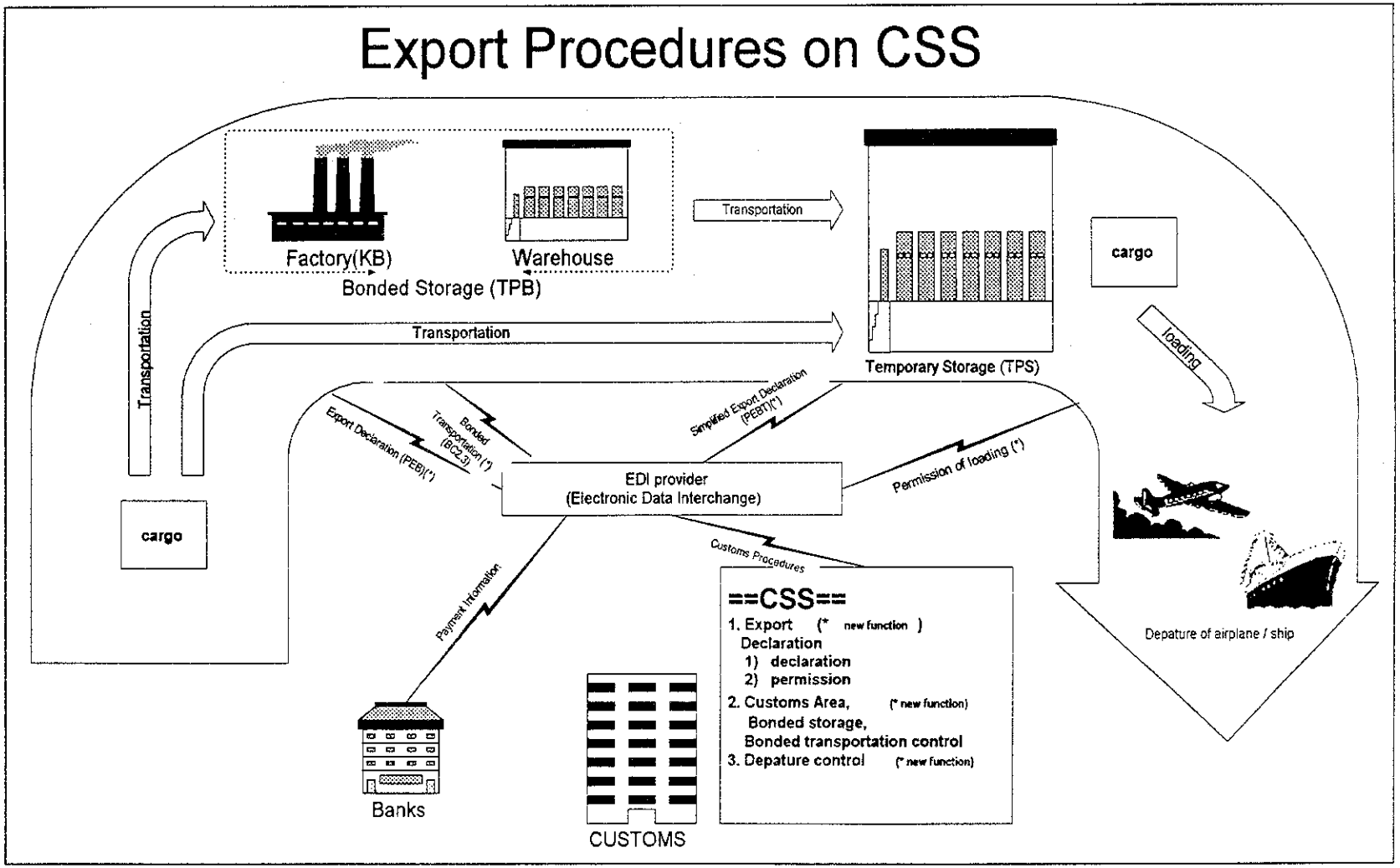


Figure 5: Export Procedures on CSS

Table 1: Hardware Introduction for CIS

Items	First Stage	Second Stage	Third Stage	Total
Main Server	1	---	---	1
Regional Server	---	5	7	12
Personal Computer	95	35	35	165
Printer	45	9	7	61

Note: Machines for development are not included in the above number.

Table 2: Hardware Introduction for CSS

Items	Area Name					Total
	Medan	Jakarta	Bandung	Semarang	Surabaya	
Server	1	3	3	1	1	9
Personal Computer	20	204	74	17	52	367

Note: Machines for development are not included in the above number.

4. System Introduction Plan

1) CIS Introduction Plan

The JICA Study Team carried out the concept design of the whole system ("Basic Investigation" and "System Design" for the first stage). Programming and test in the first stage will take one year. In the second stage, regional server and personal computers will be installed in service offices, and application will also be expanded. In the third stage, 7 more regional offices will be added and only hardware will be facilitated. Other ministries and organizations are considered to be connected in the fourth stage.

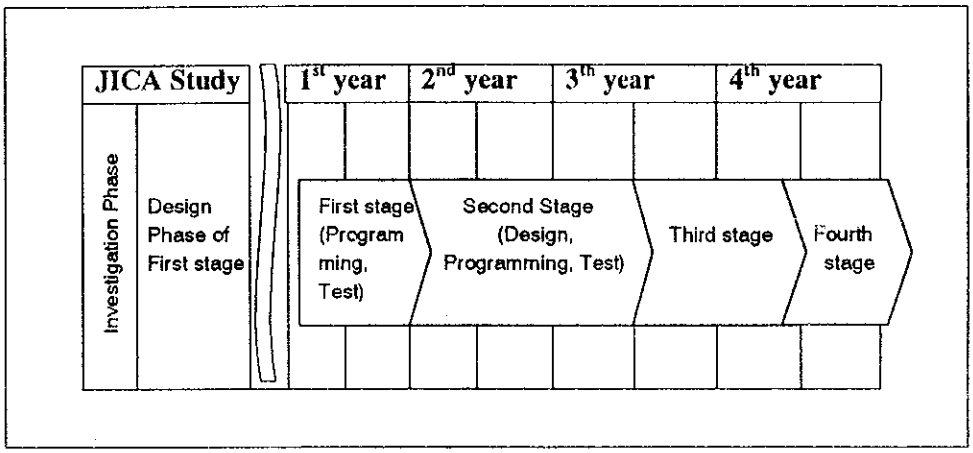


Figure 6 : CIS Introduction Plan

2) Stages in Developing CSS

The JICA Study Team carried out proposal for computerization. System design, programming and test will take 3 years.

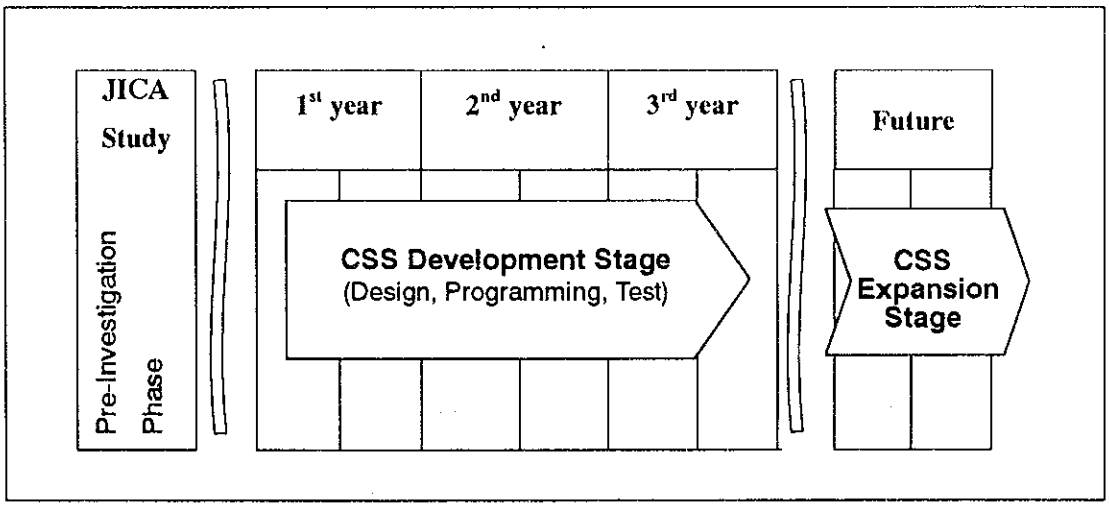


Figure 7 : Stage in Developing CSS

5. Project Costs

1) Cost Estimation of CIS Development

Table 3 : Cost Estimation of CIS Development

Item	First Stage	Second Stage	Third Stage
Location	1 Head Office 1 Regional Office • Jakarta IV (Without server) 3 Service Offices • Tanjung Priok I • Tanjung Priok II • Tanjung Priok III	5 Regional Offices • Medan I • Jakarta IV • Bandung V • Semarang VI • Surabaya VII 5 Service Offices • Belawan • Soekarno Hatta II • Bandung • Tanjung Emas • Tanjung Perak	7 Regional Offices • Balai Karimun II • Palembang III • Denpasar VIII • Pontianak IX • Balikpapan X • Ujung Pandang XI • Ambon XII
Function	1) Scale of program: 307 Kilo steps 2) Main functions • PIB verification mgmt. • NI, NHI management • Past record mgmt. • Violation management. • Bonded store mgmt. • Revenue monitor And so on	1) Scale of program: 464 Kilo Steps 2) Main functions • PEB verification mgmt. • Investigation mgmt. • Facilitation management And so on	No development
Cost Including VAT	US$ 8.3 Million	US$ 8.1 Million	US$ 3.1 Million
Grand total cost including VAT	US$ 19.5 Million		

2) Cost Estimation of CSS Development

Table 4: Cost Estimation of CSS Development

Item	Million USD	Remarks
1. Development cost total	28.22	—
1.1 Development cost sub total	26.94	—
1.1.1 Hardware cost	7.10	—
1.1.2 Package software cost	2.65	—
1.1.3 Tailor made software cost	12.11	1136 K Steps
1.1.4 Training	0.40	—
1.1.5 Others	4.68	Contingency, VAT, etc.
1.2 Maintenance cost	1.28	—
2. Annual maintenance cost	1.57	—

Note : Cost estimation of CIS and CSS are denominated in US $ because contracts on hardware purchase, system engineers, programmers and so on are based on US $ in the construction of Computer system.

6. Project Evaluation

1) Economic Benefits

i) Direct Benefits

Among direct benefits, a reduction in congestion cost of cargo is a major benefit that can be analyzed quantitatively. The reduction in goods delay leads to a reduction in waiting time and saves congestion cost (the cost caused by a delay in the flow of goods).

ii) Indirect Benefits

Indirect benefits, which the government and the society will enjoy, are the following:

a) Benefits from the establishment of appropriate and streamlined clearance procedures

Customs will evaluate risks of subjects by analyzing CIS data carefully. Based on the risk assessment, Customs will be able to minimize work for low-risk subjects by focusing on high-risk subjects. Consequently, Customs will reduce its inspection-related time and users will receive privilege of faster clearance service.

b) Benefits from improved transparency of clearance service (standardization)

By using information of CIS and CSS effectively, Customs will be able to provide unified Customs clearance procedures all over Indonesia, which will increase transparency of procedures. As a result, users will be able to predict their time and cost of clearance and will be able to reduce unclear expenditures.

c) Effects of computerization of Customs

Computerization of Customs will promote computerization of other organizations of the government. Computerization is expected to have significant impacts on the management and operation of bonded warehouses and zones, which will stimulate the development of domestic industries and increase domestic employment opportunities.

d) Effects on foreign direct investment and benefits from growth of international cargo

Improved Customs clearance service will increase foreign investment in Indonesia. As a result of the increase in foreign direct investment, domestic employment and exports will increase. The Customs clearance system will realize smooth flow of import/export cargo, accelerate division of labor, and expand trade within ASEAN countries.

e) Benefits from effective prevention of illegal trade

High-quality risk assessment provided by CIS is expected to become a powerful weapon to detect smuggling and commercial frauds. Detection of those illegal activities will contribute to an increase in revenue of the government, protection of domestic industries and society, and prevention of the outflow of black money.

f) Benefits from accurate statistical data on Customs clearance

The development of reliable statistics of imports and exports will help improving the country's credibility in the international economy, and assist the country to establish its export/import strategies and industrial policy.

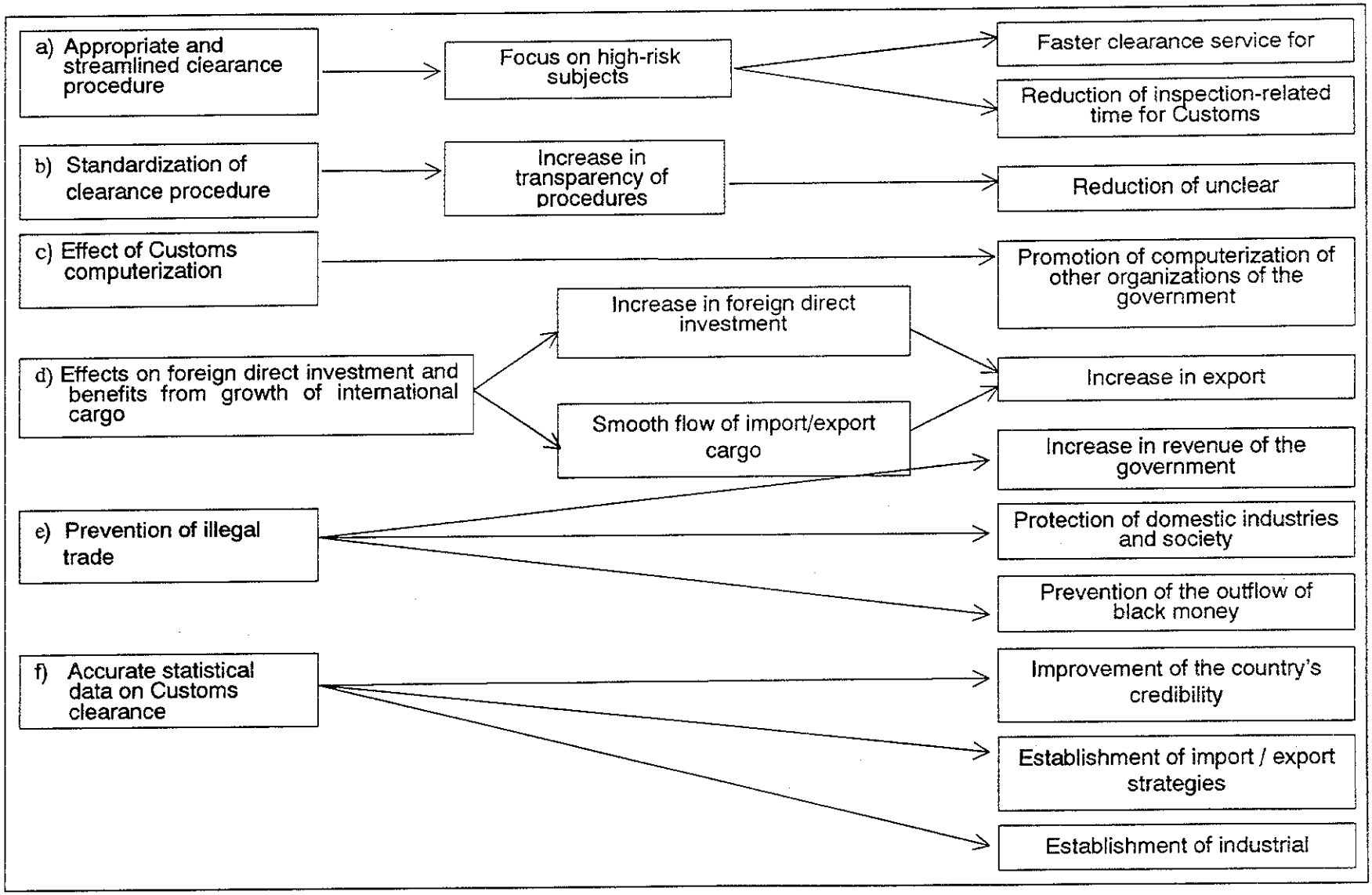


Figure 8: Summary of Indirect Benefits

2) Economic Analysis

i) Prepositions

a) Scope of economic analysis

The economic analysis of the project will be done for Customs clearance procedures of direct import and direct export at the Tanjung Priok port and the Soekarno Hatta airport.

b) Establishment of "With" and "Without" cases

- "With" Case

  The project is expected to streamline the Customs clearance procedures and shorten congestion (waiting) time of cargo successfully.

  It is assumed that Indonesia will be able to achieve reduction of clearance time at rates similar to those realized in Japan, because CIS and CSS will introduce configuration and performance similar to Japanese CIS and NACCS.

- "Without" case

  If the project is not implemented, if the volume of cargo increases, and if the current Customs ability to process clearance remains unchanged, then congestion time will increase.

ii) Results of Economic Analysis

On the basis of the "With/Without" method, direct economic benefits mentioned in 1)-i) are regarded as economic benefits. Development costs of CIS and CSS are regarded as economic costs (excluding VAT). As a result, the economic internal rate of return (EIRR) of the project is 24.63%.

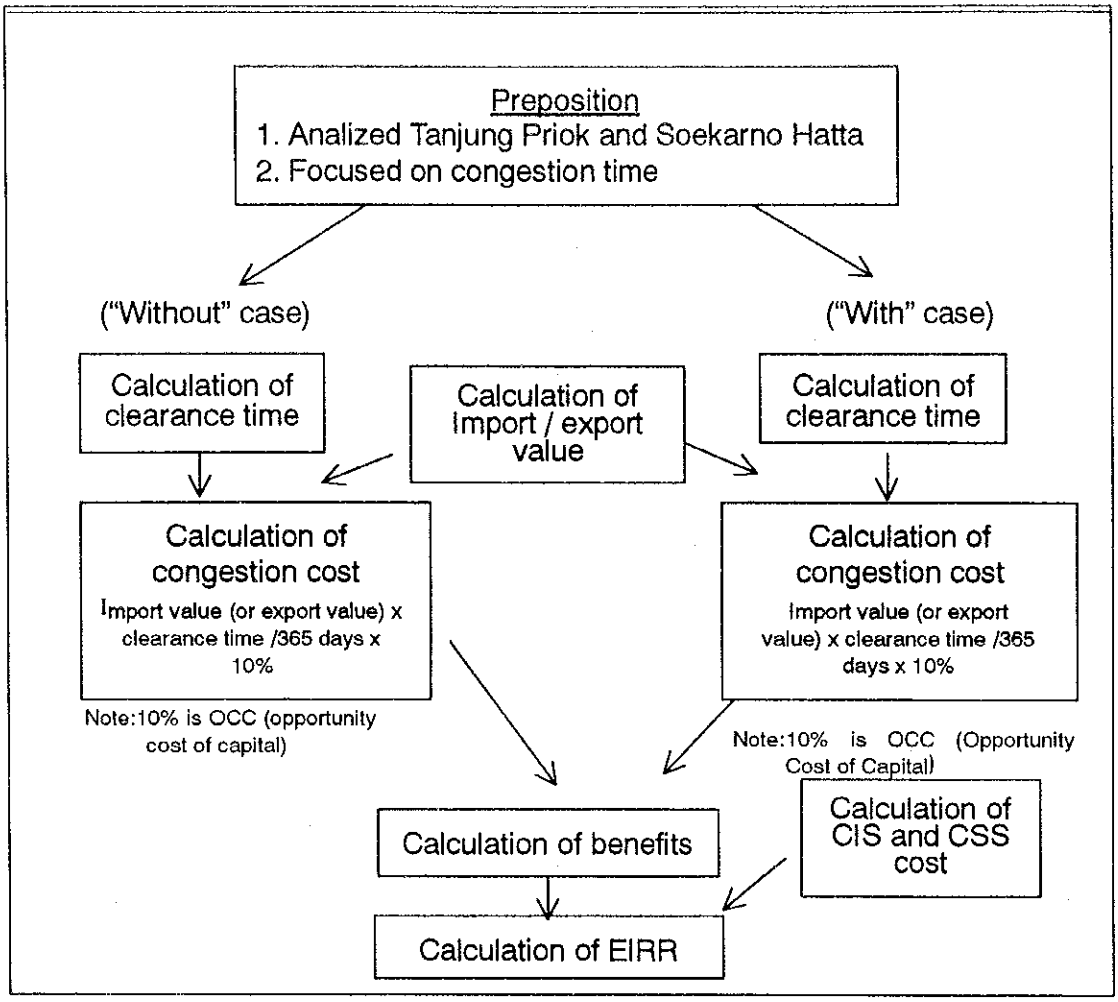


Figure 9: Summary of EIRR Calculation

3) Overall Evaluation

The implementation of the project will produce wide benefits to the economy and the society. From the EIRR of 24.63%, it is considered that the project has reasonable feasibility. (For reference, the EIRR is 28.91% in case that CIS development is the first stage only.)

In addition, a variety of indirect benefits of the project will contribute greatly to the economic growth.

At present, the Indonesian government faces the following urgent issues:

- Expansion of direct investment
- Development of domestic industries and increase in employment opportunities
- Increase in exports and growth in international cargo

Therefore, the project is consistent with solutions of those issues, and is indispensable for attracting new investment.

APPENDIX Report Structure

Volume	Contents	Remarks
Volume I	Summary	—
Volume II	CIS Design	—
Volume III	CIS Detail Application Design	3 Files
Volume IV	CSS Proposal	—
Volume V	Economic and Financial Analysis	—
Volume VI	Supplement	—

CHAPTER 1 Outline of the Study

1.1 Background of the Study

The following is the overview of the background of the Study.

1) The Indonesian government has carried out its policy to promote the computerization of the work procedures in each ministry and governmental agency on the basis of self-help efforts. In particular, the computerization of customs procedures is one of the first priorities in conjunction with a joint proclamation of AFTA, which requires each Asian developing country to take prompt measures to speed up and simplify custom clearance procedure. Likewise, as an effective measures to develop and improve trade and investment environments, Indonesia has undertaken the establishment of a legal system, beginning from the enforcement of the New Customs Law taking effect in April 1996. Furthermore, the implementation of policies includes computerization utilizing information technology as an indispensable component.

2) Among these changes related to the customs administration, Indonesia has started to implement Post - Clearance Audit procedure as of April 1997. However, Prevention procedure against the crime regarding social evil such as drug smuggling should be facilitated immediately as well. In this manner, there is a necessity for greater efficiency in enforcement of these new processes, especially through developing a comprehensive customs data base system (hereinafter referred to as CIS: Customs Intelligent Database System).

3) Up to the present, the customs computer clearance system (hereinafter referred to as CFRS: Customs Fast Release System), has been developed by Indonesian government under its own terms. Electronic Data Interchange (hereinafter referred to as EDI) was introduced for customs import clearance in order to expedite flow of imported goods in April 1997. CFRS and EDI are very effective for the facilitation of customs procedures. However, CFRS needs a total system renovation, in order to satisfy the request of market forces, such as export EDI, Bonded Transfer, Electronic Fund Transfer, and so on.

4) Based on the above-mentioned facts, Indonesia has called for a system design required to develop CIS, together with a strategic survey to pursue a certain project scheme for the improvement of CFRS.

1.2 Objectives of the Study

The objectives of the study are as follows:

1) The JICA study team shall carry out system design in consideration of the requirements proposed by Indonesia on the development of the Customs Intelligent Database System (CIS), in order to promote speed and accuracy in customs operations, as well as to expand export and import. Simultaneously, the proposal of implementation plan for the Customs Service System (hereinafter referred to as CSS: Customs Service System) shall be completed.

2) In the same field, the JICA study team shall carry out technical transfer to the counterparts from the Directorate General of Customs and Excise (hereinafter referred to as DJBC: Direktorat Jenderal Bea dan Cukai) of Indonesian Ministry of Finance. The JICA study team shall carry out technical transfer to the counterparts through the cooperation of JICA short-term expert during the survey by the courtesy of the Customs and Tariff Bureau of the Japanese Ministry of Finance.

1.3 Area of the Study Coverage

The study covers the Head Office of the Directorate General of Customs and Excise of the Indonesia y Ministry of Finance, Regional Office IV, and Customs and Excise Service Office in Tanjung Priok. (System analysis is mainly conducted at the Head Office).

1.4 Method of the Investigation

The investigation consists of following studies;

1) Preparatory work in Japan (December 1997)
   The JICA study team prepared the study.
2) First study in Indonesia (December 1997 – March 1998)
   The team conducted the basic investigation of CIS and made proposal of CSS.
   Finally, the team submitted Progress Report as a result.
3) Second study in Indonesia (July 1998 – October 1998)
   The team conducted the System Design Phase I of CIS.
   Finally, the team made Interim Report as a result.
4) First study in Japan (October 1998)
   The team will conduct the advisory committee with JICA.

5) Third study in Indonesia (October 1998 – December 1998)

The team will present and discuss Interim Report with DJBC. The team will conduct the System Design Phase II of CIS.

Finally, the team will make Draft Final Report as a result.

6) Second study in Japan (December 1998 – January 1999)

The team will make Draft Final Report.

7) Fourth study in Indonesia (January 1999 – February 1999)

The team will present and discuss Draft Final Report with DJBC.

The team will conduct technical transfer to counterparts.

8) Third study in Japan (February 1999)

The team will make Final Report.

The following is Flowchart of the Study.

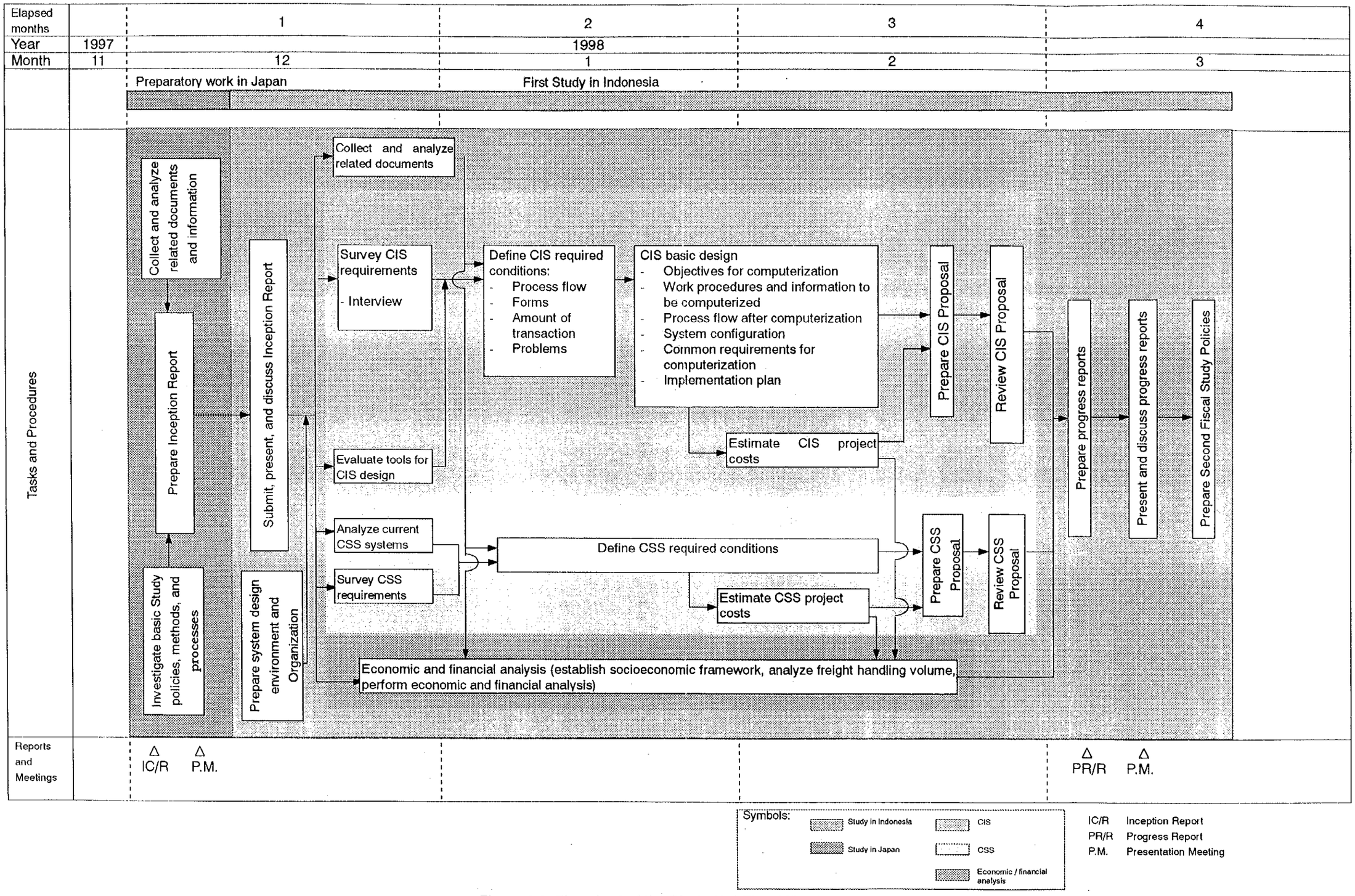


Figure 4-1: Flowchart of the Study (1st Fiscal Year)

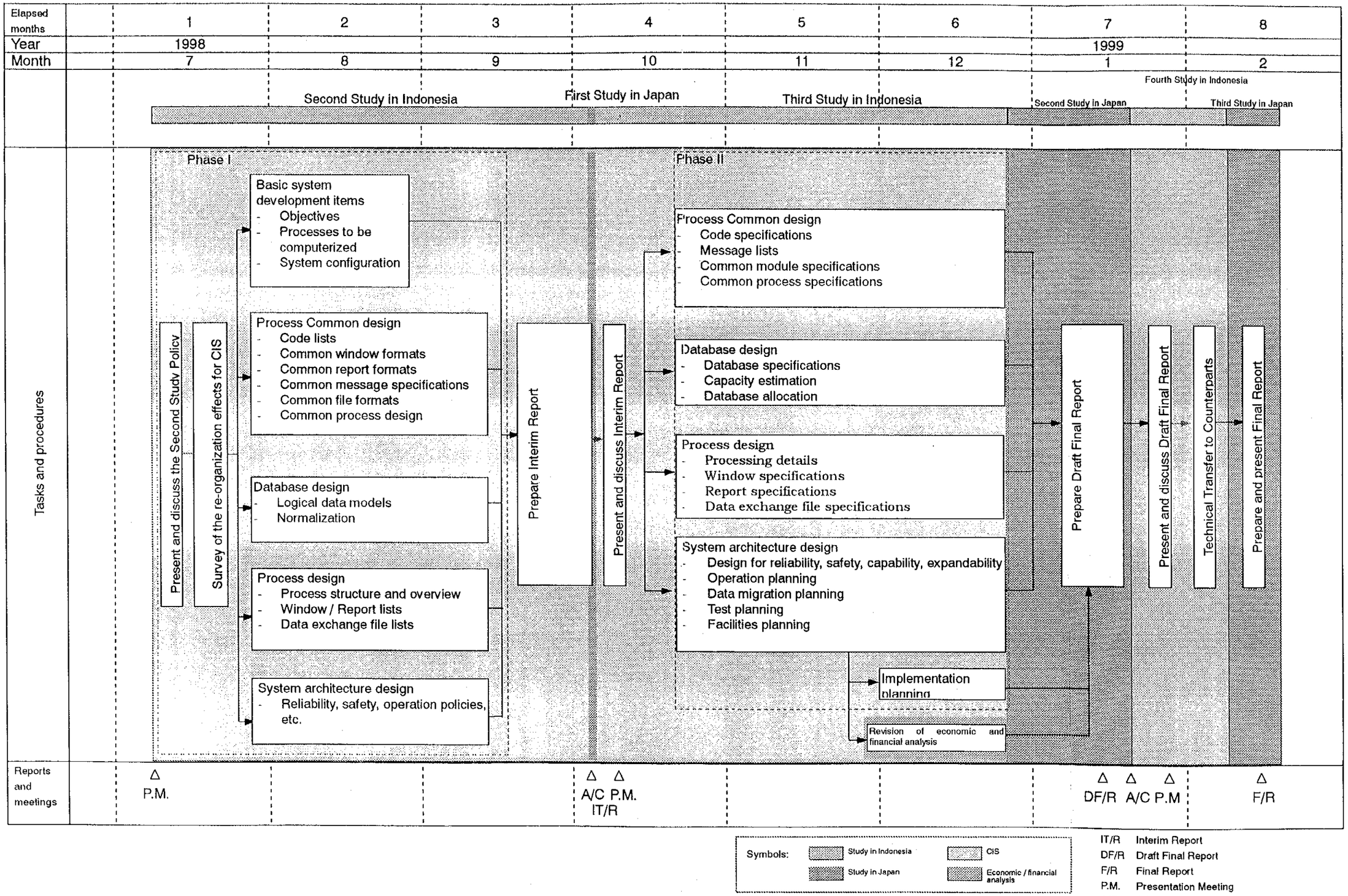


Figure 4-2: Flowchart of the Study (2nd Fiscal Year)

CHAPTER 2 Framework of CIS System Design

2.1 Purpose of the System

The first priority policies of the government of Indonesia are recovery from current economic difficulties by increasing foreign direct investment and non-oil/gas exports, establishing well-organized social safety network, expanding employment opportunities, and so on. The Directorate General of Customs and Excise decided to develop both CIS and CSS because the computerization of Customs would realize the above-mentioned government polices.

CIS is a database to systemize various Customs information and intelligence in electronic data in order to proceed proper and prompt Customs procedures. The various Customs information and intelligence contain Customs-related data, such as import/export data, law enforcement information, and verification/audit results, which are used to make selectivity of high and low risk companies, cargoes, persons, and so on. Customs may get such data by electronic media, and often by paper-based reports, or sometimes by verbal reports, e.g. telephone conversation, from different sources.

This information compiled by different sections in the Customs settles a high barrier against an efficient analysis of an object. Information converted into electronic data and stored in a unified database system is expected to assist smooth analysis by Customs officers without barriers. Customs officers are able to target a certain object by analyzing such data in CIS. This measure to target a certain object is called a risk assessment method. CIS, an electronically systemized database, aims to provide high quality and reliable risk assessment to Customs procedures.

The basic management of CIS is mainly in six specific categories (See Figure 2.1-1); statistics management, arrival/departure management, Customs offence management, audit management, import/export management, and profiling management. Each management is not isolated from another management. This means that a unique output comes from the results of information analysis in conjunction with various basic data in CIS.

Figure 2.1-1 shows typical data flows between CIS and Customs jobs. The oval of CIS at the center in the chart contains six categories on management. Ovals around CIS mean some examples of Customs jobs. Arrows between CIS and Customs jobs mean the data flow and the flows are basically circulated between CIS and Customs jobs. Data transferred from the Customs jobs to CIS are stored into CIS and they are analyzed as intelligent /statistical data by

Customs officers. Such data are output in order to target an object of each Customs job. And then, the result of operation done by Customs, based on targeting an object is again transferred into CIS.

Hence, computerization of Customs-related data is to realize accurate and fast analysis of risk assessment for Customs. CIS will support Customs officers to speed-up their jobs and to implement more effective Customs risk assessment. Well-controlled risk assessment makes Customs identify easily any activities that do not abide by Customs and Excise Law. It increases the detection of anti-social goods including drugs, smugglings, and commercial frauds.

The increase in detection of anti-social goods contributes to the protection of society and prevents the outflow of black money from Indonesia. The increase in detection of smuggling of essential goods, e.g. palm oil, rice, also contributes to the protection of society. These improvements will stabilize the society.

The commercial frauds include tax evasion by low-priced invoice and other documents, illegal goods including violation of Intellectual Property Right (IPR) and prohibited and restricted imports/exports. The detection of tax evasion increases tax revenue. The increased tax revenue will stabilize the nation's finance. The detection of illegal, prohibited, and restricted goods protects the domestic industries. The domestic industries protected from commercial frauds expand its production and investment. The increase in production and investment will raise the nation's exports and employment opportunities.

The benefit of the development of CIS is not limited to Customs itself but is affecting various aspects of society. Consequently, CIS could realize the above-mentioned first priority policies of the government.

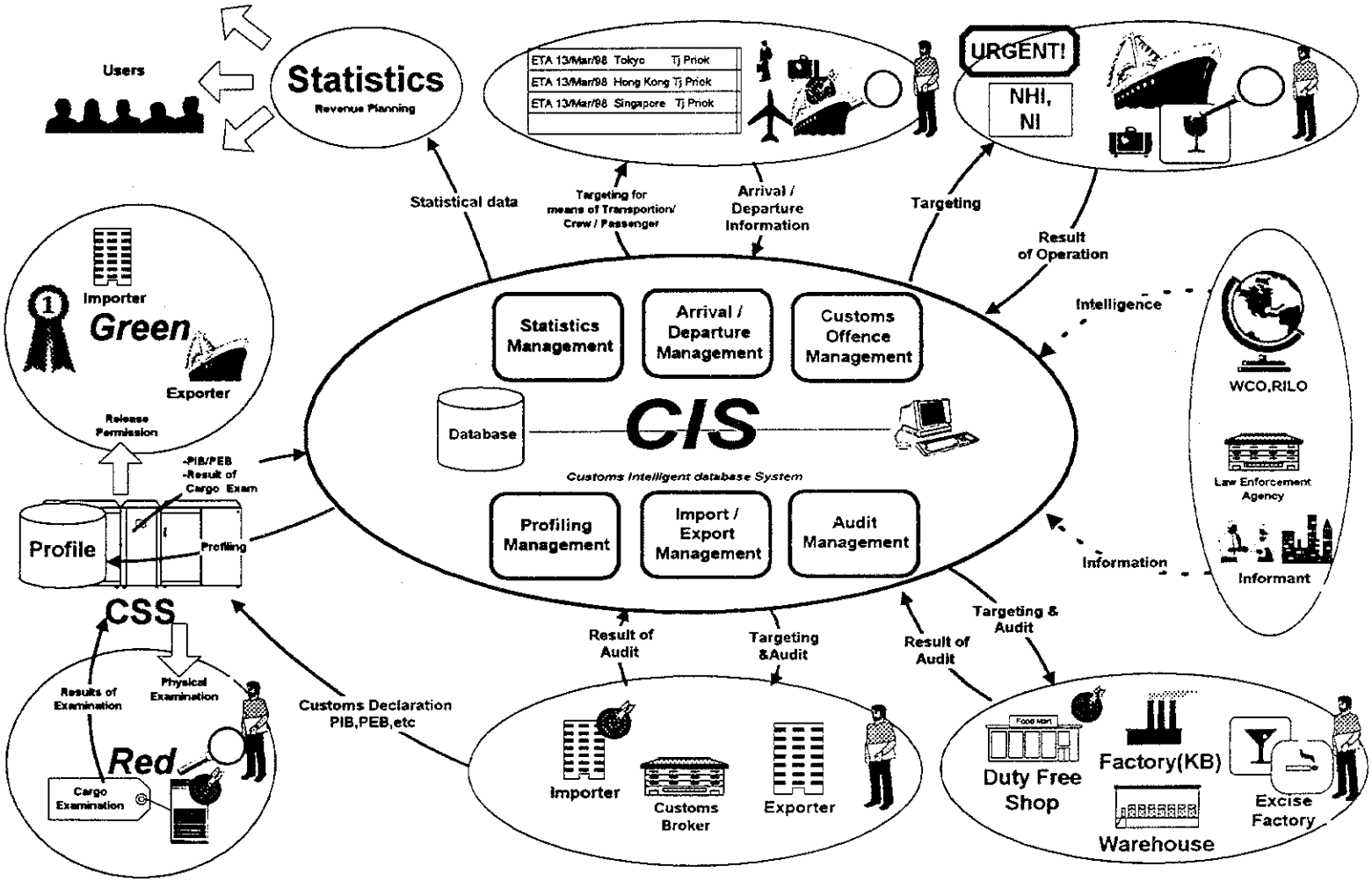


Figure 2.1-1 : Concept of Systemization in CIS

2.2 Application Design

2.2.1 Outline of specification

Input and output image of data in CIS is shown on Figure 2.2.1-1. CIS basically deals with various jobs by using CIS terminals, and some data are electronically exchanged between CIS and CSS (CFRS). Data flow of CIS on Figure 2.2.1-1 is, for example, as follows:

- Import/export declaration (PIB/PEB) data are input from CSS (CFRS).
- Necessary information in CIS can be managed or input through CIS terminals.
- Tax payment number data (hereinafter referred to as NPWP) would be transferred from the database in DJBC to input.
- Data are individually stored in servers.
- Profile for CSS (CFRS) is produced using CIS and necessary profiles are transferred back to CSS (CFRS).

There is a basic information in CIS, that is a essential data for customs and also a common data used by all directorates. Basic information includes company and person information. Basic information consist of following items:

- NPWP or personal ID (KTP) or passport number
- Name
- Address
- Telephone number
- Fax number

Figure 2.2.1-2 shows three methods of making basic information. The making way is divided into 3 ways.

- Initial Transfer : Basic information is made based on relevant information from P2 database.
- Daily Transfer : Basic information is made based on PIB or PEB information from CFRS.
- Making data one by one : Basic information is made based on information from each directorate.

Figure 2.2.1-3 shows management of basic information. The management way is divided into 2 ways, regarding the objective data, such as:

- Regarding the transferred data
- Regarding the data made by one by one

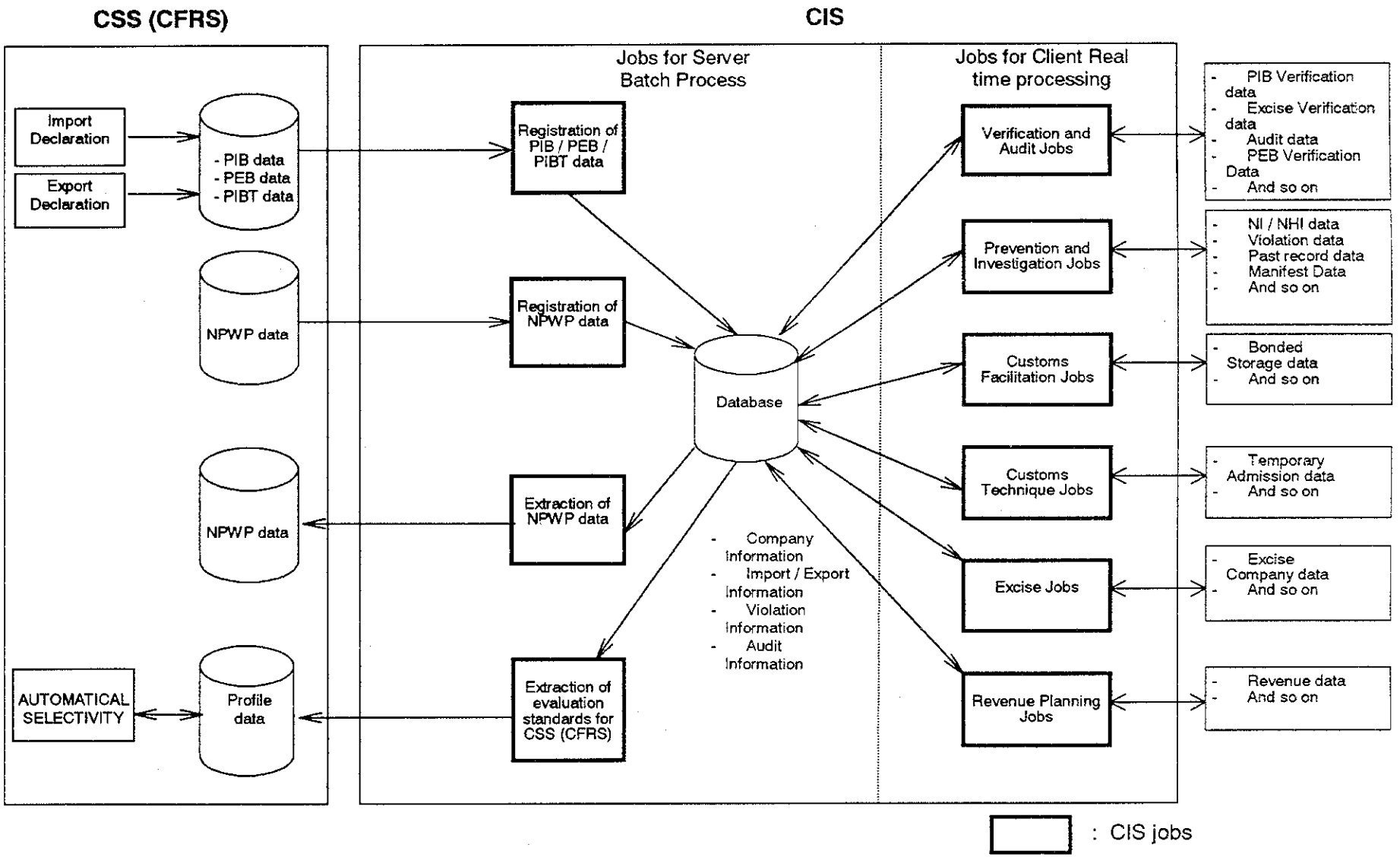


Figure 2.2.1-1 : CIS Data Flow

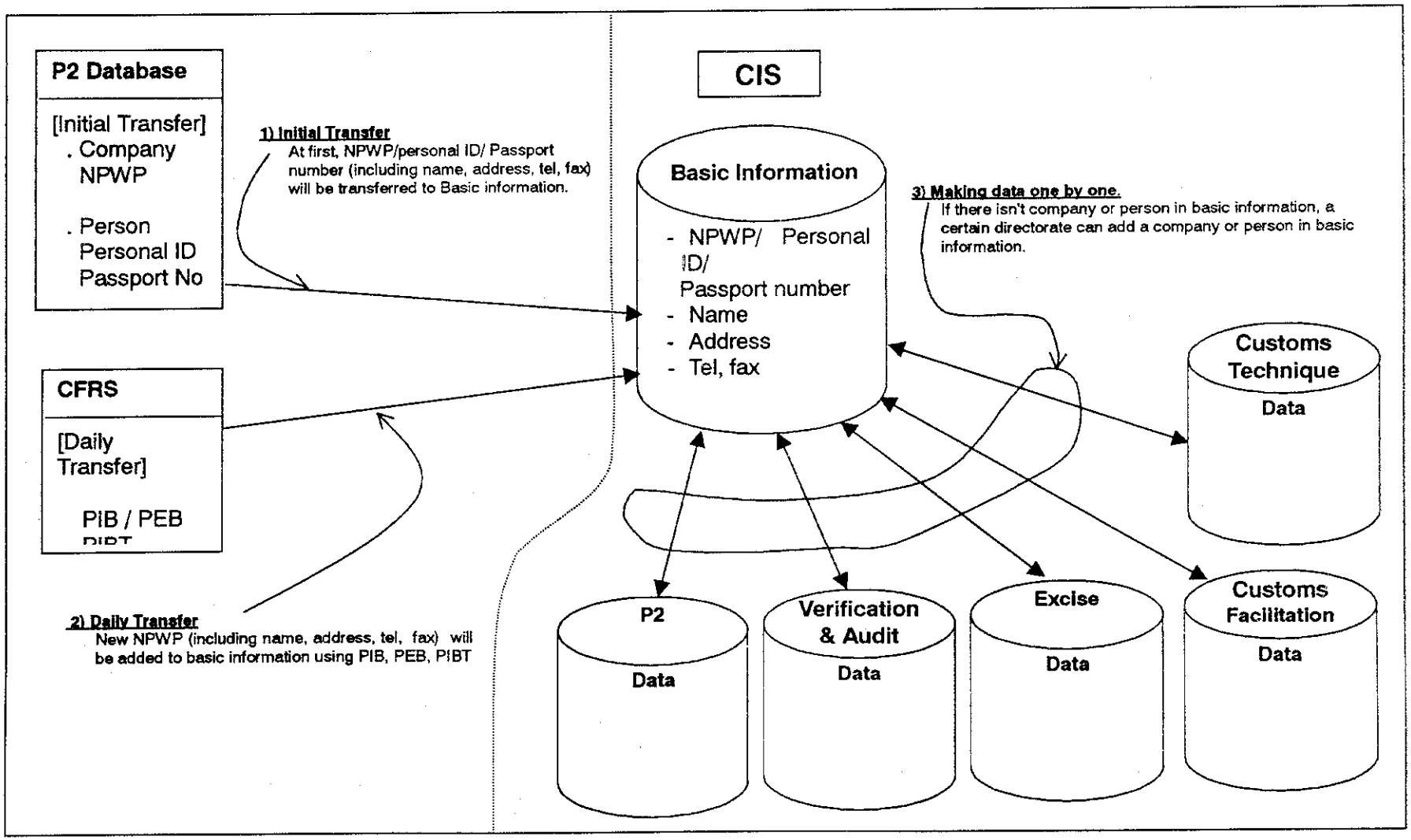


Figure 2.2.1-2 : Making Basic Information

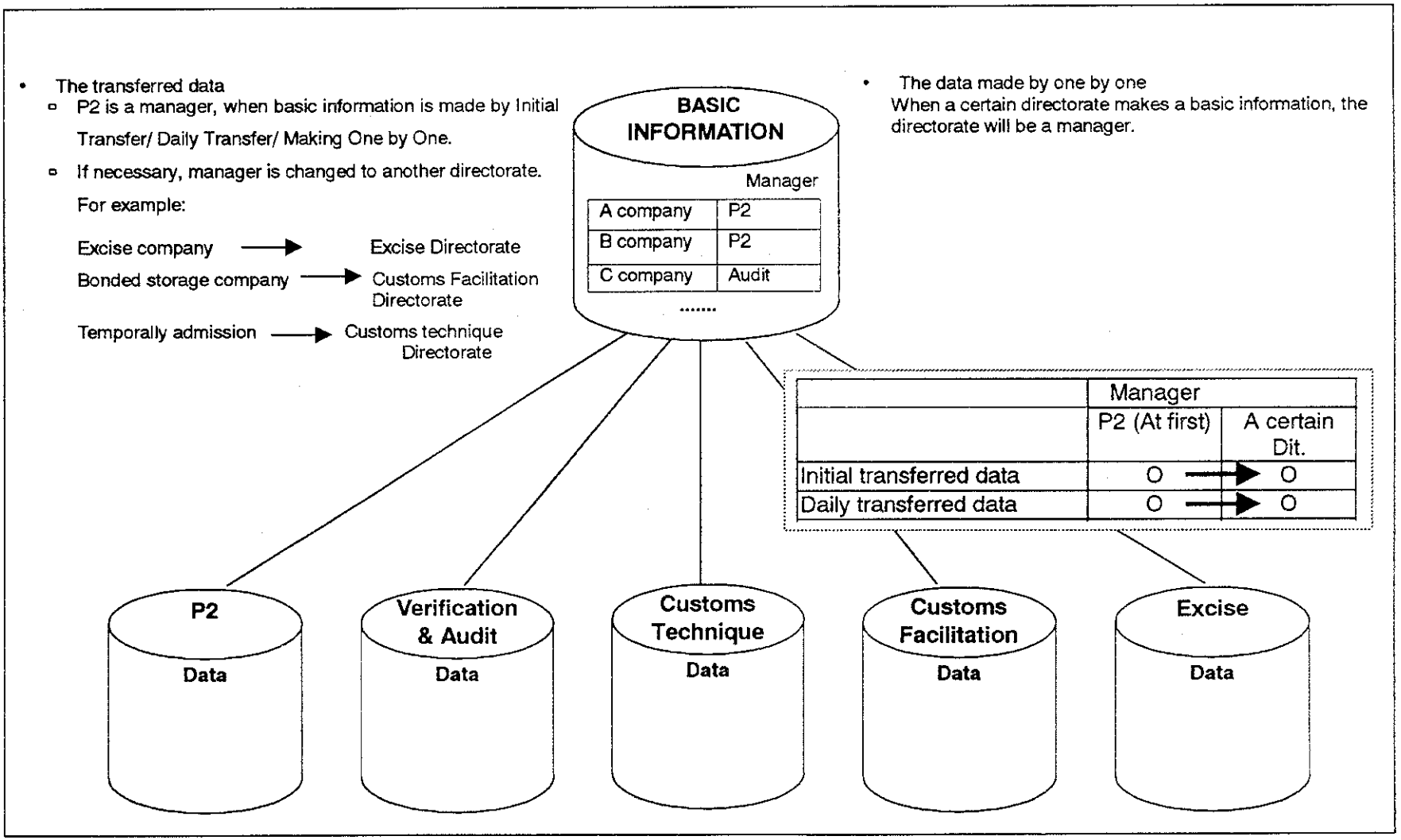


Figure 2.2.1-3 : Management of Basic Information

2.2.2 General Description of CIS Jobs

The JICA study team and DJBC discussed jobs in CIS, and summarized it in the table attached. At first, both parties discussed all jobs that were to be realized in CIS, and the both parties agreed to divide the development into two stages, i.e. the first stage and second stage because of huge volume of jobs (Refer to 2.4). The essential 39 jobs are developed in the first stage and the remaining 80 jobs are developed in the second stage, based on the user requirement. Table 2.2.2-1 shows job classification and the number of jobs. Table 2.2.2-2 shows General Description of CIS jobs in the first stage. Table 2.2.2-3 shows General Description of CIS jobs in the second stage.

Table 2.2.2-1: Job Classification

Job name		All stage	1st stage	2nd stage
Client jobs				
	Common jobs	6	6	0
	Verification and Audit jobs	15	4	11
	Prevention and Investigation jobs	62	14	48
	Customs Facilitation jobs	6	2	4
	Customs Technique jobs	8	2	6
	Revenue Planning jobs	5	3	2
	Excise jobs	6	2	4
	SUB TOTAL	108	33	75
Server jobs				
	Common jobs	9	4	5
	Initial transfer process job	1	1	0
	Code data maintenance job	1	1	0
	SUB TOTAL	11	6	5
	TOTAL	119	39	80

Table 2.2.2-2: General Description of 1st Stage CIS Jobs (1/5)

No.	Site	Department / Section	Application Name	Job Description	Development Stage
C-1	Client Job	Common (*1)	User ID, Password Check	To verify the user ID and password (input on Client's initial screen), and display the menu screen for that user category.	First Stage
C-2			Job Menu	To display the first data entry screen for the selected job process, based on the selected menu on the menu screen (different menu for each user category).	First Stage
C-3			Change Password	To change user password.	First Stage
C-4			PIB Monitor	To display information on PIB.	First Stage
C-5			PEB Monitor	To display information on PEB.	First Stage
C-6			Company / person summary monitor	To display summarized information, such as company/person customs clearance information, violation, and audit information, on company/person registered in CIS Basic information.	First Stage
V-1		Verification & Audit	PIB Verification Management	To register, change or delete verification results of import declaration documents. PIB verification management is divided into I and II.	First Stage
V-2			PIB Verification Monitor	To display verification results of import declaration documents. PIB verification monitor is divided into I and II.	First Stage
V-9			Audit Management	To register, change or delete audit results of import / export companies and bonded storages related companies.	First Stage
V-10			Audit Monitor	To display audit results of import / export companies and bonded storages related companies.	First Stage

Table 2.2.2-2: General Description of 1st Stage CIS Jobs (2/5)

No.	Site	Department / Section	Application Name	Job Description	Development Stage
P-7	Client Job	Prevention and Investigation	NI/NHI Management	To register, change or delete NI and NHI. NI: Information note. NHI: Intelligence result note.	First Stage
P-8			NI/NHI Monitor	To display contents and circumstance of specific NI/NHI. To display every NI/NHI of specific importers.	First Stage
P-9			Company violation Management	To register, change or delete company violation information of importers, exporters, customs brokers and others.	First Stage
P-10			Company violation Monitor	To display company violation information related to specific traders.	First Stage
P-15			Past record and blocked importer_Management	To register, change or delete Past record and blocked importer. The related companies are the followings: Shipping company Importer Exporter Customs broker and so on.	First Stage
P-16			Past record and blocked importer Monitor	To display specific past record or specific blocked importer. To display a list of past record or a list of blocked Importer.	First Stage
P-19			Company profile Management	To register, change or delete basic information of import / export companies. The related companies are the followings: Shipping company Importer Exporter Customs broker and so on	First Stage
P-20			Company profile Monitor	To display specific Company.	First Stage

Table 2.2.2-2: General Description of 1st Stage CIS Jobs (3/5)

No.	Site	Department / Section	Application Name	Job Description	Development Stage
P-27	Client Job	Prevention and Investigation	Inter Island transportation Management	To register, change or delete shipping transportation information (including goods and shipping information) related to Inter-island transportation or shipment of certain goods (i.e. rattan, woods and CPO) between customs areas.	First Stage
P-28			Inter Island transportation Monitor	To display specific transportation information (including goods and shipping information).	First Stage
P-49			Personnal violation Management	To register, change or delete person who violate the customs law.	First Stage
P-50			Personnal violation Monitor	To display specific personnal violation.	First Stage
P-51			Physical examination result Management	To manage information related to Physical examination.	First Stage
P-52			Physical examination result Monitor	To display information related to Physical examination.	First Stage
F-1		Customs Facilitation	Bonded storage Management	To manage information on bonded storages (bonded zones, bonded warehouses, duty free shop).	First Stage
F-2			Bonded storage Monitor	To display information related to bonded storages (bonded zones, bonded warehouses, duty free shop).	First Stage
T-1		Customs Technique	Temporary Admission Management	To register, change or delete information related to Temporary Admission.	First Stage
T-2			Temporary Admission Monitor	To display information related to Temporary Admission.	First Stage
R-2		Revenue Planning	Revenue data collection for EUC (Excise revenue)	To extract raw data from CIS as EUC data, for Customs to produce its own statistical information.	First Stage

Table 2.2.2-2: General Description of 1st Stage CIS Jobs (4/5)

No.	Site	Department / Section	Application Name	Job Description	Development Stage
R-4	Client Job	Revenue Planning	PIB data collection for EUC	To extract raw data from PIB as EUC data, for Customs to produce its own statistical information.	First Stage
R-5			PEB data collection for EUC	To extract raw data from PEB as EUC data, for Customs to produce its own statistical information.	First Stage
E-3		Excise	Excise company Management	To manage information on products / tax payment for excise related companies (tobacco, alcoholic beverages, ethyl alcohol factory, importers).	First Stage
E-4			Excise company Monitor	To display information on products / tax payment for excise related companies (tobacco factories, alcoholic beverages factories, ethyl alcohol factories, importers). To display tobacco/ alcoholic beverages brands.	First Stage
S-1	Server Job	Common (*1)	Registration, Change and Deletion of User Information	To register, change and delete user information (e.g. user ID) in real time. This job can be executed by system manager only.	First Stage
S-3			Registration of Information on Import Declaration	To register information on processed CFRS (CSS) import declaration on line. If not CMT (created by CFRS (CSS)) will be used.	First Stage
S-4			Registration of Information on Export Declaration	To register information on processed CFRS (CSS) export declaration on line if connected, but CMT (created by CFRS (CSS)) will be used otherwise.	First Stage
S-5			Creating Profile of Suspicious Importers	To extract and edit information on CFRS (CSS) evaluation standards for suspicious importers from each database (cautions, verification of illegalities, profile, and illegalities in customs clearance).	First Stage

Table 2.2.2-2: General Description of 1st Stage CIS Jobs (5/5)

No.	Site	Department / Section	Application Name	Job Description	Development Stage
S-10	Server Job	Initial Data Transfer Process(*2)		To process temporary jobs to transfer various data from other systems to CIS (including PC's) when the operation of CIS begins.	First Stage
S-11		Code Data Maintenance Process(*2)		To maintain code data.	First Stage

Note : (1) The processes without any Directorate that manages, are placed in Client Common or Server Common.
(2) S-10 "Initial data transfer process" and S11 "Code data maintenance process" will be designed during implementation phase.

Table 2.2.2-3: General Description of 2nd Stage CIS Jobs (1/6)

No.	Site	Department / Section	Application Name	Job Description	Development Stage
V-2-1	Client Job	Verification & Audit	PIB Verification Result Quarterly Report	To display quarterly report of verification results of import declaration documents. (attachment 1 is first stage)	Second Stage
V-3			PEB Verification Management	To register, change or delete verification results of export declaration documents.	Second Stage
V-4			PEB Verification Monitor	To display verification results of export declaration documents.	Second Stage
V-5			BC. 2.3 Verification Management	To register, change or delete verification results of declaration documents related to goods transportation to bonded areas, and so on.	Second Stage
V-6			BC. 2.3 Verification Monitor	To display verification results of declaration documents related to goods transportation to bonded areas, and so on.	Second Stage
V-7			Excise Verification Management	To register, change or delete verification results of reports submitted by companies dealing with excisable goods. (tobacco companies, and so on.)	Second Stage
V-8			Excise Verification Monitor	To display verification results of reports submitted by companies dealing with excisable goods. (tobacco companies, and so on.)	Second Stage
V-11			Auditor Management	To register, change or delete auditors.	Second Stage
V-12			Audit plan support	To analyze verification results, to assign auditors, and to produce audit plan.	Second Stage
V-13			Evaluation of PFPD	To produce management chart of PFPD.	Second Stage
V-14			Verification Selectivity Process	To select documents to be verified.	Second Stage
P-1		Prevention and Investigation	Arrival/Departure of means of Transportation Management	To register, change or delete arrival / departure information.	Second Stage
P-2			Arrival/Departure of means of Transportation Monitor	To display arrival / departure information, shipping information and their owners.	Second Stage
P-3			Manifest Management	To register, change or delete manifest information.	Second Stage

Table 2.2.2-3: General Description of 2nd Stage CIS Jobs (2/6)

No.	Site	Department / Section	Application Name	Job Description	Development Stage
P-3-1	Client Job	Prevention and Investigation	Manifest Registration (FD)	To register manifest information by FD.	Second Stage
P-4			Manifest Monitor	To display specific manifest and compare weight (container unit) from Bayplan.	Second Stage
P-5			Bay plan Management	To register, change or delete Bayplan (container number and weight).	Second Stage
P-6			Bay plan Monitor	To display specific Bayplan. (combine with P-4).	Second Stage
P-9-1			Violation Management for post package	To register, change or delete violation information for post package.	Second Stage
P-10-1			Violation Monitor for post package	To display violation information for post package.	Second Stage
P-11			Investigation Management	To register, change or delete investigation results of traders.	Second Stage
P-12			Investigation Monitor	To display investigation results of specific traders.	Second Stage
P-13			Risk Indicator Management	To register, change or delete Risk Indicator. Note: Risk Indicator is used when analyzing Customs information (import / export declaration, manifest, and so on.). It is an index (originated country, abnormal weight, and so on.) for them.	Second Stage
P-14			Risk Indicator Monitor	To display Risk Indicator.	Second Stage
P-17			AWB Management	To register, change or delete Airway Bill.	Second Stage
P-18			AWB Monitor	To display specific Airway Bill.	Second Stage
P-21			Foreign exporter Management	To register, change or delete basic information on exporters from overseas (suppliers).	Second Stage
P-22			Foreign exporter Monitor	To display specific foreign exporters.	Second Stage
P-23			Intelligence Report Management	(This job will be deleted, not necessary to input any data.)	Second Stage

Table 2.2.2-3: General Description of 2nd Stage CIS Jobs (3/6)

No.	Site	Department / Section	Application Name	Job Description	Development Stage
P-24	Client Job	Prevention and Investigation	Intelligence Report Monitor	To display intelligence information. The main items are B/L number, Shipper, Consignee, Goods, Container number, Manifest and comparison of weight from Bayplan.	Second Stage
P-25			Intelligence List-book Management	To register, change or delete intelligence information in Intelligence List-book. Note: Intelligence List-book is a file that contains analysis results of customs information.	Second Stage
P-26			Intelligence List-book Monitor	To display intelligence information.	Second Stage
P-29			B/L Management	To register, change or delete B/L.	Second Stage
P-30			B/L Monitor	To display specific B/L.	Second Stage
P-31			Intelligence Process-note Management	To register, change or delete Intelligence Process-note.	Second Stage
P-32			Intelligence Process-note Monitor	To display specific Intelligence Process-note.	Second Stage
P-33			Sea Patrol Management	To register, change or delete sea patrol information.	Second Stage
P-34			Sea Patrol Monitor	To display specific sea patrol information.	Second Stage
P-35			Operation Management	To register, change or delete operation information (target company, location and operation result).	Second Stage
P-36			Operation Monitor	To display specific operation information.	Second Stage
P-37			Informant Information Management	To register, change or delete smuggling information from informant and its result.	Second Stage
P-38			Informant Information Monitor	To display specific smuggling information from informant.	Second Stage
P-39			International Agency Management	To register, change or delete smuggling information from international agency and its result.	Second Stage

Table 2.2.2-3: General Description of 2nd Stage CIS Jobs (4/6)

No.	Site	Department / Section	Application Name	Job Description	Development Stage
P-40	Client Job	Prevention and Investigation	International Agency Monitor	To display specific smuggling information from international agency.	Second Stage
P-41			RILO Management	To register, change or delete smuggling information from RILO and its result.	Second Stage
P-42			RILO Monitor	To display specific smuggling information from RILO.	Second Stage
P-43			POLICE and other organization Management	To register, change or delete smuggling information from Domestic Agency (Police, and so on.) and its result.	Second Stage
P-44			POLICE and other organization Monitor	To display specific smuggling information from Domestic Agency (Police, and so on.)	Second Stage
P-45			Modus Operandi Management	To register, change or delete Modus Operand.	Second Stage
P-46			Modus Operandi Monitor	To display specific Modus Operand.	Second Stage
P-47			Court Decision Management	To register, change or delete Court decision of the case.	Second Stage
P-48			Court Decision Monitor	To display specific Court decision.	Second Stage
P-53			Cruise ship & yacht Management	To register, change or delete Cruise ship & yacht who violate the customs law.	Second Stage
P-54			Cruise ship & yacht Monitor	To display specific Cruise ship & yacht and his/her violation	Second Stage
P-55			Private and Public transportation (vehicle cross the border) Management	To register, change or delete Private and Public transportation (vehicles cross the border) who violate the customs law.	Second Stage
P-56			Private and Public transportation (vehicles cross the border) Monitor	To display specific Private and Public transportation (vehicles cross the border) and his/her violation.	Second Stage
P-57			Blocked Importer (no customs duty payment) Monitor	To display specific blocked importer (no customs duty payment).	Second Stage

Table 2.2.2-3: General Description of 2nd Stage CIS Jobs (5/6)

No.	Site	Department / Section	Application Name	Job Description	Development Stage
P-58	Client Job	Prevention and Investigation	Retail store for excisable good Management	To register, change or delete Retail store for excisable good who violate the custom and excise law.	Second Stage
P-59			Retail store for excisable good Monitor	To display specific Retail store for excisable good and his/her violation.	Second Stage
F-3		Customs Facilitation	Facilitation Management	To manage information related to Facilities.	Second Stage
F-4			Facilitation Monitor	To display information related to Facilities.	Second Stage
F-5			Bonded Storage Activity Management	To register, change or delete information on the activities of Bonded Storages.	Second Stage
F-6			Bonded Storage Activity Monitor	To display information on the activities of Bonded Storages.	Second Stage
T-3		Customs Technique	Goods Management	To manage Price Profile, High Risk Commodity Profile and Tariff & Classification Profile.	Second Stage
T-4			Goods Monitor	To display Price Profile, High Risk Commodity Profile and Tariff & Classification Profile.	Second Stage
T-5			Pre-Entry Classification Profile Management	To manage profile of pre-entry declaration for tariff classification.	Second Stage
T-6			Pre-Entry Classification Profile Monitor	To display profile of pre-entry declaration for tariff classification.	Second Stage
T-7			Temporary Storage Management	To manage information on Temporary Storage.	Second Stage
T-8			Temporary Storage Monitor	To display information related to Temporary Storage.	Second Stage
R-1		Revenue Planning	Revenue Management (tax payment of revenue, expenditure, auction and mail matter)	To manage tax payment of revenue, expenditure, auction and mail matter.	Second Stage
R-3			Revenue data collection for EUC (tax payment of revenue, expenditure, auction and mail matter)	To extract raw data from CIS as EUC data, for Customs to produce its own statistical information.	Second Stage

Table 2.2.2-3: General Description of 2nd Stage CIS Jobs (6/6)

No.	Site	Department / Section	Application Name	Job Description	Development Stage
E-1	Client Job	Excise	Retail Price of Excisable Goods Management	To register, change or delete retail price of tobacco, and alcoholic beverages.	Second Stage
E-2			Retail Price of Excisable Goods Monitor	To display retail price of tobacco, and alcoholic beverages.	Second Stage
E-5			Storage for excisable goods Management	To manage information on excise storages.	Second Stage
E-6			Storage for excisable goods Monitor	To display information on excise storages.	Second Stage
S-2	Server Job	Common (*)	Deletion of Intelligence Information after the Retention Period	To delete information from each database after retention period.	Second Stage
S-6			Preparing Item Profile	To extract and edit CFRS (CSS) evaluation standards (average item price, acceptable range of unit price, and so on.) from the database on item information.	Second Stage
S-7			Registering Tax Payment Information	To register CMT tax payment information prepared by Tax Administration Directorate.	Second Stage
S-8			Registration of Information on blocked importer (no customs duty payment)	To register information about blocked importer (no customs duty payment) from CFRS (CSS) to CIS.	Second Stage
S-9			Registration of Manifest information	To register Manifest information from CFRS (CSS) to CIS.	Second Stage

Note: The processes without any Directorate that manages, are placed in Client Common or Server Common.

2.2.3 Relation between job and user

The JICA Study Team and DJBC also discussed relation between jobs and users, and summarized it as Table 2.2.3-1. This table includes the jobs and users at the first stage. The relation between jobs and users is used for job menu. The access to each job is automatically controlled by computer using ID and job menu. The "✓" mark in the matrix means the directorate will be able to access the job and no mark means the directorate will not be able to use the job.

Table 2.2.3-1: Relation Between Job and User (1/4)

No.	Site	Department / Section	Application Name	Head Office								Regional Office					Services office					
				Verification & Audit	Prevention & Investigation	Customs Facilitation	Customs Technique	Revenue Planning	Excise	International	ADP	Customs & Excise	Prevention & Investigation	Verification	Audit	Head of KWBC	Manifest & Information	Treasury	Customs	Documents Distribution	Head of KPBC	PFPD
C-1	Client Job	Common	User ID, Password Check	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
C-2			Job Menu	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
C-3			Change Password	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
C-4			PIB Monitor	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
C-5			PEB Monitor	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
C-6			Company / person summary monitor	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
V-1		Verification & Audit	PIB Verification Management								√			√								
V-2			PIB Verification Monitor	√	√	√	√	√	√		√			√	√							
V-9			Audit Management	√							√				√							
V-10			Audit Monitor	√	√	√	√	√	√		√			√	√							

Table 2.2.3-1: Relation Between Job and User (2/4)

No.	Site	Department / Section	Application Name	Head Office								Regional Office					Services office					
				Verification & Audit	Prevention & Investigation	Customs Facilitation	Customs Technique	Revenue Planning	Excise	International	ADP	Customs & Excise	Prevention & Investigation	Verification	Audit	Head of KWBC	Manifest & Information	Treasury	Customs	Documents Distribution	Head of KPBC	PFPD
P-7	Client Job	Prevention and Investigation	NI/NHI Management		√						√		√				√					
P-8			NI/NHI Monitor	√	√		√				√		√	√	√		√					√
P-9			Company violation Management		√						√		√				√					
P-10			Company violation Monitor	√	√	√	√	√	√		√		√	√	√		√					√
P-15			Past record and blocked importer Management		√						√											
P-16			Past record and blocked importer Monitor	√	√	√	√				√		√	√	√		√					√
P-19			Company profile Management		√						√		√				√					
P-20			Company profile Monitor	√	√	√	√	√	√		√		√	√	√		√					√
P-27			Inter Island transportation Management		√						√						√					
P-28			Inter Island transportation Monitor		√						√		√				√					

Table 2.2.3-1: Relation Between Job and User (3/4)

No.	Site	Department / Section	Application Name	Head Office								Regional Office					Services office					
				Verification & Audit	Prevention & Investigation	Customs Facilitation	Customs Technique	Revenue Planning	Excise	International	ADP	Customs & Excise	Prevention & Investigation	Verification	Audit	Head of KWBC	Manifest & Information	Treasury	Customs	Documents Distribution	Head of KPBC	PFPD
P-49	Client Job	Prevention and Investigation	Personnal violation Management		√						√		√				√					
P-50			Personnal violation Monitor	√	√						√		√		√		√					
P-51			Physical examination result Management		√						√						√					
P-52			Physical examination result Monitor	√	√		√		√		√		√	√	√		√					√
F-1		Customs Facilitation	Bonded storage Management			√					√											
F-2			Bonded storage Monitor	√	√	√		√	√		√		√		√		√					
T-1		Customs Technique	Temporary Admission Management				√				√							√				
T-2			Temporary Admission Monitor	√	√		√				√		√		√		√	√				
R-2		Revenue	Revenue data collection for EUC (Excise revenue)					√			√											

Table 2.2.3-1: Relation Between Job and User (4/4)

No.	Site	Department / Section	Application Name	Head Office								Regional Office					Services office					
				Verification & Audit	Prevention & Investigation	Customs Facilitation	Customs Technique	Revenue Planning	Excise	International	ADP	Customs & Excise	Prevention & Investigation	Verification	Audit	Head of KWBC	Manifest & Information	Treasury	Customs	Documents Distribution	Head of KPBC	PFPD
R-4	Client Job	Revenue	PIB data collection for EUC					√			√											
R-5			PEB data collection for EUC					√			√											
E-3		Excise	Excise company Management						√		√	√										
E-4			Excise company Monitor	√	√			√	√		√	√	√		√		√					
S-1	Server Job	Common	Registration, Change and Deletion of User Information								√											
S-3			Registration of Information on Import Declaration								√											
S-4			Registration of Information on Export Declaration								√											
S-5			Creating Profile of Suspicious Importers								√											

2.3 System Architecture Design

2.3.1 Outline of System Architecture

2.3.1.1 Circumstances

The purpose of CIS is to provide high quality risk management in order to realize prompt and proper customs procedure by controlling all customs information and intelligence at one place and analyzing them. Considering the purpose of CIS, CIS has to be connected to the Wide Area Network (hereinafter referred to as WAN) in order to exchange information among the offices and access to the CIS information from each office. Networking capability should be a first priority among the CIS hardware requirements. Reliability, expandability and performance should be considered regarding the CIS hardware. Introduction of appropriate security system should also be considered to protect the confidential customs information.

DJBC would like to use the existing server machines as the CIS servers in order to reduce the CIS development cost. As the results of the comparison of the CIS server requirement (refer to 3.8.2 in Volume II), the existing server in Head office fulfills the specification of the CIS Main Server at the Head Office. However, the existing server is being used as the server for developing and maintaining the application programs of DJBC. Therefore, it is very difficult to use it as the Main Server and the JICA Study Team recommends installing a new machine for the Main Server. The servers of Regional Office IV, V and VII do not satisfy the requirements and have to be replaced. Nine other Regional Offices are expected to use their existing servers for the CIS Regional Servers by first adding memory and disks.

The JICA Study Team designed the CIS Main Server as a part of the scope of work; however, Regional Servers have only been roughly estimated for their specification in order to roughly estimate the CIS development cost at this time. The detail design of Regional Server should be needed in later stage of the CIS development, and the existing server machines have to be evaluated in more detail at that time by the vendor.

Chapter 3 in Volume II of this report mainly explains the system architecture requirements of CIS and the basic design and detail design of system configuration at the first stage, such as the CIS Main Server, the CIS terminals, LAN, and WAN. They are supposed to be the procurable equipment or services as of November in 1998. On the other hand, some parts of chapter 3 mention the system configuration in the second and third stage as the results of the basic investigation in order to clear the final image of the CIS configuration and to estimate the total CIS development cost.

The JICA Study Team has tried to take account the concept of open system into the CIS system architecture in this report. However, some parts of these designs might be modified or updated after choosing the certain vendors, since the system architecture depends on the hardware or the software of each vendor. The JICA Study Team would like to recommend that DJBC check the results of this research and request vendors the latest products including the latest technology, when DJBC chooses the certain vendors.

1) Summary of requirements

Table 2.3.1.1-1 shows the summary of user requirements for CIS based on interviews and questionnaire results. As the result of hearing, required number of main equipment, such as Main Server, Regional Server, and personal computer, in each stage are shown in table 2.3.1.1-2.

Table 2.3.1.1-1: Summary of requirements

Items	Requirements
Network	• Each computer for CIS in one location connects to the Local Area Network in that location. • LAN to LAN interconnection of CIS is built as a closed Wide Area Network, connecting Head Office, 12 Regional Offices, and some of major Service Offices. • Networking infrastructure supports on-line process.
Hardware	• Dual computer system for the Main Server in Head Office(hereinafter referred to as Main Server), one for active computer, the other for stand-by computer. • The CIS Regional Server is single computer system. • The CIS terminal should be Personal Computer (hereinafter referred to as PC)
Security	• The CIS users are grouped by Directorate, Regional Office, and Service Office. They have different permission level to access CIS. • Users in the same Directorate have the same set of privileges and restrictions to CIS. • Directorate of Central of Automated Data and Information Processing (hereinafter referred to as ADP) staffs are responsible for user administration.
Operation and Maintenance	• The CIS Main Server runs 24 hours a day, 7 days a week. CIS is available for end-users only during the working hours. • On-line maintenance for CIS is available. • For maintenance of CIS, sophisticated maintenance tool is required, such as job scheduler function, system monitor function, resources distribution.
Others	• Utilization of existing server machines in Regional Offices should be considered • CIS connects to Customs Fast Release System (hereinafter referred to as CFRS) or Customs Services System (hereinafter referred to as CSS)*

Note: "CFRS" is current computer system of DJBC. CSS would be a re-designed computer system of CFRS in the future. Therefore, CFRS would mean CSS also, regarding System Architecture in the later part of this report. Nevertheless, CSS function might be different from the CFRS function.

Table 2.3.1.1-2: Number of main equipment (1/2)

Equipment	Definition	First stage	Second stage	Third stage	Total
Main Server	High performance & High reliability server machine.	1 Head Office	—	—	1
Regional Server Type I	Type I is categorized as large size Regional Server for CIS.	—	1 Regional Office IV (Jakarta)	—	1
Regional Server Type II	Type II is categorized as middle size Regional Server for CIS.	—	2 Regional Office V (Bundung) Regional Office VII (Surabaya)	—	2
Regional Server Type III	Type III is categorized as small size Regional Server for CIS. It is expected to use existing servers.	—	2 Regional Office I Medan Regional Office VI Semarang	7 Regional Office II (Balai Karimun) Regional Office III (Palembang) Regional Office VIII (Denpasar) Regional Office IX (Pontianak) Regional Office X (Balikpapan) Regional Office XI (Ujung Pandang) Regional Office XII (Ambon)	9
EUC Server	Dedicated sever for EUC function.	1 Head Office	—	—	1

Table 2.3.1.1-2: Number of main equipment (2/2)

Equipment	Definition	First stage	Second stage	Third stage	Total
Terminal / Printer	Personal computer for CIS terminal and Printer	95 PCs/45 Printers • Head office (55/23) • Regional Office Regional Office IV (Jakarta) (14/7) • Service Office Tanjung Priok I (8/5) Tanjung Priok II (10/5) Tanjung Priok III (8/5)	35 PCs/9 Printers • Regional Office Regional Office I (Medan) (5/1) Regional Office VI (Semarang) (5/1) Regional Office V (Bandung) (5/1) Regional Office VII (Surabaya) (5/1) • Service Office Belawan (3/1) Soekarno Hatta II (3/1) Bandung (3/1) Tanjung Emas (3/1) Tanjung Perak (3/1)	35 PCs/7 Printers • Regional Office Regional Office II (Balai Karimun) (5/1) Regional Office III (Palembang) (5/1) Regional Office VIII (Denpasar) (5/1) Regional Office IX (Pontianak) (5/1) Regional Office X (Balikpapan) (5/1) Regional Office XI (Ujung Pandang) (5/1) Regional Office XII (Ambon) (5/1)	165PCs /61 Printers

2) CIS introduction plan

According to DJBC master plan of CIS, "4-year CIS development plan," the development of CIS is to be completed in four stages. In this chapter, the scope of each stage in the development will be defined. How CIS will expand to each customs offices in each stage is shown from Figure 2.3.1.1-1 to Figure 2.3.1.1-7.

i) First stage

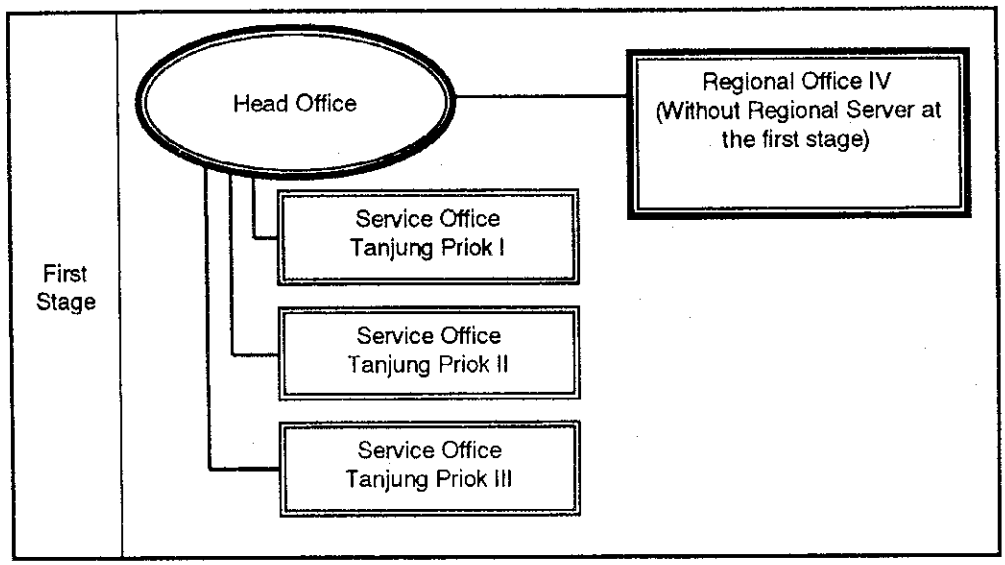


Figure 2.3.1.1-1: Connecting each office (First Stage)

At the first stage, 3 Service Offices (Tanjung Priok I, II, III) and 1 Regional Office, (Regional Office IV-Jakarta) connect to Main Server at Central of Automated Data and Information Processing (hereinafter referred to as ADP or its Indonesian abbreviation PUSLATASI – Pusat Pengolahan Data dan Informasi) in the Head Office. As shown in Figure 2.3.1.1-1 terminals at Service Offices and Regional Office connect directly to the Head Office.

The CIS Main Server is connected to the CFRS servers at Service Offices in Tanjung Priok area. Therefore, CIS will be able to gather the information from CFRS through the network. After creating the profile data for CFRS, CIS can send the profile data to CFRS through the network (refer to Figure 2.3.1.1-2 and Figure 2.3.1.1-3).

Although it is out of the scope for the first stage design, if CFRS in other Service Offices can send CIS files with the same format as that of Service Office in Tanjung Priok area, it would be possible for CIS to receive all the CFRS information through off-line means at this stage.

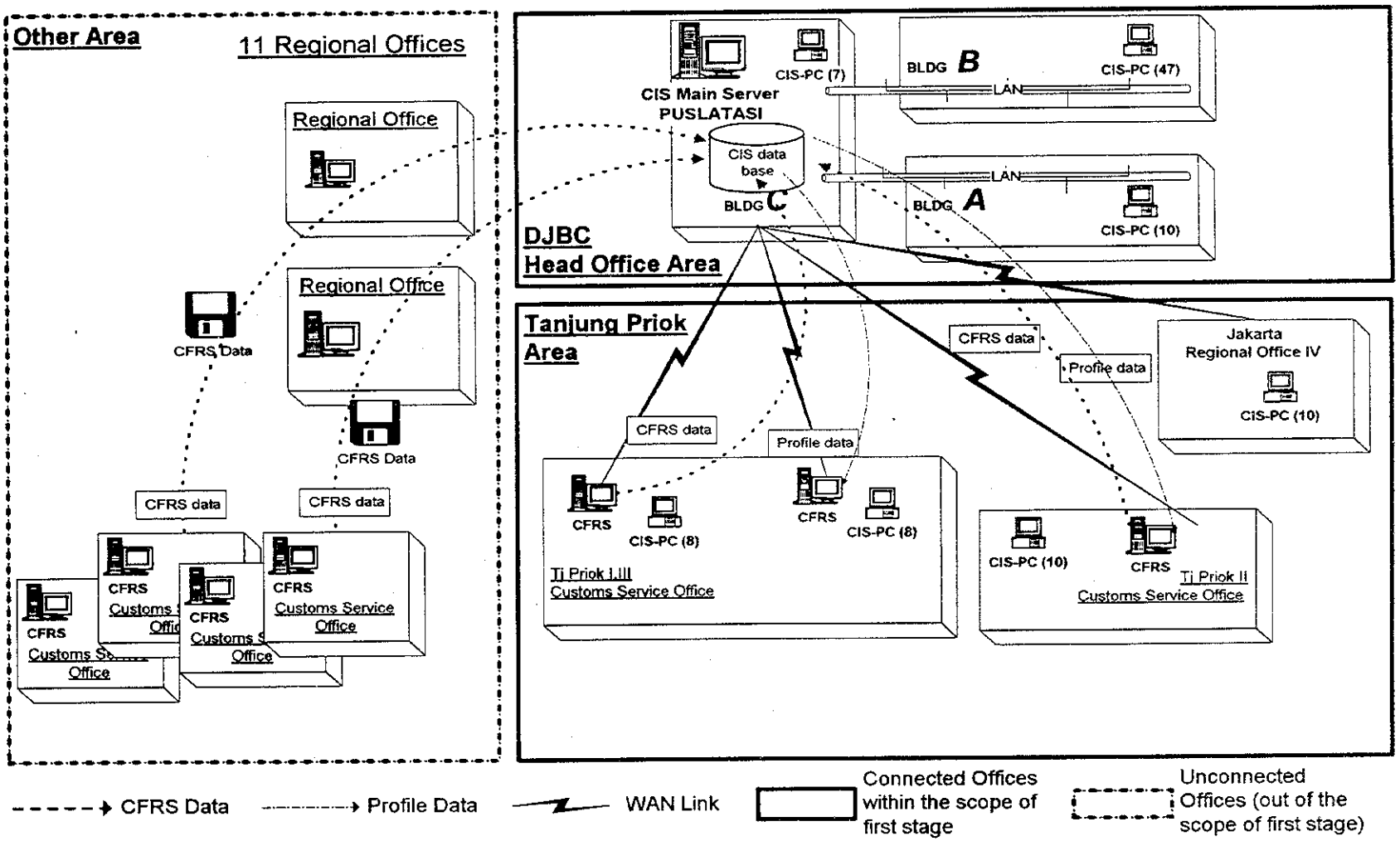


Figure 2.3.1.1-2: System outline of CIS at the first stage

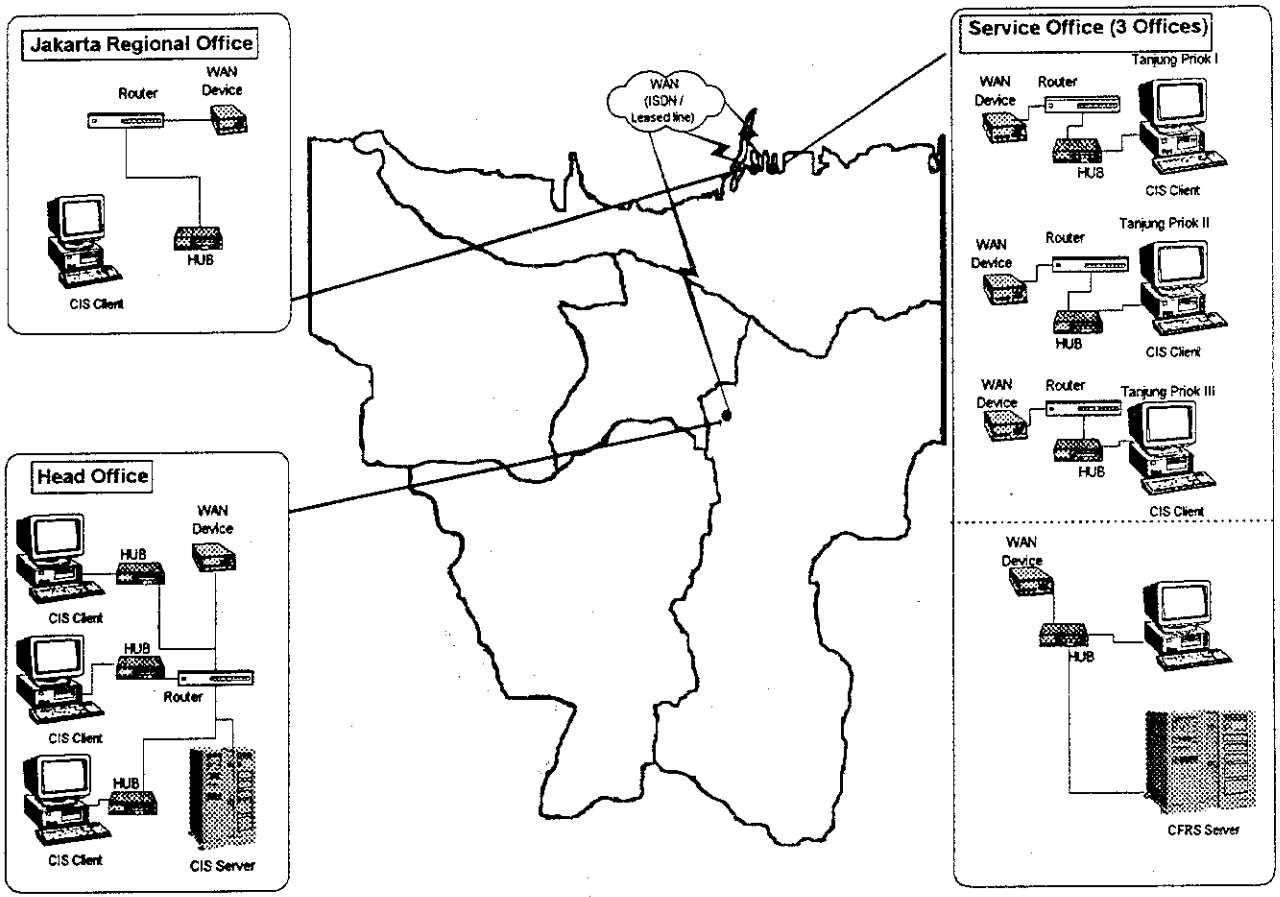


Figure 2.3.1.1-3: Outline of system configuration at the first stage

ii) Second stage

At the second stage there are 4 (four) Regional Offices and 5 (five) major Service Offices to be connected to CIS as shown in Figure 2.3.1.1-4. Regional Offices and their Service Offices that will be added to CIS in this stage are:

- Regional Office I (Medan) — Service Office Belawan
- Regional Office V (Bandung) — Service Office Bandung (Gede Bage)
  Service Office Soekarno Hatta II
- Regional Office VI (Semarang) — Service Office Tanjung Emas
- Regional Office VII (Surabaya) — Service Office Tanjung Perak

From the second stage, each Regional Office connected to CIS will have its own Regional Server. Service Offices will connect to CIS through the Regional Server in Regional Office. Also after this stage, Regional Office IV will have its own Regional Server, and thus Service Offices in Tanjung Priok will no longer connect directly to the Main Server, but to the Regional Server in Regional Office.

At the end of the second stage, 5 Regional Offices and 8 Service Offices will be connected to CIS.

The CIS database in the Main Server contains all of the CIS information. However, the CIS database in each of the Regional Server includes information pertaining to the region only. Main Server will deliver each Regional Office its information during night time.

CIS will be able to gather the information from CFRS by on-line and off-line transfer method. (refer to Figure 2.3.1.1.-5 and Figure 2.3.1.1-6)

iii) Third stage

At the third stage, DJBC will attempt to expand CIS to include Regional Office II, III, VIII, IX, X, XI and XII. Regional Server will be installed at each Regional Office. Each Service Office has to connect to its Regional Office's Regional Server to access CIS. At the end of this stage, CIS connects all of Regional Offices. (refer to Figure 2.3.1.1-7)

iv) Fourth stage

At the fourth stage, the Directorate General of Tax and Directorate General of Budget of Department of Finance, as well as other agencies might be connected to the DJBC's CIS server. The fourth stage is an optional stage in the development of CIS. If DJBC decides that there is no need for other departments to be connected to CIS, the development of CIS may conclude at the third stage. Therefore, the JICA Study team has not considered this stage in this report.

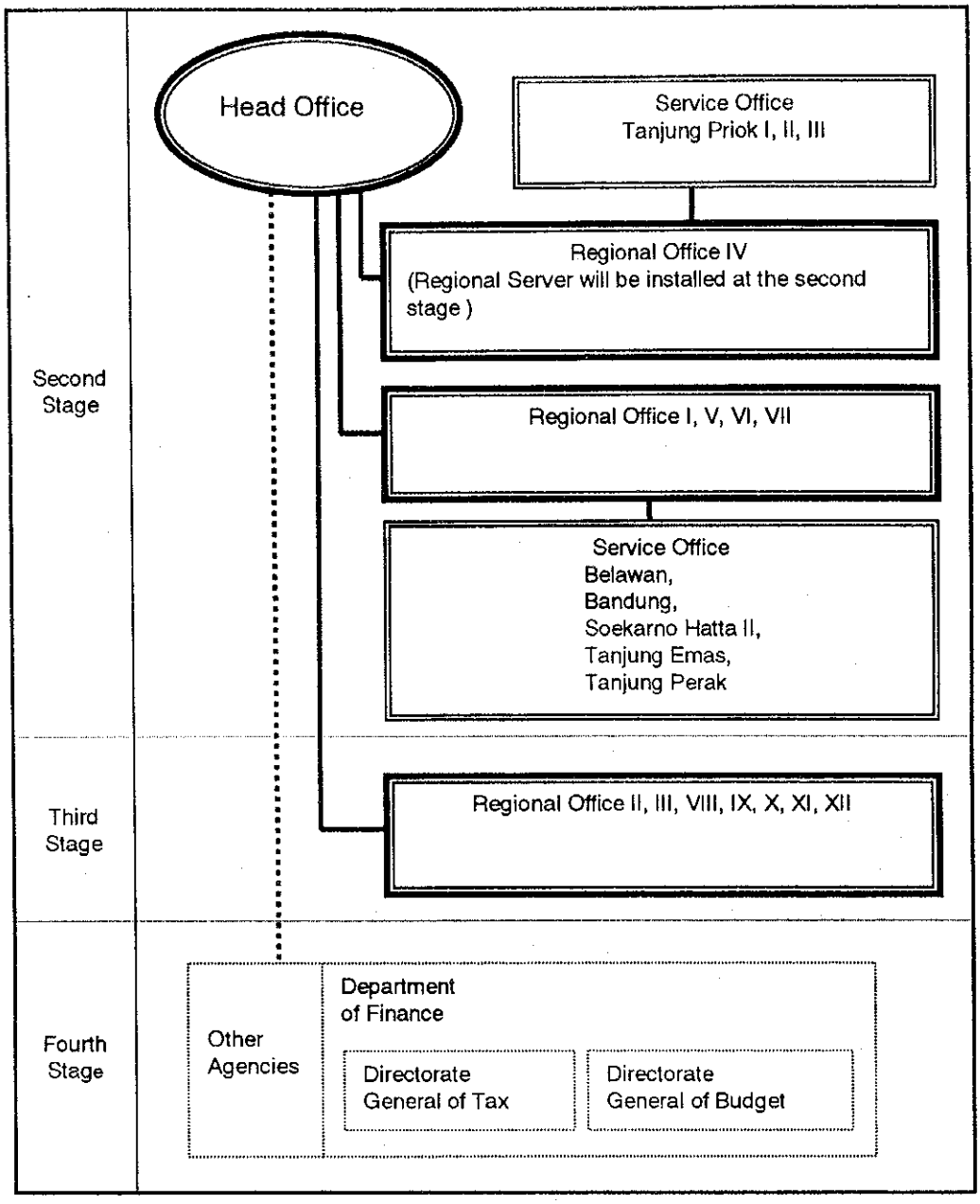
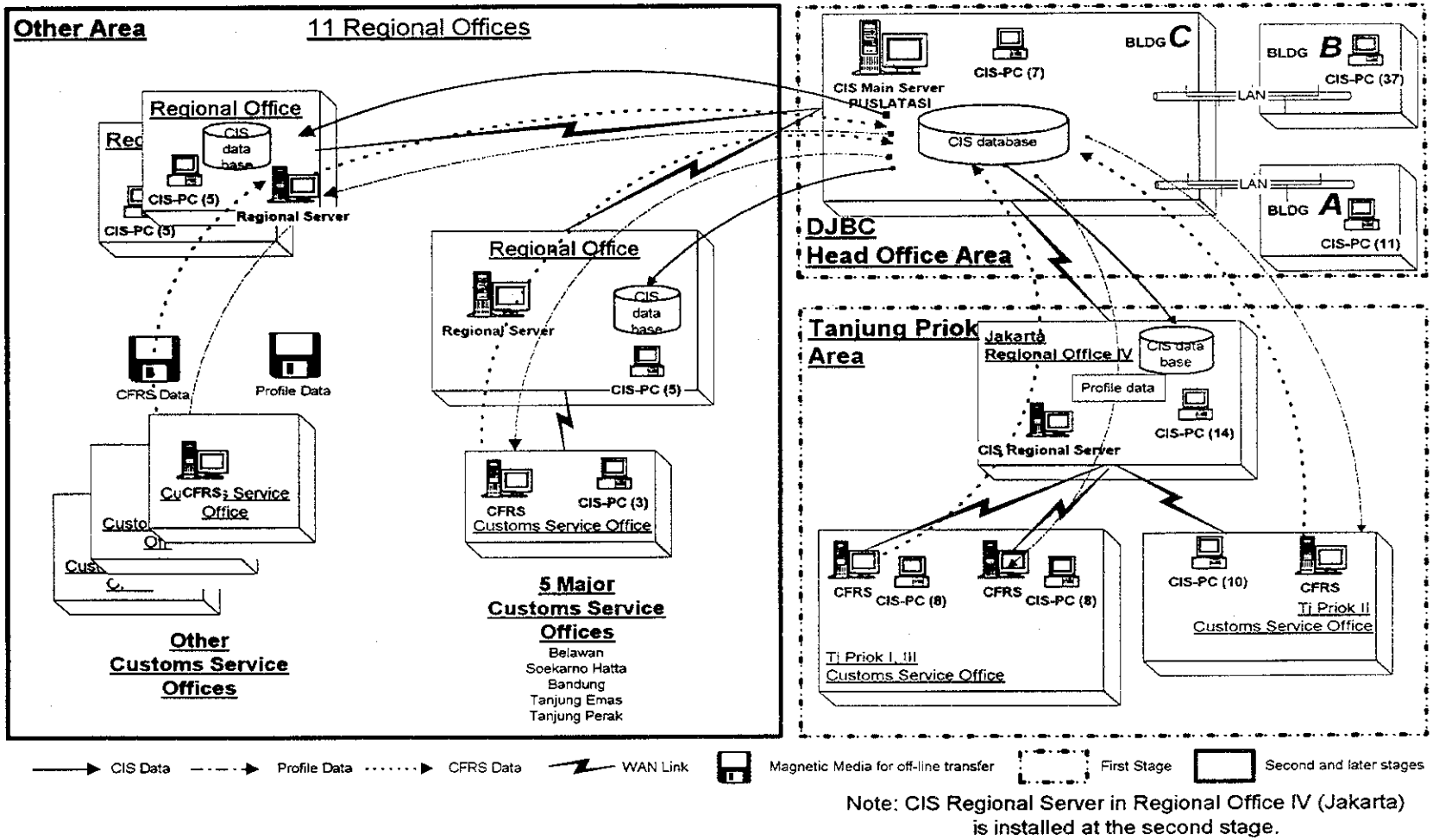


Figure 2.3.1.1-4:The offices connecting process (Second Stage and after)



Note: CIS Regional Server in Regional Office IV (Jakarta) is installed at the second stage.

Figure 2.3.1.1-5: System Outline of CIS at the second stage and later stages

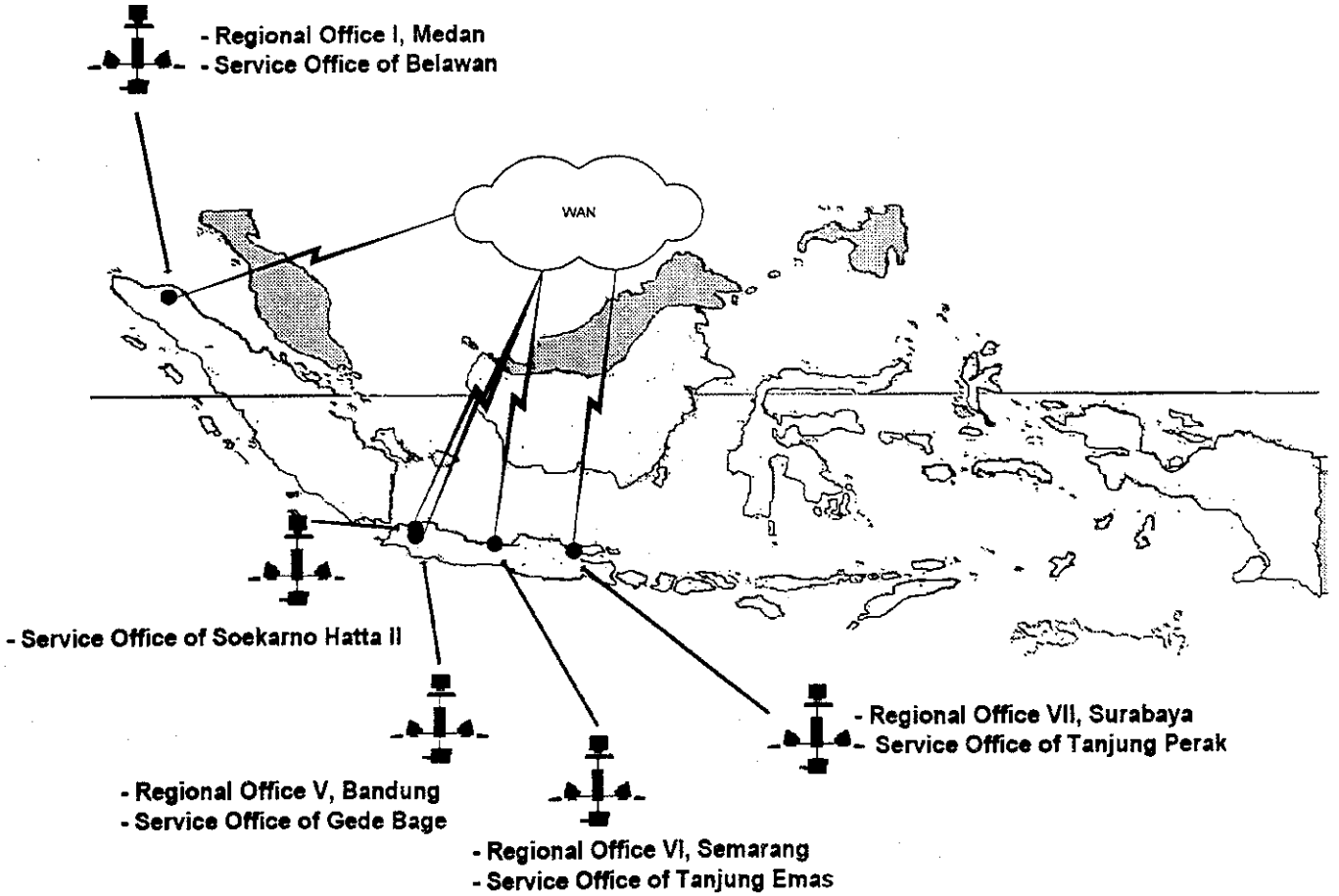


Figure 2.3.1.1-6: Outline of system configuration at the second stage

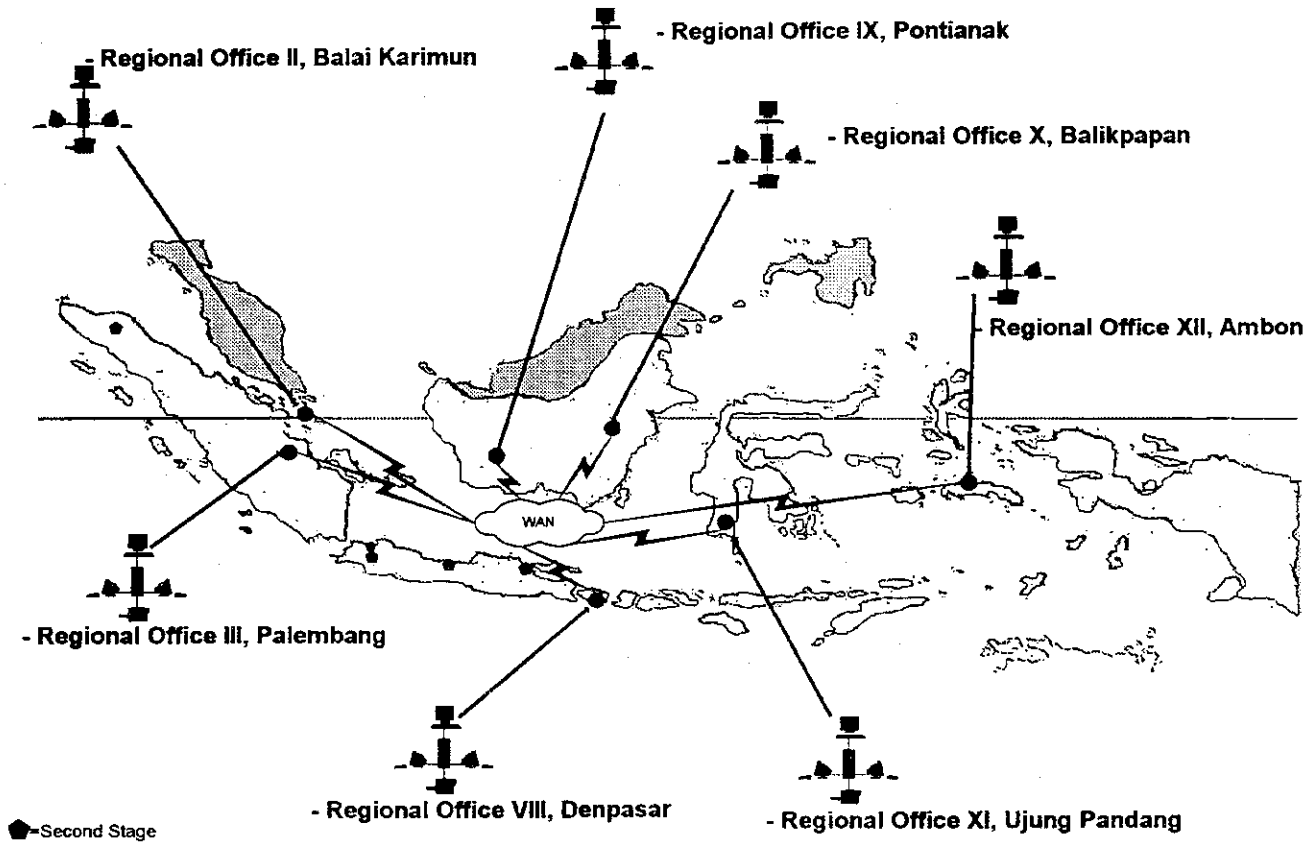


Figure 2.3.1.1-7: Outline of system configuration at the third stage

2.3.2. Concept of system architecture

CIS will be a huge system that connects all Regional Offices and 8 major Service Offices all over Indonesia in order to enable these offices to exchange information at the final stage. CIS should be protected by reliable security system to store highly confidential customs information. CIS has to able to make the current Customs business process faster and more efficient.

Here is the concept of CIS configuration, considering above-mentioned condition:

- Network connection among offices by high-speed and reliable line.
- The system operates 24 hours a day and 7 days a week in Head Office. CIS is available to the end-users only during the working hours.
- Open system (Unix, Oracle, Network, and so on)
- Highly reliable system.
- User friendly system operation (Graphic User Interface).
- Remote maintenance and monitoring.
- Closed and secure information system.
- Database constructed on standard products in the industry.
- Connected to CFRS (CSS) network.

Considering the reliability, scalability, security, and performance factors of CIS, the JICA Study Team proposes the following design directions:

- To realize the connection by high-speed and reliable line among offices, digital line provided by ISDN or Leased Line facility is recommended in the first stage.
- To realize the Open System in CIS, standard Unix operating system, standard relational database Oracle and standard network protocol TCP/IP are introduced. Those key technologies are integrated and realized on the Client Server model.
- To ensure that CIS will be highly reliable system, the use of dual-system server for Main Server at Head Office is recommended.
- To make CIS application a user-friendly system, the application must be built to provide users with Graphical User Interface.
- To secure CIS, the system will implement password to control access and grant users different sets of privileges based on their designations.
- To make system maintenance easy, it is highly recommended to use tools that provide some functions, such as job scheduling, resource-distributing, and system monitoring.

Considering the above concepts and design direction, the JICA Study Team has designed the system architecture as follows:

- Reliability design

  To realize the highly reliable system in CIS, main equipment should consist of dual components. In this design, dual computer system for the CIS Main Server, Disk array for each server machine and UPS (Uninterruptible Power Source) for each computer are considered. In addition, backup line for WAN between Tanjung Priok area and Head Office is also considered.

- Security design

  Security design is one of the important factors to secure the CIS information and business operation. The control of access to the CIS application and database is designed in this report. For example, the configuration of ID and password is defined for end-user. Basic security functions in operating system are also considered in this design.

- Performance design

  CIS operation transactions in the first stage, such as transaction of PIB monitor function, PEB monitor function, are estimated. The number of transactions is based on the survey and consideration of the rate of increase. The WAN speed is calculated; 256Kbps, 128Kbps and 64Kbps, based on the certain assumptions. In addition, the performance checkpoints to be considered in the programming phase, are described in this report.

- Operation design

  To operate CIS, well-established organization in DJBC will be needed. Since DJBC is still considering operation hours and organization, the JICA Study Team has proposed organization and operation hours, i.e. three shifts by four operation teams. These matters should be re-considered by DJBC in the future. Also, in this report, operational tools are introduced to save the man power in CIS operation, such as system monitoring function, resources distribution function and job management function.

- Expandability design

  This part explains the capacity of disk and memory of CIS Main Server and personal computers as well as their expandability. For example, initial disk capacity of CIS Main Server is expected to store CIS data for 5 years. In addition, it is possible for Main Server to expand the size of disk in future, if necessary. These results are reflected in the facility design.

- Network design

  In this report, network configurations are designed, especially LAN in the Head Office area and Tanjung Priok area. In addition, the network configurations of WAN to connect each office are also described. However, network quality is unstable and leased line or ISDN is not provided outside of major cities in Indonesia. Only satellite communication can cover all requested locations in current situation. The JICA Study Team strongly recommends that DJBC check and investigate the network services again before installing the network for CIS.

- Facility design

  In this report, CIS Main Server, CIS terminals, network equipment and sets of basic software packages for each machine are expected to be selected for the first stage. In the second and third stage, requirements of facility are described. Machine configuration depends on the vendor products. The JICA Study Team would like to recommend that DJBC check the results of this research and request vendors the latest products including the latest technology, when DJBC chooses the certain vendors.

- Common processing means

  Common processing means explain the guidelines to implement CIS application, such as Online processes, Batch processes, Printing processes, Sending/receiving e-mail and Intersystem connection.

For detailed information, refer to chapter 3 in Volume II.