CHAPTER 4 Project Implementation plan

4.1 Developing process and schedule

This section briefly explains processes and schedule to develop CSS.

4.1.1 Processes of developing CSS

Development processes are divided into 10 processes as follows.

Table 4.1.1-1: Development Process (1/2)

Category	Process	Definition
Investigation Phase	BI	Basic Investigation Phase The actives of the Basic Investigation Phase focus on the business aspects and two major areas of the project. One is the overall corporate environment and the second is the planning of the project
Design Phase	BD	Basic Design Phase This phase focuses on the transformation of the business aspects into the computer world. The business area requirements are converted into system specifications that include the basic system function, data structure, security, etc.
	DD	Detail Design Phase Following guidelines in BD, System specifications are broken down into the more specific system processes and modules. As part of the design step, these processes are decomposed into individual programs that are designed in the next sub- phase.
Programming Phase	PD	Program Design Phase This phase focuses on the individual programs. The program structures are designed and the programs are broken down into individual modules.
	M	Making Phase The modules, which are the smallest component of the system are designed, coded and tested in this phase.
Testing Phase	SI	System Integration Phase During the System Integration phase, the programs validated in the previous phase are integrated into processes. Each is tested and verified against the specifications defined in the Detail Design phase.
	PT	Product Test Phase The processes, which were validated in the System Integration phase, are integrated into the complete system and tested in this phase. The tests validate the functionality, performance, reliability, and operability of the developed system.
	RT	Running Test Phase This test phase is implemented by the end user to certify all the aspects of the developed system.

Table 4.1.1-1: Development Process (2/2)

Category	Process	Definition
Operating Test Phase	OP	Operation Phase This phase support user in implementing the system and business operation.
Maintenance Phase	MA	Maintenance Phase In this phase, the system is continually monitored and modified to eliminate bugs and to maintain the system validity. The business trends are also monitored to ensure that the system is always up to date.

4.1.2 Stages of developing CSS

The JICA Study Team proposes would like to propose two stages to develop and expand CSS. The first stage is CSS development stage and the next stage is CSS expansion stage. Two stages of the CSS development and expansion are scheduled as follows.

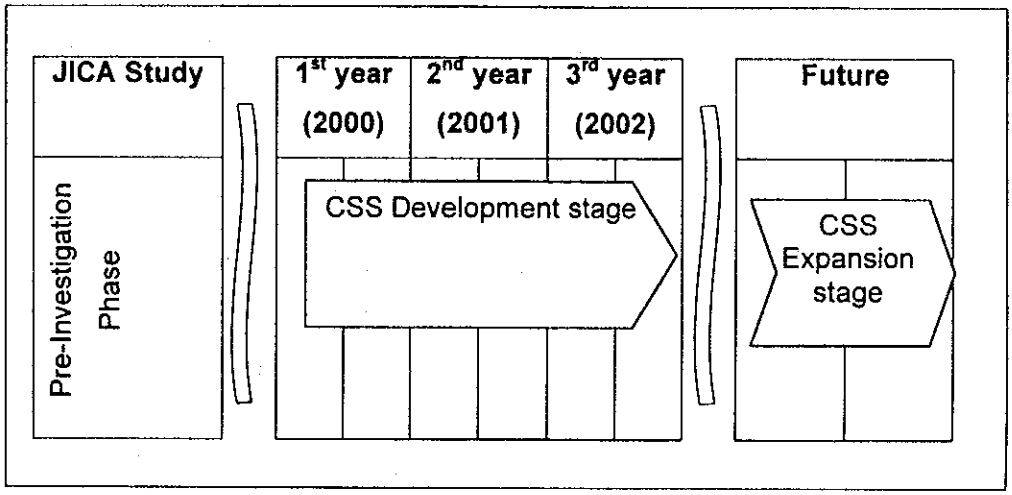

Figure 4.1.2-1 Stages in developing CSS

- CSS Development stage : For approximately 35 months.

  The functions in CSS application program will be developed at this stage. Approximately 35 months will be necessary to develop (designing, making) and to test CSS application programs and also to provide users with some training on CSS. The servers and its terminals are installed at the Inspection Office in Tanjung Priok I to III and Soekarno-Hatta I and II.

- CSS Expansion stage

  After the survey in the cost and benefit of CSS, expansion of CSS to rest Inspection Offices should be considered in the future. The JICA Study Team, therefor, did not estimate the cost of expansion. The application programs are developed in the development stage.

In order to confirm the detailed schedule, we need further study in the Basic Investigation phase. Each stage is described in more detail as follows.

- CSS development stage

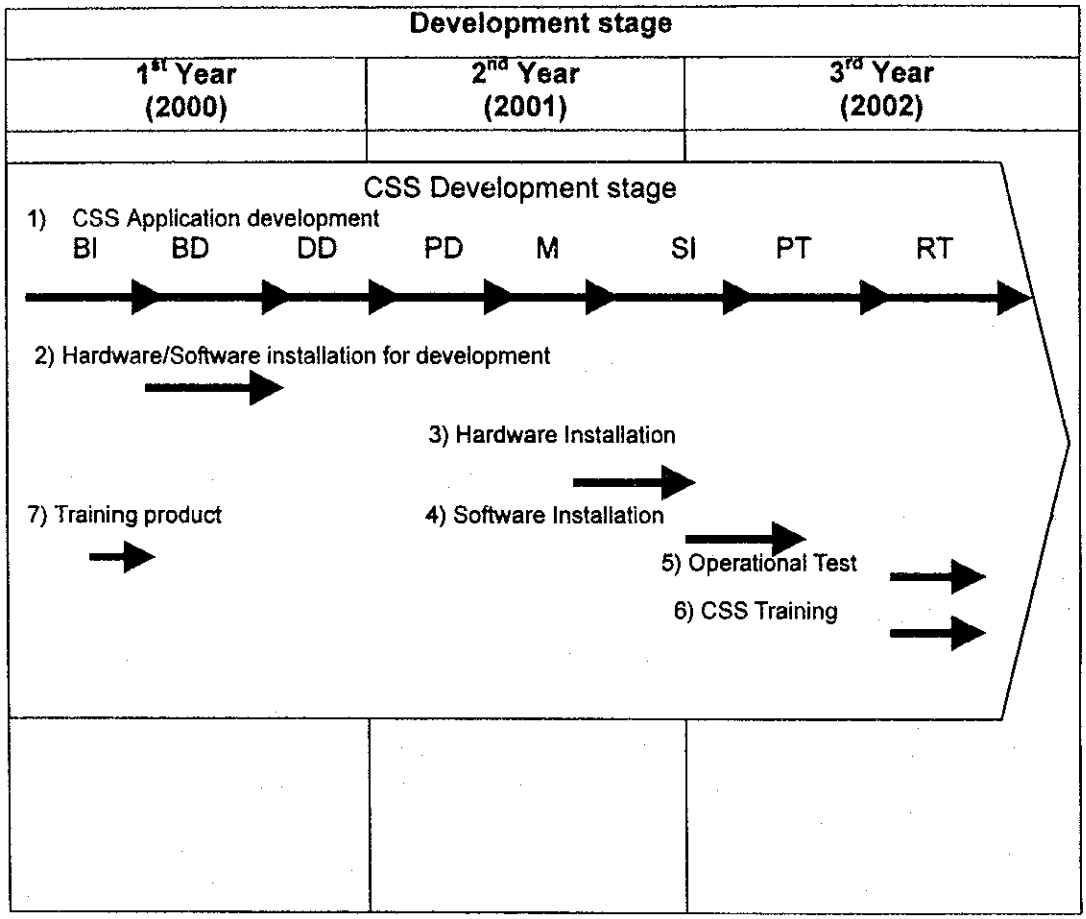

Figure 4.1.2-2 Development Stage

This stage is divided into 7 major Categories to develop CSS.

1) CSS Application development

The application program of CSS will be developed in this stage. The JICA Study Team calculated that approximately 35 months are necessary to finish CSS software development.

2) Hardware/Software installation for development

Preparing the server and PC for development of CSS application is required at the beginning of the making phase. Before installing the target machine, the application programs have to be tested by running on the test machine, in order to calculate required memory size, disk size and CPU range. CSS application program development will continue in further, and we can not use the target machine for development, therefore development server and PCs are needed from this phase. The server machine for development process will be smaller in size than the target machine. Package software, OS, Database Management Software (DBMS) and

development tool on the development environment must be compatible to the target machine environment.

3) Hardware Installation

About 3 months will be needed to install hardware to the Inspection Offices. This process includes installation of five main servers, approximately 250 personal computers, network equipment, network cabling work, and WAN line installation. In this stage, CSS will be installed at 5 places, the Inspection office I to III at Tanjung Priok and the Inspection office I and II at Soekarno Hatta.

4) Software installation

About 3 months will be needed to install package product software and CSS application program in the target machine. This process includes the installation of OS, Database Management Software (DBMS), other management software, and CSS application program in the main server and the installation of OS, CSS application software in approximately 250 personal computers.

5) Operation test phase

About 1.5 months will be needed to implement the Operation test phase. Users who are involved in the development of CSS will be the main testers in the operation test; therefore, we need to involve officers from the Inspection Offices during the development phase.

6) CSS Training

The 2 or 3 days of CSS tutorial course have to be held for end-users. In this stage, All of the Customs officer who would use CSS shall be trained and understand how to use CSS.

7) Product training

This training is required for development team to understand the development tool that will be used in development phases. It will finish in one month and may also include programming language training.

4.2 Organization of Development

4.2.1 Organization of Development

The JICA Study Team would like to suggest the organization of CSS development in this section. The JICA Study Team would like to recommend establishing organization as follows.

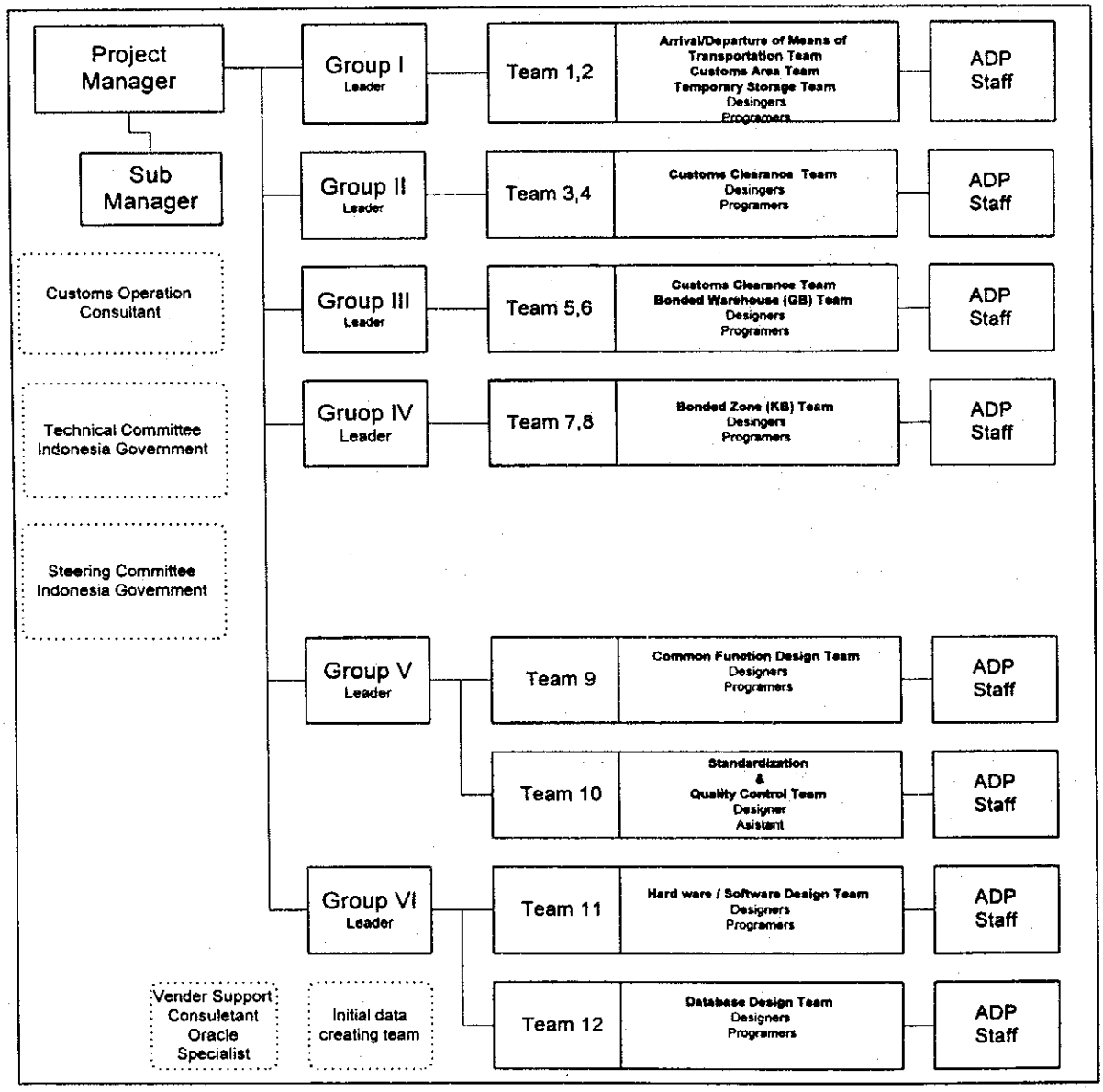

Figure 4.2.1-1 Organization of CSS development

Organization consist of following members.

- Steering committee:

  DJBC has to organize the Steering committee to authorize CSS specification and direction of CSS development project

- Technical committee :

  DJBC has to organize the Technical committee to authorize CSS specification and technical matters in CSS development.

- Project manager:

  Project manager should be an expert of system developing management. He/She conducts the CSS project with experiences of managing the large scale system development projects.

- Group leader :

  Group leader has to have experiences of developing computer system and should have the knowledge of the methodology on how to develop the tailor made computer application systems. And also he/she will be able to manage and conduct the process control of development in each team.

- Customs Operation consultant :

  Expert of Customs-Excise operation, especially knowledge of Customs Clearance and EDI, will be required for development of CSS.

- Vendor support consultant :

  In CSS development project, specific tool products, Oracle, Oracle/developer 2000, PL/SQL would be used by user requirements. Though system engineers and programmers will be trained before starting project, They are not experts of Oracle products. Therefore Oracle specialist will be required when tuning oracle DBMS, dealing with trouble shooting, and resolving technical problems.

  If any specific products are used in this project, products specialist will be required at the beginning.

Development staffs are involved in the following three groups.

- Group I : Developing CSS application programs group.
  - Developing Team 1 :

    in charge of developing application programs
  - Developing Team 2 :

    in charge of developing application programs

- Group II : Developing CSS application programs group
  - Developing Team 3 :

    in charge of developing application programs
  - Developing Team 4 :

    in charge of developing application programs
- Group III : Developing CSS application programs group
  - Developing Team 5 :

    in charge of developing application programs
  - Developing Team 6 :

    in charge of developing application programs
- Group IV : Developing CSS application programs group
  - Developing Team 7 :

    in charge of developing application programs
  - Developing Team 8 :

    in charge of developing application programs
- Group V :Technical supporting group
  - Technical support Team 9 :

    In charge of designing common function, e.g. printing function, ID check function.
  - Technical support Team 10 :

    In charge of Standardization & Quality Control that is based on ISO9000.
- Group VI :Technical supporting group
  - Technical support Team 11 :

    In charge of designing Hardware & Software configuration, system tuning, and so on.

    In charge of development environment administrator
  - Technical support Team 12 :

    in charge of database design ,investigating Oracle products, Database tuning, etc.
- ADP staffs should be involved in CSS development team to transfer information technologies.
- Initial data creating team will have to be held each stage.

4.2.2 Requirement Skill

The following skills are required for the development staff

- CSS Design Knowledge:
  - Business process flow (Group I - IV)
  - CSS Application structure (Group I - IV, Team 9/10)
  - E-R Diagram of CSS (Team 9/10)
- Oracle Knowledge:
  - PL/SQL Programming (Team 12)
  - Oracle RDBMS management (Team 9/12)
  - SQL Operation (ALL)
- Development language Knowledge :
  - Programming with 4GL (Group I - IV, Team 9/10)
  - Programming with 3GL (Team 9)
- Unix /Network/Hardware Knowledge :
  - Operating system based on Unix
  - Unix base server machine
  - Network equipment

Leadership skill should be needed to control, solve problems, make decisions and to be responsible for all activities for each Group/Team leader.

The JICA Study Team recommend some products for each skill.

Table 4.2.2-1: In skill and product

Skill	Products
ORACLE	ORACLE RDBMS (including PL/SQL, SQL)
4GL	ORACLE Developer/2000, Power Builder, Visual BASIC, Visual C++

Note: 4GL: 4th Generation Language; This is a programming language that has a graphical user interface.

4.3 The Cost Estimation in Developing CSS

The JICA Study Team estimated the total cost of CSS development on the basic of basic investigation . This estimation is rough because the detail specification of the system has not been clear. There might be some changes after design phase of system.

The total estimated cost for development was 28.22 US Dollar. The estimation result summary is as follows. Table 2.4.2-1 shows the summary of CSS cost estimation.

Table 4.3-1: Summary of the cost estimation

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	—

Preconditions are as follows.

- This estimation is based on
  - The prices in Indonesian as of November 1998
  - The local procurements
- This estimation includes
  - The physical contingency (10%)
  - VAT (10%)
  - The maintenance cost (hardware 10%, package software 15%)
  - The cost of over work (10%)
- This estimation dose not include
  - The price contingency
  - The rate of interest
  - The consumer goods (ink, paper, and so on.)
  - The maintenance (specification changes) cost of the tailor made software
  - The cost of expansion to other Inspection Office

Table 4.3-2: CSS cost estimation

Items		Development stage				After 1st stage (every year)
		Design stage		Test stage	Development total	
		FY2000	FY2001	FY2001		
1	Development cost					
	1-1 Hardware	$ 628,050	—	$ 6,471,325	$ 7,099,375	—
	1-2 Package software	$ 912,242	$ 469,943	$ 1,260,295	$ 2,642,480	—
	1-3 Telecom	—	—	$ 6,726	$ 6,726	—
	1-4 Tailor made software	$ 4,037,220	$ 4,037,220	$ 4,037,220	$ 12,111,660	—
	1-5 Contingency(10%)	—	-	$ 404,850	$ 404,850	—
	1-6 VAT(10%	$ 557,751	$ 450,716	$ 1,218,042	$ 2,226,509	—
	Total	$ 6,748,790	$ 5,453,667	$ 14,738,303	$ 26,940,760	—
2	Maintenance cost					
	2-1 Hardware	—	$ 62,805	$ 62,805	$ 125,610	$ 709,938
	2-2 Package software	$ 136,836	$ 207,328	$ 396,372	$ 740,536	$ 396,372
	2-2 Package software	—	—	$ 255,089	$ 255,089	$ 192,758
	2-2 Package software	—	—	—	—	—
	2-5 Contingency(10%)	$ 13,684	$ 27,013	$ 65,196	$ 105,893	$ 129,909
	2-6 VAT(10%)	$ 15,052	$ 29,715	$ 71,716	$ 116,483	$ 142,900
	Total	$ 165,572	$ 326,861	$ 788,874	$ 1,281,307	$ 1,571,904
Grand Total		$ 6,914,362	$ 5,780,528	$ 15,527,177	$ 28,222,067	$ 1,571,904

Note:
- Currency : US dollar
- The estimation is base on
  - Local procurement
  - The prices in Indonesia as of November, 1998.
- This estimation includes
  - Contingency(10%) : Physical contingency only. (exclude price contingency)
  - VAT(10%) : Value Added Tax
  - Maintenance cost : Hardware;10%, PKG.software;15%.
- This estimation does not indulged
  - The cost consumable goods(ink, paper, and so on)
  - The maintenance cost of tailor made software.

4.3.1 The Cost of Tailor Made Application Software

The JICA Study Team roughly estimates the cost of developing tailor made application software of CSS.

This is a rough estimation, because detail specification of the function to be computerized is not clear in this basic investigation stage. There might be some alteration after design stage.

The estimation method the JICA Study Team used in this report is as follows. This is a one of the popular method to estimate the scale of application program, the man-month and the cost.

1) Estimation of the scale of tailor made application software based on the specification.(Sub-Subsection 4.3.1.1)
2) Estimation of the man-month to develop application software based on the scale.(Sub-Subsection 4.3.1.2)
3) Estimation of the cost based on the man-month.(Sub-Subsection 4.3.1.3)

4.3.1.1 Estimation of the scale

There are many ways to estimate the scale of program. The function point and the steps of program are popular measurements. To estimate the cost of software development, the data accumulation, such as the scale of program, the man-month, and the period is very important.

The JICA Study Team estimated the function points (FP) and the program steps (Kilo steps, Ks; converted COBOL program step) based on specification of each job. The JICA Study Team used Kilo steps as a ground of estimation, because the team has an experience of estimation using Kilo steps for CSS in Japan.

The list of jobs includes all jobs to be computerized, but following two types of jobs are excluded from the estimation of the scale.

- The function is the same as another job.
  the scale is 0

- The job has low transaction.
  the scale is estimated based on the specification, but it is excluded from the estimation of cost, in accordance with the consultation with DJBC.

Based on above-mentioned idea, the JICA Study Team calculated the scale of CSS. Table 4.3.1.1-1 shows the function points and program steps. The total scale of CSS is as follows.

Total scale of CSS = 11,360FP, 1136ks (exclude low transaction jobs)

Table 4.3.1.1-1: Estimated Scale of CSS Process (1/13)

No.	Job Group / Job	Data	Description	Remarks	Estimation of Scale	
					[FP]	[KStep] (COBOL)
A/D	Arrival / Departure of Means of Transport					
A/D-01	Arrival Plan of Means of Transport	BC1.0 (Notification of Arrival Plan of Means of Transport)	Carrier shall submit "the Arrival Plan of Means of Transport" if the means of transport arrives irregularly.	—	150	15
A/D-02	Schedule of the Arrival Plan of Means of Transport	Schedule of Arrival Plan of Means of Transport	Carrier shall submit "the Schedule of Arrival Plan of Means of Transport" if the means of transport arrives regularly.	—	150	15
A/D-03	Notification on Arrival of Imported Goods (General Declaration)	BC 1.1 (M/F)	Carrier shall submit "the Notification of Arrival of Import Goods" when the means of transport arrives.	—	800	80
A/D-04	Transshipment	BC 1.2	Carrier shall declare the goods which shall transit or be transshipped whether their destination is other domestic port or foreign port.	—	300	30
A/D-05	Departure	BC1.1 (M/F) (Declaration on the Departure of Means of Transport)	Carrier shall submit the outward manifest after the departure of the means of transport.	—	500	50
A/D-5X	Arrival / Departure Batch Jobs					
A/D-51	Daily report of processed document, value, quantity	—	Daily report of processed document, value and quantity of incoming/outgoing goods, number of means of transport	—	50	5
A/D-52	Monthly report of processed document, value, quantity	—	Monthly report of processed document, value and quantity of incoming/outgoing goods, number of means of transport	—	50	5
A/D-53	Dump Manifest data (daily)	—	Dump Manifest data on to magnetic media	—	20	2
PRT	Customs Area					
PRT-01	Discharge	—	Port Authority shall notify the discharged goods.		100	10

Table 4.3.1.1-1: Estimated Scale of CSS Process (2/13)

No.	Job Group / Job	Data	Description	Remarks	Estimation of Scale	
					[FP]	[KStep] (COBOL)
PRT-04	Loading	—	—	Included in Export Procedure	—	—
PRT-51	Daily report of inventory	—	Daily report of inventory	—	50	5
PRT-52	Daily report of document, value, quantity	—	Daily report of processed document, value and quantity of in-coming/out-going goods	—	50	5
PRT-53	Monthly report of document, value, quantity	—	Monthly report of processed document, value and quantity of in-coming/out-going goods	—	50	5
PRT-54	Check for the expiration of goods	—	Check the goods which have exceeded the expiration period.	—	50	5
TPS	Temporary Storage (TPS)					
TPS-01	Admission from Customs Area	SP2-I	Customs Transfer from Customs Area at port to depot	—	250	25
TPS-02	Devanning	—	Strip containers	—	150	15
TPS-51	Daily report of devanning	—	Daily report of devanned goods	—	50	5
TPS-52	Daily report of inventory	—	Daily report of inventory	—	50	5
TPS-53	Daily report of document, value,quantity	—	Daily report of processed document, value and quantity of incoming/outgoing goods	—	50	5
TPS-54	Monthly report of document, value, quantity	—	Monthly report of processed document, value and quantity of incoming/ outgoing goods	—	50	5
TPS-55	Check for the expiration of goods	—	Check the goods which exceed the expiration period.	—	50	5
CUS	Import Clearance					
CUS-01	Import Declaration (PIB)	BC 2.0 (PIB)	Import clearance for general goods, including temporary admission	—	900	90

Table 4.3.1.1-1: Estimated Scale of CSS Process (3/13)

No.	Job Group / Job	Data	Description	Remarks	Estimation of Scale	
					[FP]	[KStep] (COBOL)
CUS-02	Periodical PIB	BC 2.0 (PIB)	Importer can declare once in a certain period.	Not yet implemented	300	30
CUS-03	Simplified Import Declaration (PIBT)	BC 2.1 (PIBT)	Import clearance for certain goods which are subject to official assessment; Removal goods, Goods brought by passenger, Consigned goods, Sea and air transportation, others (DJBC)	—	300	30
CUS-04	Re-shipment	BC 3.1	Re-exportation of imported goods: mistakenly sent off; not in agreement with the order; subject to a change of regulations; other reasons	—	(0: same as CUS-21)	
CUS-2X	Export Clearance					
CUS-21	Export Declaration (PEB)	BC 3.0 (PEB)/BC 3.1 (PEBT), Consolidation Document (in case of LCL), CTPS, LPS-E (in case of the company uses reduction/exemption of tax handling)	Export clearance, including surveyor inspection and loading.	—	400	40
CUS-22	Periodical Lodgement of PEB(T)	BC 3.0 (PEB)	Exporter can declare once in a certain period. Exporter shall submit supporting documents at each export.	—	200	20
CUS-23	Export Procedure for BAPEKSTA facilities	PPBE	—	—	100	10
CUS-24	Export Procedure for determined goods	BC 3.0 (PEB)	—	—	100	10

Table 4.3.1.1-1: Estimated Scale of CSS Process (4/13)

No.	Job Group / Job	Data	Description	Remarks	Estimation of Scale	
					[FP]	[KStep] (COBOL)
CUS-5X	Batch Jobs for Import Clearance					
CUS-51	Daily report for Hanggar	—	Daily report	—	50	5
CUS-52	Daily Report from Hanggar to Inspection Office (KaKIBC)	—	Daily report from Hanggar to Inspection Office	—	50	5
CUS-53	Monthly report from Inspection Office to Regional Office	—	Monthly report from Inspection Office to Regional Office	—	50	5
CUS-54	Monthly report from Inspection Office to Head Office	—	Monthly report from Inspection Office to Head Office	—	50	5
CUS-55	Quarterly Report of processed documents, values, quantities	—	Quarterly report of processed documents, values and quantity of import goods	—	50	5
CUS-56	Semiannual Report of processed documents, values, quantities	—	Semiannual report of processed documents, values and quantity of import goods	—	(0: same as CUS-55)	
CUS-57	Annual Report of processed documents, values, quantities	—	Annual report of processed documents, values and quantity of import goods	—	(0: same as CUS-55)	
CUS-58	Monthly statistic report to Bank Indonesia	—	Monthly statistic report for Bank Indonesia	—	50	5
CUS-59	Monthly statistic report to Central Statistic Bureau (BPS)	—	Monthly statistic report for Central Statistic Bureau (BPS)	—	50	5
CUS-60	Dump PIB Data (daily)	—	Dump PIB data to magnetic media (simply output all the PIB data)	—	20	2
CUS-61	Update Import Profile	—	Update Importer Profiles from magnetic media (magnetic media should be prepared otherwise)	—	110	11
CUS-62	Update Commodity Profile	—	Update Commodity Profiles from magnetic media (magnetic media should be prepared otherwise.)	—	80	8
CUS-63	Update other Profiles	—	Update Other Profiles interactively	—	100	10

Table 4.3.1.1-1: Estimated Scale of CSS Process (5/13)

No.	Job Group / Job	Data	Description	Remarks	Estimation of Scale	
					[FP]	[KStep] (COBOL)
CUS-7X	Batch Jobs for Export Clearance					
CUS-71	Daily Report for each Hanggar	—	Daily report	—	50	5
CUS-72	Daily Report from Hanggar to Inspection Office (KaKIBC)	—	Daily report from Hanggar to Inspection Office	—	50	5
CUS-73	Monthly Report from Inspection Office (KIBC) to Regional Office	—	Monthly report from Inspection Office to Regional Office	—	50	5
CUS-74	Monthly report from Inspection Office to Head Office	—	Monthly report from Inspection Office to Head Office	—	50	5
CUS-75	Quarterly Report of processed documents, values, quantities	—	Quarterly report of processed documents, values and quantity of export goods	—	50	5
CUS-76	Semiannual Report of processed documents, values, quantities	—	Semiannual report of processed documents, values and quantity of export goods	—	(0: same as CUS-75)	
CUS-77	Annual Report of processed documents, values, quantities	—	Annual report of processed documents, values and quantities of export goods	—	(0: same as CUS-75)	
CUS-78	Monthly statistic report to Bank Indonesia	—	Monthly statistic report for Bank Indonesia	—	50	5
CUS-79	Monthly statistic report to Central Statistic Bureau (BPS)	—	Monthly statistic report for Central Statistic Bureau (BPS)	—	50	5
CUS-80	Monthly report to BAPEKSTA	—	Monthly report of export goods for BAPEKSTA	—	50	5
CUS-81	Dump PEB Data (daily)	—	Dump PEB data to magnetic media. (Simply output all the PEB data)	—	20	2
CUS-82	Update Exporter Profile	—	Update Exporter Profiles from magnetic media (magnetic media should be prepared otherwise.)	—	110	11
CUS-83	Update other Profiles	—	Update Other Profiles interactively	—	100	10

Table 4.3.1.1-1: Estimated Scale of CSS Process (6/13)

No.	Job Group / Job	Data	Description	Remarks	Estimation of Scale	
					[FP]	[KStep] (COBOL)
KB	Bonded Zone (KB)					
KB-01	In-coming procedure of Import Goods from Temporary Storage (TPS) to Bonded Zone (KB)	BC 2.3, supplemenatary documents	Bonded Transport from Temporary Storage (TPS) to Bonded Zone (KB)	—	400	40
KB-02	In-coming procedure from one Bonded Zone (KB) to another Bonded Zone (KB)	BC 2.3	Bonded Transport between Bonded Zones (KB)	—	(0: same as KB-1)	
KB-03	In-coming procedure from Bonded Warehouse (GB) to Bonded Zone (KB)	BC 2.3	Bonded Transport from Bonded Warehouse (GB) to Bonded Zone (KB)	—	(0: same as KB-1)	
KB-04	Import of Products (Out-going procedure from Bonded Zone (KB) to Domestic (DPIL))	BC 2.0, attached document (B/L or AWB, I/V, P/L)	Import at Bonded Zone (KB), same as ordinary import at Inspection Office.	—	500	50
KB-05	Re-export (of material / capital goods)	BC 2.3, BC 3.1 (PEBT), prior BC 2.3	Re-export of import goods. Almost the same as ordinary re-export at Inspection Office, except for requirements for Bonded Transport.	—	450	45
KB-06	Export (of Products)	BC2.3, BC 3.0/3.1, attached document	Export is almost the same as ordinary export at Inspection Office, except for requirement for Bonded Transport.	—	600	60
KB-07	Out-going procedure from Management (PDKB) to another Management (PDKB) within one Bonded Zone (KB)	BC 2.3	Bonded Transport between Entrepreneures. Currently, no KB has two or more Customs Offices, but, in juri, there might be many Customs Offices.	—	(0: same as KB-1)	
KB-08	In-coming procedure from BAPEKSTA user to Bonded Zone (KB)	BC 4.0	Entry from domestic to Bonded Zone (KB). The goods are treated as exported as for the BAPEKSTA facilitation.	—	400	40

Table 4.3.1.1-1: Estimated Scale of CSS Process (7/13)

No.	Job Group / Job	Data	Description	Remarks	Estimation of Scale	
					[FP]	[KStep] (COBOL)
KB-09	In-coming procedure from Entrepot for Exhibition Purpose (ETP) to Bonded Zone (KB)	BC 2.3	Bonded Transport from Entrepot for Exhibition Purpose (ETP) to Bonded Zone (KB)	(Low Transaction)	500	50
KB-10	Out-going procedure from one Bonded Zone (KB) to another Bonded Zone (KB) as its Subcontractor	BC 2.3	Bonded Transport from Bonded Zone (KB) to Bonded Zone (KB) for subcontracting	—	200	20
KB-11	In-coming procedure from Bonded Zone (KB) as a Subcontractor to original Bonded Zone (KB)	BC 2.3	Bonded Transport from Bonded Zone (KB) to Bonded Zone (KB) from subcontracting	—	300	30
KB-12	Out-going procedure from Bonded Zone (KB) to Domestic Subcontractor	BC 2.3	Temporary admission for subcontracting. Some security is necessary.	—	300	30
KB-13	In-coming procedure from Domestic Subcontractor to Bonded Zone (KB)	BC 2.3	Re-entry to Bonded Zone (KB) after subcontracting. Some check of conversion rate is necessary. The security is handled.	—	400	40
KB-14	Temporary export for repairing	BC 2.3, BC 3.1 (PEBT)	Temporary exportation for repairing. Almost all the same with ordinary temporary exportation except for requirements for Bonded Transportation	(Low Transaction)	500	50
KB-15	Re-import after repairing	BC 2.3, prior BC 2.3	Re-importation after repairing. Almost all the same with ordinary Bonded Transport from Temporary Storage (TPS) except for some documents related to prior exportation.	(Low Transaction)	500	50
KB-16	Temporary Admission for Repairing	BC 2.3	Temporary admission for repairing. Some security is necessary.	(Low Transaction)	500	50
KB-17	In-coming from domestic (DPIL) after Repairing	BC 2.3, prior BC 2.3	Re-entry to Bonded Zone (KB) after repairing. The security is handled.	(Low Transaction)	500	50

Table 4.3.1.1-1: Estimated Scale of CSS Process (8/13)

No.	Job Group / Job	Data	Description	Remarks	Estimation of Scale	
					[FP]	[KStep] (COBOL)
KB-18	Out-going procedure from Bonded Zone (KB) to Entrepot for Exhibition Purpose (ETP)	BC 2.3	Bonded Transport from Bonded Zone (KB) to Entrepot for Exhibition Purpose (ETP)	(Low Transaction)	400	40
KB-19	In-coming procedure from Domestic (DPIL) to Bonded Zone (KB)	BC 4.0, supplementary documents	Entry from domestic to Bonded Zone (KB).	—	200	20
KB-5X	Batch Jobs of Bonded Zone (KB)					
KB-51	Check for the expiration of temporary exportation for repairing	—	Check the goods which have exceeded the expiration period for temporary exportation for repairing.	(Low Transaction)	50	5
KB-52	Check for the expiration of temporary admission for reparing	—	Check the goods which have exceeded the expiration period for temporary admission for repairing.	(Low Transaction)	50	5
KB-53	Check for the expiration of subcontraction in Bonded Zone (KB)	—	Check the goods have exceeded the expiration period for subcontracting in Bonded Zone	—	50	5
KB-54	Check for the expiration of subcontraction in other Bonded Zone (KB)	—	Check the goods have exceeded the expiration period for subcontracting in Bonded Zone	—	50	5
KB-55	Check for the expiration of subcontraction in Domestic (DPIL)	—	Check the goods have exceeded the expiration period for subcontracting in domestic.	—	50	5
KB-56	Monthly Inventry Report of Raw material in Bonded Zone (KB)	—	Monthly inventory report of raw material for reconciliation with that from PKB	—	50	5
KB-57	Monthly Inventory Report of Work in progress in Bonded Zone (KB)	—	Monthly inventory report of work in progress for reconciliation with that from PKB	—	50	5
KB-58	Monthly Inventry Report of Product in Bonded Zone (KB)	—	Monthly inventory report of finished product for reconciliation with that from PKB	—	50	5

Table 4.3.1.1-1: Estimated Scale of CSS Process (9/13)

No.	Job Group / Job	Data	Description	Remarks	Estimation of Scale	
					[FP]	[KStep] (COBOL)
KB-59	Quarterly Inventry Report of Raw material in Bonded Zone (KB)	—	Quarterly inventory report of raw material for reconciliation with that of PKB	—	50	5
KB-60	Quarterly Inventory Report of Work in progress in Bonded Zone (KB)	—	Quarterly inventory report of work in progress for reconciliation with that of PKB	—	50	5
KB-61	Quarterly Inventry Report of Product in Bonded Zone (KB)	—	Quarterly inventory report of produce for reconciliation with that of PKB	—	50	5
KB-62	Monthly report of processed document, value, quantities	—	Monthly report of processed document, value and quantity of incoming/outgoing goods	—	50	5
KB-63	Quarterly Report of processed documents, values, quantities	—	Quarterly report of processed document, value and quantity of incoming/outgoing goods	—	50	5
KB-64	Semiannual Report of processed documents, values, quantities	—	Semiannual report of processed document, value and quantity of incoming/outgoing goods	—	(0: same as KB-63)	
KB-65	Annual Report of processed documents, values, quantities	—	Annual report of processed document, value and quantity of incoming/outgoing goods	—	(0: same as KB-63)	
KB-66	Monthly statistic report to Bank Indonesia	—	Monthly statistic report for Bank Indonesia	—	50	5
KB-67	Monthly statistic report to Central Statistic Bureau (BPS)	—	Monthly statistic report for Central Statistic Bureau (BPS)	—	50	5
KB-68	Monthly report to BAPEKSTA	—	Monthly report for BAPEKSTA about exported goods from each BAPEKSTA user	—	50	5

Table 4.3.1.1-1: Estimated Scale of CSS Process (10/13)

No.	Job Group / Job	Data	Description	Remarks	Estimation of Scale	
					[FP]	[KStep] (COBOL)
GB	Bonded Warehouse (Procedural job) (GB)					
GB-01	In-coming procedure from Temporary Storage (TPS) to Bonded Warehouse (GB)	BC 2.3	Bonded Transport from Temporary Storage (TPS) from Bonded Warehouse (GB)	—	(0: same as KB-01)	
GB-02	Out-going procedure from Bonded Warehouse (GB) to Domestic (DPIL) as import	BC2.0 (PIB), attached document	Import through Bonded Warehouse (GB). Same as ordinary import at Inspection Office.	—	(0: same as CUS-01)	
GB-03	Re-export	BC3.1 (PEBT), BC2.3 of Carry-in	Re-export of import goods. Almost the same as ordinary re-export at Inspection Office, except for requirement for Bonded Transport.	—	(0: same as KB-05)	
GB-04	Out-going procedure from Bonded Warehouse (GB) to Bonded Zone (KB)	Described in Bonded Zone (KB) part	Described in Bonded Zone (KB) part	—	—	
GB-5X	Batch Jobs of Bonded Warehouse (GB)					
GB-51	Monthly Inventory Report of Bonded Warehouse (GB)	—	Monthly inventory report of goods for reconciliation with that from PKB	—	50	5
GB-52	Quarterly Inventory Report of Bonded Warehouse (GB)	—	Quarterly inventory report of goods for reconciliation with that of PGB	—	50	5
GB-52	List of the goods which excessed certain limitation	—	Check the goods which exceed the expiration period.	—	50	5
GB-53	Monthly Report of processed documents, values, quantities	—	Monthly report of processed document, value and quantity of incoming/outgoing goods	—	50	5
GB-54	Quarterly Report of processed documents, values, quantities	—	Quarterly report of processed document, value and quantity of incoming/outgoing goods	—	50	5

Table 4.3.1.1-1: Estimated Scale of CSS Process (11/13)

No.	Job Group / Job	Data	Description	Remarks	Estimation of Scale	
					[FP]	[KStep] (COBOL)
GB-55	Semiannual Report of processed documents, values, quantities	—	Semiannual report of processed document, value and quantity of incoming/outgoing goods	—	(0: same as GB-54)	
GB-56	Annual Report of processed documents, values, quantities	—	Annual report of processed document, value and quantity of incoming/outgoing goods	—	(0: same as GB-54)	
GB-57	Monthly statistic report to Bank Indonesia	—	Monthly statistic report for Bank Indonesia	—	50	5
GB-58	Monthly statistic report to Central Statistic Bureau (BPS)	—	Monthly statistic report for Central Statistic Bureau (BPS)	—	50	5
ETP	Entrepot for Exhibition Purpose (ETP)					
ETP-01	In-coming procedure of Import Goods from Temporary Storage (TPS) to Entrepot for Exhibition Purpose (ETP)	BC2.3	Bonded Transport from Temporary Storage (TPS) from Bonded Warehouse (GB)	(Low Transaction)	(0: same as KB-01)	
ETP-02	Re-export after exhibition (Out-going procedure from Entrepot for Exhibition Purpose (ETP) to Temporary Storage (TPS))	BC 2.3, BC3.1 (PEBT), prior BC2.3	Re-export of import goods. Almost the same as ordinary re-export at Inspection Office, except for requirement for Bonded Transport.	(Low Transaction)	(0: same as KB-05)	
ETP-03	Import from Entrepot for Exhibition Purpose (ETP)	BC 2.0 (PIB), attached document	—	(Low Transaction)	400	40
ETP-04	In-coming procedure from Bonded Zone (KB) to Entrepot for Exhibition Purpose (ETP)	Described in Bonded Zone (KB) part				
ETP-05	Out-going procedure from Entrepot for Exhibition Purpose (ETP) to Bonded Zone (KB)	Described in Bonded Zone (KB) part				

Table 4.3.1.1-1: Estimated Scale of CSS Process (12/13)

No.	Job Group / Job	Data	Description	Remarks	Estimation of Scale	
					[FP]	[KStep] (COBOL)
ETP-5X	Batch Jobs for Entrepot for Exhibition Purpose (ETP)					
ETP-51	Monthly Inventory Report of Entrepot for Exhibition Purpose (ETP)	—	Monthly inventory report of goods	(Low Transaction)	50	5
ETP-52	Quarterly Inventory Report of Entrepot for Exhibition Purpose (ETP)	—	Quarterly inventory report of goods for reconciliation with that of PETP	(Low Transaction)	50	5
ETP-53	Check for the expiration of certain limitation for goods	—	Check the goods which exceed the expiration period.	(Low Transaction)	50	5
ETP-54	Monthly Report of processed documents, values, quantities	—	Monthly report of processed document, value and quantity of incoming/outgoing goods	(Low Transaction)	50	5
ETP-55.	Quarterly Report of processed documents, values, quantities	—	Quarterly report of processed document, value and quantity of incoming/outgoing goods	(Low Transaction)	50	5
ETP-56	Semiannual Report of processed documents, values, quantities	—	Semiannual report of processed document, value and quantity of incoming/outgoing goods	(Low Transaction)	(0: same as ETP-55)	
ETP-57	Annual Report of processed documents, values, quantities	—	Annual report of processed document, value and quantity of incoming/outgoing goods	(Low Transaction)	(0: same as ETP-55)	
ETP-58	Monthly statistic report to Bank Indonesia	—	Monthly statistic report for Bank Indonesia	(Low Transaction)	50	5
ETP-59	Monthly statistic report to Central Statistic Bureau (BPS)	—	Monthly statistic report for Central Statistic Bureau (BPS)	(Low Transaction)	50	5
TBB	Duty Free Shop (TBB)					
TBB-01	In-coming procedure from Temporary Storage (TPS) to Duty Free Shop (TBB)	BC2.3	Bonded Transport from Temporary Storage (TPS) from Duty Free Shop (TBB)	(Low Transaction)	(0: same as KB-01)	

Table 4.3.1.1-1: Estimated Scale of CSS Process (13/13)

No.	Job Group / Job	Data	Description	Remarks	Estimation of Scale	
					[FP]	[KStep] (COBOL)
TBB-02	In-coming procedure from Bonded Warehouse (GB) to Duty Free Shop (TBB)	BC2.3	Bonded Transport from Bonded Warehouse (GB) from Duty Free Shop (TBB)	(Low Transaction)	(0: same as KB-01)	
TBB-03	In-coming procedure from Duty Free Shop (TBB) to other TBB	BC2.3	Bonded Transport from Duty Free Shop (TBB) to another TBB	(Low Transaction)	(0: same as KB-01)	
TBB-04	Out-going procedure for re-export from Duty Free Shop (TBB) to Temporary Storage (TPS)	BC2.3	Bonded Transport from Duty Free Shop (TBB) to Temporary Storage (TPS)	(Low Transaction)	(0: same as KB-01)	
TBB-05	Out-going (selling) procedure from Duty Free Shop (down town TBB) for member of diplomatic corp and familes or passanger	Passport, Green/Yellow card, Boarding pass	Duty Free Shop shall periodically declare all of the goods sold.	(Low Transaction)	200	20
TBB-5X	Batch Jobs for Duty Free Shop (TBB)					
TBB-51	Monthly Inventory Report of Duty Free Shop	—	Monthly inventory report of goods	(Low Transaction)	50	5
TBB-52	Quarterly Inventory Report of Duty Free Shop	—	Quarterly inventry report of goods for reconciliation with that of PTBB	(Low Transaction)	50	5
TBB-53	Check for the expiration of certain limitation for goods	—	Check the goods which exceed the expiration period.	(Low Transaction)	50	5
TBB-54	Monthly Report of processed documents, values, quantities	—	Monthly report of processed document, value and quantity of incoming/outgoing goods	(Low Transaction)	50	5
TBB-55	Quarterly Report of processed documents, values, quantities	—	Quarterly report of processed document, value and quantity of incoming/outgoing goods	(Low Transaction)	50	5
TBB-56	Semiannual Report of processed documents, values, quantities	—	Semiannual report of processed document, value and quantity of incoming/outgoing goods	(Low Transaction)	(0: same as EBB-55)	

Table 4.3.1.1-1: Estimated Scale of CSS Process (14/13)

No.	Job Group / Job	Data	Description	Remarks	Estimation of Scale	
					[FP]	[KStep] (COBOL)
TBB-57	Annual Report of processed documents, values, quantities	—	Annual report of processed document, value and quantity of incoming/outgoing goods	(Low Transaction)	(0: same as EBB-55)	
TBB-58	Monthly statistic report to Bank Indonesia	—	Monthly statistic report for Bank Indonesia	(Low Transaction)	50	5
TBB-59	Monthly statistic report to Central Statistic Bureau (BPS)	—	Monthly statistic report for Central Statistic Bureau (BPS)		50	5
TBB-60	Monthly report to BAPEKSTA	—	Monthly report for BAPEKSTA about export goods from each BAPEKSTA user	(Low Transaction)	50	5
UM	User Module					
UM-01	Import/Export declaration module	—	Module for Import/Export declaration	—	—	—
UM-02	Bonded Transfer module	—	Module for Bonded Transfer	—	—	—
UM-03	Payment information (Bank) module	—	Module for payment information from Bank to Customs	—	—	—
Total Scale			**All jobs**		15710	1571
			Limited jobs (except "Low Transaction" rows)		11360	1136

4.3.1.2 Estimation of the man-month

The JICA Study Team estimated the total man-month (MM) based on the scale of tailor made application program. Basically, the man-month is obtained by dividing the scale by the productivity.

The important thing is the productivity of system development. The productivity is different from each project. 500step/MM is a hypothesis productivity (from design to cut over) of system developing.

Following expression (formula) is applied to calculate man-month after estimation of the scale.

Total MM = Scale of program (Kilo step) ÷ Productivity (500step/MM)

The man-month is as follows.

The development stage = 2,272MM

Two thousand two hundred seventy two is necessary MM to make 1,136 K steps program. It is necessary to adjust MM for the user module and customs officials.

- The development of each user module.
- The man-month of customs officials.

We estimate the development MM of each user module based on ADP experience of making importer module, as follows.

- The development MM of import/export declaration module: 50 MM
- The development MM of bonded transfer module: 50 MM
- The development MM of payment information (bank) module: 50 MM

We also estimate the man-month of customs officials as follows

- The man month of officials: 175 MM

The total MM is divided to MM table. MM table is one hypothesis that shows how to use manpower to develop the system. The table defines a kind of profession, a period of development and a necessary manpower per month. Table 4.3.1.2-1 shows the MM Table.

Table 4.3.1.2-1: Man-month table

Precondition; 2247MM =2272MM+150MM-175MM (CSS AP original = 1136KS,2272MM)

Adjustment of 150MM : the development MM of each usr module (following Note Item)

Adjustment of 175MM : the man-month of customs officials 5MM*35months (10officials*35months)

		BI				BD					DD						PD/M						SI					PT				RT			OP/TR			Sub Total		
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35				
Management	Project manager	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	0	70	140	6%
	Group Leader	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	0	70		
Development	Designer	10	10	10	10	18	18	18	18	18	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	18	18	18	18	10	10	10	10	10	0	694	1031	46%
	Programmer	0	0	0	0	0	0	0	0	0	24	24	24	24	24	24	28	28	28	28	28	28	24	24	24	24	24	12	12	12	12	8	6	6	6	6	-175	337		
Technical Support	Consultant	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	0	70	686	31%
	Designer	4	4	4	4	8	8	8	8	8	12	12	12	12	12	12	16	16	16	16	16	16	12	12	12	12	12	8	8	8	8	4	4	4	4	4	0	336		
	Programmer	0	0	0	0	0	0	0	0	0	12	12	12	12	12	12	16	16	16	16	16	16	12	12	12	12	12	8	8	8	8	4	4	4	4	4	0	280		
Others	Technical Interpreter	2	2	2	2	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	2	2	2	2	2	0	96	390	17%
	Secretaries	2	2	2	2	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	2	2	2	2	2	0	96		
	Assistant	2	2	2	2	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	2	2	2	2	2	0	96		
	Data Creation										6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6											102		
		26	26	26	26	41	41	41	41	41	95	95	95	95	95	95	107	107	107	107	107	107	95	95	95	95	95	61	61	61	61	38	36	36	36	36	-175	2247	2247	100%
		104				205					570						642						475					244				110			72		-175	2247		
		4.6%				9.1%					25.4%						28.6%						21.1%					10.9%				4.9%			3.2%		-7.8%	100.0%		

Note:
- The estimation includes following MM (based on ADP experience of making importer module)
- the development cost of import/export declaration module (50MM)
- the development cost of bonded transfer module (50MM)
- the development cost of payment information (bank) module (150MM)

4.3.1.3 Estimation of the cost

The JICA Study Team estimated the cost of developing a tailor made application software based on MM table.

The prices of engineers are based on the standard market prices in Japan for foreign engineers and the standard market prices in Indonesia for local engineers.

Following prices of engineers are applied to calculate the cost.

- Foreign engineers
  - Project manager US$ 22,000
  - Group Leader, Team Leader US$ 16,000
- Local engineers
  - Team Leader, Designer US$ 4,250
  - Programmer US$ 2,900
  - Technical Interpreter US$ 6,000
  - Secretaries US$ 1,000
  - Assistant US$ 1,000
  - Data creation US$ 2,900 (the cost is same as programmer)

The JICA Study Team researched the standard market prices of designer and programmer in Jakarta. Table 4.3.1.3-1 shows the result of research.(a unit is US dollar)

Table 4.3.1.3-1 Result of research

The name of company	The cost of Designer (USD per month)	The cost of Programmer (USD per month)	The style of contract	Remarks
1. A Company	10,560	7,000	USD CONTRACT	—
2. B Company	3,000	2,000	USD or Rp CONTRACT	—
3. C Company	5,500	3,500	USD CONTRACT	—
4. D Company	3,500	3,000	USD CONTRACT	—
5. E Company	3,750	3,000	USD CONTRACT	—
6. F Company	5,500	3,000	USD CONTRACT	—
7. G Company	2,000	1,500	USD CONTRACT	—
AVERAGE(1-7)	4,830	3,286	—	—
AVERAGE(2-6)	4,250	2,900	—	—

The cost of tailor made software is as follows.

- Development cost total : US$ 11.01 Million (excluding over time 10%)
  - Management : US$ 2.66 Million
  - Development : US$ 3.92 Million
  - Technical support : US$ 3.36 Million
  - Others : US$ 1.06 Million

Table 4.3.1.3-2 summarizes the cost of developing tailor made software.

Table 4.3.1.3-2: CSS cost estimation

Precondition; 2247MM =272MM+150MM-175MM (CSS AP original = 1136KS,2272MM)
Adjustment of 150MM : the development MM of each usr module (following Note Item)
Adjustment of 175MM : the man-month of Customs officials 5MM*35months (10officials*35months)

Type of Profession		MM Price US$	Man month	Cost	Sub Total	%
Management	Project manager*	$22,000	70	$1,540,000	$2,660,000	24%
	Group Leader*	$16,000	70	$1,120,000		
Development	GL, TL, Designer	$4,250	694	$2,949,500	$3,926,800	36%
	Programmer	$2,900	337	$977,300		
Technical Support	GL*	$16,000	70	$1,120,000	$3,360,000	31%
	GL, TL, Designer	$4,250	336	$1,428,000		
	Programmer	$2,9000	280	$812,000		
Other	Technical Interpreter	$6,000	96	$576,000	$1,063,800	10%
	Secretaries	$1,000	96	$96,000		
	Assistant	$1,000	96	$96,000		
	Data Creation	$2,900	102	$295,800		
		Total	2247	$11,010,600	$11,010,600	100%
		Grand Total	Plus over time 10%		$12,111,660	—

Note :
- Currency is a US dollar
- Foreign Engineers
- "*" mark in profession means foreign engineers whose unit prices are market prices in Japan.
- Foreign Engineers are supposed 8 persons
- Indonesian Engineers
- No mark in profession means Indonesian engineers whose unit prices are market prices in Indonesia.
- Indonesian Engineers are from software company, not from ADP in DJBC.
- The estimation includes following items
- The cost of over time (10%)
- Accommodation for foreigner

4.3.2 Software Package Cost

This chapter is describing software package cost for CSS. Table 4.3.2-1 shows the cost of software package for each stage respectively. Development tools software package is just used for the development and the maintenance application. Therefore, it does not need to be installed into the PC clients of CSS.

As shown in Table 4.3.2-1, software package cost of respective stage is

- US$ 1,382,185 for design stage,
- US$ 1,260,295 for test stage,

Moreover, total of software package cost for development is US$ 2,642,480.

Table 4.3.2-1: Required Software Package and Its Cost

No	Items of Software	Number of Item		Unit Price (US$)	Total (US$)		
		Design Stage	Test Stage		Design Stage	Test Stage	Sub-Total
1	L type of Server (Dual System)						
	Basic Software	—	4	385	—	1,540	1,540
	Database	—	279	3,000	—	837,000	837,000
	Operational Control Software	—	4	11,800	—	47,200	47,200
2	M type of Server (Single System)						
	Basic Software	1	3	385	385	1,155	47,200
	Database	50	83	3,000	150,000	249,000	399,000
	Operational Control Software	1	3	11,800	11,800	35,400	47,200
3	S type of Server (Single System)						
	Basic Software	—	—	385	—	—	—
	Database		5	3,000		15,000	15,000
	Operational Control Software	—	—	11,800	—	—	
4	CSS Client						
	Basic Software	50	367	—	—	—	—
	Database	—	—	24,400	1,220,000	—	1,220,000
	Operational Control Software for 20 clients	—	20	3,700	—	74,000	—
Total					1,382,185	1,260,295	2,642,480

4.3.3 Hardware Cost

This part describes the estimated cost of hardware. According to Table 3.4.2-1, required hardware could be summarized as shown in Table 4.3.3-1. In the development stage, the JICA Study Team supposes to use only 1 (one) unit of M type of server and 50 units PC's client. These machines are used as maintenance as well as development equipment.

As shown in Table 4.3.3-1 the JICA Study Team supposes that the cost of hardware is

- US$ 628,050 for design stage,
- US$ 6,471,325 for test stage.

So total hardware cost is US$ 7,099,375.

Table 4.3.3-1: Required Hardware and Its Cost

No	Items of Hardware	Number of Item		Unit Price (US$)	Total (US$)		
		Design Stage	Test Stage		Design Stage	Test Stage	Sub-Total
1	L type of Server (Dual System)	—	4	910,000	—	3,640,000	3640,000
2	M type of Server (Single System)	1	3	454,900	454,900	1,364,700	1,819600
3	S type of Server (Single System)	—	1	141,400	—	141,400	141,400
4	CSS Clients	50	367	2,700	135,000	990,900	1,125,900
5	Printers	2	23	2,275	4,550	52,325	56,875
6	Hub	8	76	1,100	8,800	83,600	92,400
7	Router	1	8	11,600	11,600	92,800	104,400
8	Switching Hub	1	8	13,200	13,200	105,600	118,800
Total					628,050	6,471,325	7,099,375

4.3.4 Operational Cost

This part describes the cost that should be spent for telecommunication system services and maintenance services. Table 4.3.4-1 shows a summary cost of telecommunication system services for the CSS in each stage, Table 4.3.4-2 shows the annual operational cost, and Table 4.3.4-3 shows type of telecommunication system connection between the Inspection Office and its EDI provider. It is assumed that each EDI provider for Inspection Offices is located at some place, which has the same central telephone exchange as its Regional Office.

As mentioned before, there are two types of telecommunication system proposed, which are leased line and VSAT. Inspection Office that is covered by terrestrial line will be proposed to use a leased line telecommunication system. However, Inspection Office that is not covered by terrestrial line, will be proposed to use VSAT.

Table 4.3.4-1 is including an installation fee, in the middle column, which has to pay only once when it's installed. In the right column shows a monthly fee that has to be paid every month as an operational cost element. As shown in this table, the test stage will spent US$6,726 for telecommunication system's installation fee. Table 4.3.4-3 shows type of telecommunication system used for CSS in each Inspection Office.

For the maintenance cost, the JICA Study Team assumes that annual maintenance software cost is 15% from total cost of the software and maintenance hardware cost is 10% from total cost of the hardware. Based on this value, the maintenance cost of Hardware and Software is shown in Table 4.3.4-2.

Table 4.3.4-1: Summary of Telecommunication System Services Cost

Telecommunication System	Installation Fee (US$)		Monthly Fee (US$)	
	Design Stage	Test Stage	Design Stage	Test Stage
Leased Line	—	1,626	—	4,590
VSAT	—	5,100	—	11,475
Total	—	6,726	—	16,065

Table 4.3.4-2: Annual Operational Cost

No	Items	Design Stage (US$)	Test Stage (US$)	After Test Stage(US$)
1	Maintenance of Hardware	—	62,805	709,938
2	Maintenance of Software	—	207,328	396,372
3	Telecommunication Services	—	192,785	192,785
Total			462,918	1,299,095

Table 4.3.4-3: Type of Telecommunication System of Respective Inspection Office

Office			Telecommunication System			
Inspection Office		KANWIL	Type	Speed (kbps)	Installation Fee (US$)	Monthly Fee (US$)
1	Belawan	KANWIL I Medan	VSAT	64	1,700	3,825
2	Tanjung Priok I	KANWIL IV Jakarta	Leased line	256	271	765
3	Tanjung Priok II	KANWIL IV Jakarta	Leased line	256	271	765
4	Tanjung Priok III	KANWIL IV Jakarta	Leased line	256	271	765
5	Soekarno Hatta I	KANWIL V Bandung	Leased line	256	271	765
6	Soekarno Hatta II	KANWIL V Bandung	Leased line	256	271	765
7	Bandung	KANWIL V Bandung	Leased line	256	271	765
8	Tanjung Mas	KANWIL VI Semarang	VSAT	64	1700	3825
9	Tanjung Perak	KANWIL VII Surabaya	Leased line	256	271	765