Kingdom of Cambodia
Ministry of Public Works and Transport

The Preparatory Survey on the Project for Port EDI for Port Modernization in the Kingdom of Cambodia

December 2018

Japan International Cooperation Agency(JICA)

Mitsubishi Research Institute, Inc.
The Overseas Coastal Area Development Institute of Japan

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Preface

Japan International Cooperation Agency (JICA) decided to conduct the preparatory survey and entrust the survey to a joint consulting team consisting of Mitsubishi Research Institute, Inc. and The Overseas Coastal Area Development Institute of Japan.

The survey team held a series of discussions with the officials concerned of the Government of Cambodia and conducted field investigations. As a result of further studies in Japan, the present report was finalized.

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

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

December 2018

Itsu Adachi

Director General,

Infrastructure and Peacebuilding Department

Japan International Cooperation Agency

Table of Contents

Appendices

1. Member List of the Study Team

2. Study Schedule

3. List of Parties Concerned in the Recipient Country

4．Discussion Material

5. Soft Component (Technical Assistance Plan)

6. Other Relevant Data

7. References

Executive Summary

1. Background of the Project

1.1 Background of the Recipient Country

Cambodia located in the Indochina. The Rivers and the lakes were blessed with aquatic resources, and that contributed to develop the maritime transportation. The population is about 16 million and the median age is 25.3 years old (World Health Organization, 2018), and production population is 63.7% (World Bank, 2018), therefore Cambodia has a very high potential of growth. Cambodia's economy has grown rapidly in the past 10 years. The real GDP growth rate was as high as about 7% on average in the past seven years, and imports and exports increased each year, especially the amount of imports.
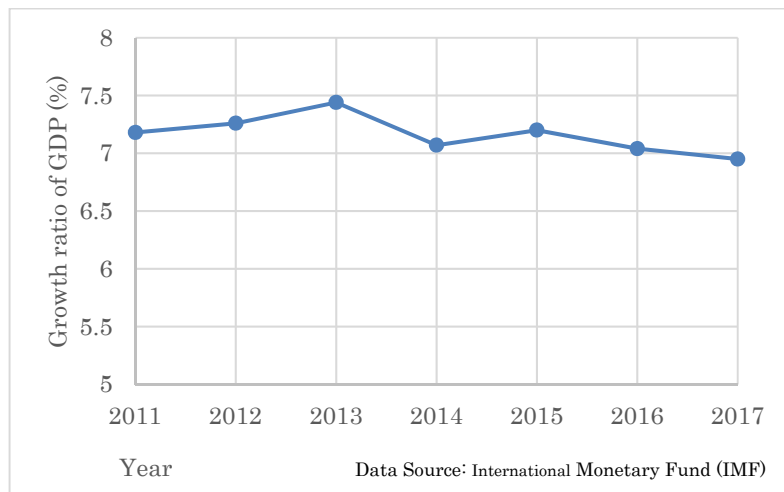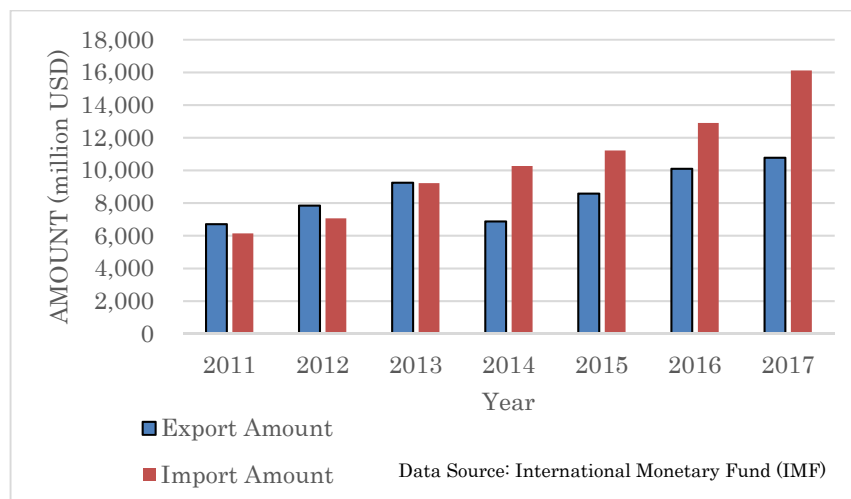

Figure 1: Real GDP Growth

Figure 2: Import and Export Amounts of Cambodia

The cargo volume that was handed in Phnom Penh Port and Sihanoukville Port has grown rapidly, and the tendency for the number of containers was to increase every year. And, there are expansion plans for both ports; therefore, this tendency will be accelerated.

With the current business, the ship clearance formality procedure, which is an administrative procedure for inward- and outward-bound vessels in Cambodia, is carried out manually using paper. This manual procedure is time consuming and will be impossible to continue when the number of cargoes goes up substantially in the near future. The demand will be to handle the quantity of cargoes in a timely manner. Therefore, an improvement in the port facilities' functions is an urgent task. Under these circumstances, it is desirable to introduce electronic information processing for document applications and notification of port administrators (Port Electronic Data Interchange hereinafter referred to as "Port EDI") to rationalize and streamline all port administrative procedures.

Moreover, the development program of the ASEAN Single Window (hereinafter referred to as "ASW") was decided at the ninth ASEAN Summit in 2003, and the member nations agreed that the National Single Window (hereinafter referred to as "NSW") of each nation would be developed by 2012. However, the development program was delayed for technical, constitutional, and financial reasons. It is necessary for Cambodia to develop the NSW to match the other advanced ASEAN countries. The Cambodian government created a draft plan for the NSW in 2014 to link the various systems for electronic data sharing with each ministry and the systems of all agencies. The NSW Steering Committee was established by the General Department of Customs and Excise of Cambodia (hereinafter referred to as "GDCE") in 2015. The updated development plan aimed to build the NSW in three phases. The first phase was completed at the end of 2017, the second phase is under construction and will be finished by August 2019, and the entire NSW plan will be completed in the third phase.

To develop the NSW, Port EDI also plays a major role as a constituent element, and the Ministry of Public Works and Transport, Kingdom of Cambodia (hereinafter referred to as the "MPWT"), requests the early introduction of Port EDI prior to construction of the NSW.

To define the development plan that includes the system scope, function, and schedule of Port EDI in Cambodia, the Preparatory Survey for the project[1] for Port EDI for Port Modernization " (hereinafter referred to as "this survey") was conducted.

2. Outline of the Results of the Preparatory Survey and the Contents of the Project

2.1 Survey Schedule

The Consultants were dispatched to Cambodia six times to survey the current situation, analyze the issues from 21 March 2018 to 30 September 2018.

2.2 Outline of the Port EDI System

The Port EDI System consists of two subsystems: the Ship Clearance Management System and the Gateway System. The Ship Clearance Management System will be used for ship clearances and will share information on the procedures by the MPWT, Port Authorities, Customs, Immigration, Quarantine, and KAMSAB. On the other hand, the Gateway System will be used

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[1] "the project" is defined as the system development works of Port EDI System

for submitting declaration data to the Ship Clearance Management System by KAMSAB and ship side[2].

The Port EDI System will be installed in the machine room inside the MPWT Headquarters office. The users of the Port EDI System will use the Port EDI System with computer terminals via the internet.
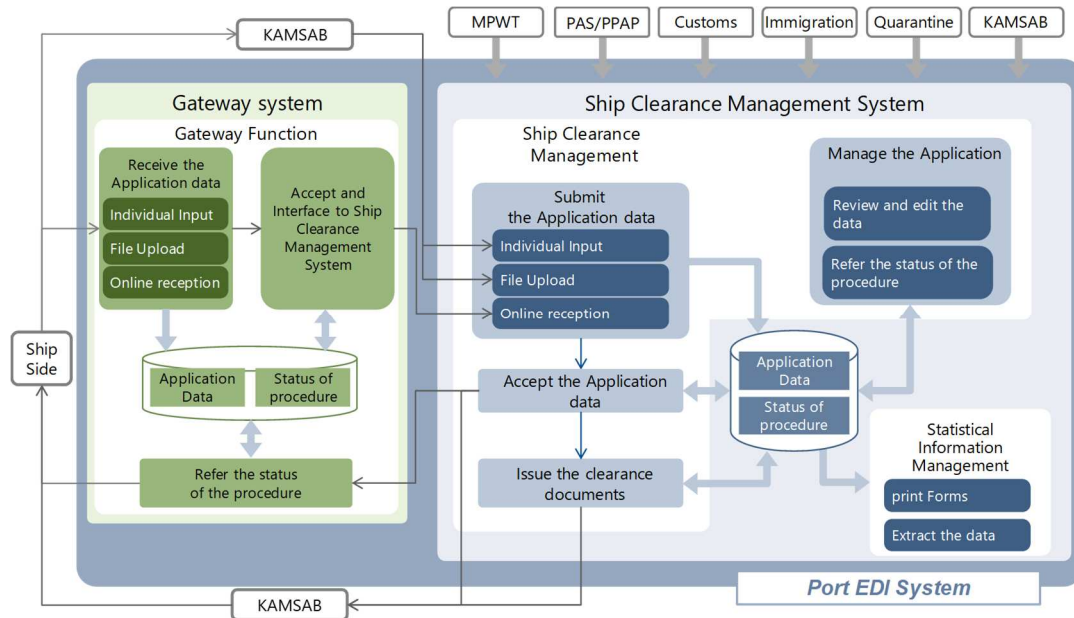
Figure 3: Overview of the Port EDI System

2.3 Software and Hardware

To install the Port EDI System, following software and hardware are required (Table 1).

Table 1: Component of the equipment

No.		Equipment	Description	Objective
1	1-1	Ship Clearance Management System	The application data is accepted and checked by the Port Authority (PAS and PPAP), MPWT, and the competent authorities (Customs, Immigration, and Quarantine).	It is realized that the ship clearance formality procedure is simplified and standardized.

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[2] "shipside" means shipping line, shipping agent company (other than KAMSAB), and other related companies.

No.		Equipment	Description	Objective
	1-2	Gateway System	The Gateway System consists of the three functions of data registration, data check, and data submission to the Ship Clearance Management System.	In accordance with the laws and regulations of Cambodia, it is realized that the hours of the ship clearance formality procedure are decreased by the electronic system.
2	2-1	Servers	Server machines, Storages, Backup equipment, and Commercial software such as OS or DB. (Production environment and test environment)	The system infrastructure with redundant configuration for the Port EDI System described as 1-1 and 1-2.
	2-2	Network equipment	Load balancer, Firewall, Network Switch, Router, and so on.	Connect each user site, Provide the secure and high availability environment.
	2-3	Client Terminal	PCs, Anti-virus software, Multifunctional printers, Hi performance printers.	As for the Port EDI System user site of the MPWT, KAMSAB, PAS, PPAP, Customs, Immigration, and Quarantine, at least one PC and multifunctional printer are delivered.
3		Equipment for the server room	Server cooling system, system Monitoring equipment, racks, UPS.	Provide equipment to utilize the server room provided by MPWT that is equipped with adequate electricity, air condition, security control, anti-national disaster and small animal measure.

2.4 Activities of the Soft Component

The works of preparing the manuals, helpdesk, and design the operation and maintenance organization are the activities that are the responsibility of the recipient country, and not included in the system development work by the system development company. However, to accomplish these works, it is difficult to accomplish it by recipient county only, therefore it is supported by a consultant. Followings are the provided items.

[a] Support for preparation of the business operation manuals
[b] Support for preparation of the helpdesk manuals
[c] Support for preparation of operation and maintenance manuals
[d] Support for preparing proposal for operation and maintenance

3. Schedule and Cost Estimation of the Project

3.1 Schedule

When the Project is implemented under Japan's grant aid scheme, the procurement of a software implementation vendor for the Port EDI System will be carried out after the work on implementation design, which includes finalization of the specifications and services related to the tender, by a consultant, it will require about 6 months.

It will require five months for work on the basic design, ten months for work on the software implementation that includes preparation of the manual and guidelines for operation and maintenance, and six months for the acceptance test (function confirmation test and comprehensive running test). Since part of the work will be performed simultaneously, the total duration of the implementation is expected to be 21 months (Figure 4).

The system will go-live in April 2021 after confirming completion of data migration, master data master, and the above-described tasks. In addition, the supplier and consultant will support system operation for three months after go-live. Therefore, the total project period will be 30 months.
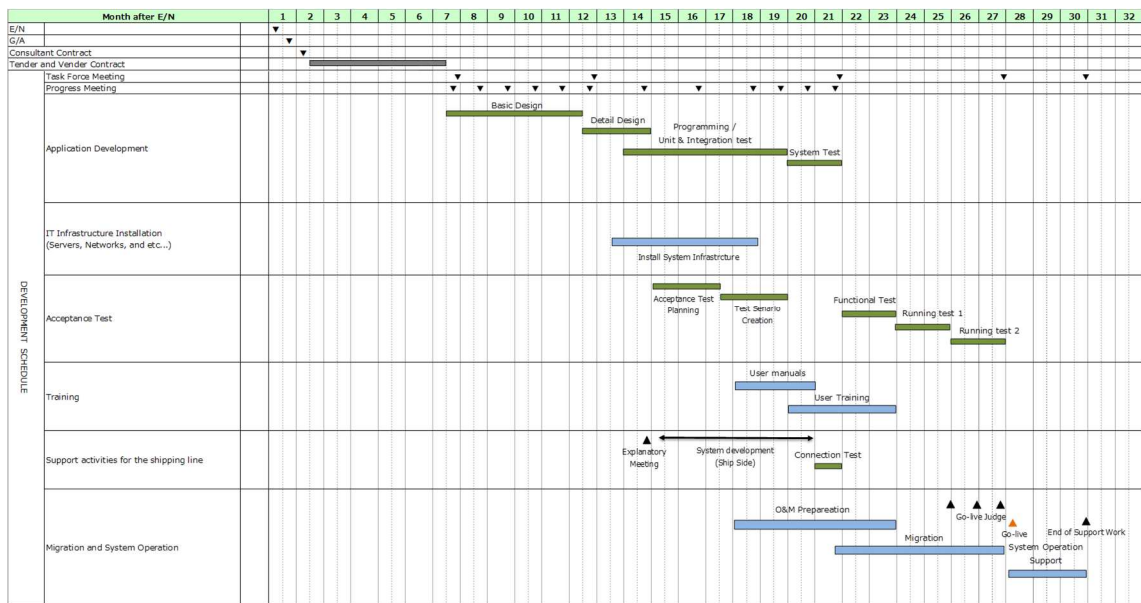

Figure 4: Master schedule of the project

3.2. Cost Estimation

3.2.1 Initial Cost Estimation

The Initial Cost of the project that are shouldered by the recipient country is shown in Table 2.

Table 2: Initial Cost Shouldered by the Recipient Country

Item	Estimated Cost (Thousand USD)
Banking Arrangement (B/A), Authorization to Pay (A/P) and Bank Commission	13
Preparation of server room	152
PC, printer, and other relevant hardware to use Port EDI System, which excess the number of grant equipment within MPWT, PAS, PPAP, KAMSAB, Customs, Immigration, and Quarantine	27
Training to improve IT skill of MPWT and the Port EDI System users	78
TOLAL	**270**

3.2.2 Operation and Maintenance Cost

The cost for operation and maintenance of the ICT system will be incurred from the time of handing over of the Port EDI System to the MPWT. Under the current timetable, operation and maintenance costs will be payable from the go-live. The operation and maintenance costs consist of three categories (Table 3).

Table 3: Categories of Operation and Maintenance Cost

	Category	Description
1	Maintenance service for developed software	Provide a service for fixing an issue, consultation for modification of the developed software. Contact point when the MPWT or KAMSAB has a trouble on developed software.
2	Maintenance service for hardware product	Provide parts for replacement when equipment has a trouble. Contact point when the MPWT or KAMSAB has a trouble on hardware
3	Maintenance service for software product	Provide fix module for fixing an issue when software has a trouble. Contact point when the MPWT or KAMSAB has a trouble on software

Annual operation and maintenance costs, including all of the above-mentioned categories, are expected to reach to USD 354,267. JICA, therefore, asks the MPWT to start preparing for securing a budget for the expense of the operation and maintenance costs for the Port EDI System.

Table 4: Operation and Maintenance Costs of Port EDI System

	Category	5 years total	Annual average
1	Maintenance service for developed software	$760,422 (¥85,000,000)	$152,084 (¥17,000,000)
2	Maintenance service for hardware product	$608,339 (¥68,000,000)	$121,668 (¥13,600,000)
3	Maintenance service for software product	$402,576 (¥45,000,000)	$80,515 (¥9,000,000)
	Total	$1,771,337 (¥198,000,000)	$354,267 (¥39,600,000)

1 USD = 111.78 JPY (14 Aug. 2018)

Other than the cost mentioned above, the equipment of the system has a lifecycle. Generally, it is about five years. This is because the possibility of the failure of the equipment will increase as time passes, and production makers may not provide spare parts. Therefore, the MPWT will have to make a replacement plan and secure a budget for the equipment, including the PC terminals delivered to users.

4. Project Evaluation

4.1 Quantitative Effects

The key indicators for expected outcomes are as follows (Table 5).The Cambodian side will be responsible for the achievement of the agreed key indicators targeted for the year 2024 and shall monitor the progress based on those indicators.

Table 5: Quantitative Indicators

Index	Base Line (2018)	Target (2024) (3 years after completion of the Project)
Duration of the ship clearance committee (minutes)	PAS: 30 (minutes)	PAS : 0 (minutes)
	PPAP: 30 (minutes)	PPAP: 0 (minutes)
The utilization rate of the Port EDI System for ship clearance procedures for port entry/departure at Sihanoukville Port and Phnom Penh Port (%)	0 (%)	100 (%)

4.2 Qualitative Effects

By introducing the Port EDI System, electronical ship clearance procedures will be realized at Sihanoukville Port and Phnom Penh Port, and that procedures are streamlined and modernized. The major qualitative effect is shown in Table 6.

Table 6: Qualitative effect

No.	Qualitative effect	Explanation
1	Modernization of port administration in Cambodia	The ship clearance procedures that have been handled by manual procedure will be modernized by introducing the electronical system. As the result, the capacity of the transaction and the service level of the port service for the ship side will be improved.
2	Simplify the business procedures	The Port EDI System adopts the FAL convention endorsed by IMO as an international standard. Therefore, data handled by the ship clearance formality procedure are simplified, and the business procedures are also simplified.
3	Adopt the international standard procedures	The ship clearance formality procedure plays an important role of NSW conception. Considering of join to ASW in the future, it is necessary to adopt the international standard.

Location Map

The MPWT and PPAP are in Phnom Penh. Regarding the headquarters of customs, immigration, and quarantine are in Phnom Penh, while the local offices are located in both Phnom Penh and Sihanoukville. The headquarters of PAS is in Sihanoukville. And KAMSAB headquarters located in Phnom Penh, while they have branch at the border and Sihanoukville. The Figure 5 shows the location of Phnom Penh, Sihanoukville, and Cambodia-Vietnam border

(Source : United Nations Geospatial Information Section, Edited by the Survey Team)

Figure 5: Location Map of the Site

List of Figures & Tables

Abbreviations

No.	Abbreviation	Formal Name
1	(C)NSW	(Cambodia) National Single Window system
2	(Ship) Entry Permit	(Ship) Entry Permit
3	(System) I/F	(System) Interface
4	Arrival Declaration	Arrival Declaration
5	ASEAN	Association of Southeast Asian Nations
6	ASW	ASEAN Single Window
7	B/L	Bill of Lading
8	Business Operation	(User Support) Business Operation
9	certificate	certificate
10	CIQ	Customs, Immigration, and Quarantine
11	CPU	Central Processing Unit
12	Customs	Customs
13	CY	Container Yard
14	D/O	Delivery Order
15	D/W	Dead weight tonnage
16	DB	database
17	DC	datacenter
18	director	director
19	director general	director general
20	E/N	Exchange of Notes
21	EDI	Electronic Data Interchange
22	EDIFACT	Electronic Data Interchange For Administration, Commerce and Transport

No.	Abbreviation	Formal Name
23	FAL (Convention)	Facilitation of International Maritime Traffic
24	G/T	Gross Tonnage
25	GDCE	General Department of Customs and Excise of Cambodia of the Ministry of Economics and Finance
26	GDICT	General Department of ICT, Ministry of Posts and Telecommunications
27	GDP	Gross Domestic Product
28	GDWMP	General Department of Waterway-Maritime Transport and Ports
29	HM	Harbor Master
30	HS code	Harmonized Commodity Description and Coding System
31	HTTP	Hyper Text Transfer Protocol
32	HW	hardware
33	ICT [=IT]	Information and Communication Technology
34	Immigration	General Department of Immigration of the Ministry of Interior
35	IMO	International Maritime Organization
36	ITPR （Department)	Information Technology and Public Relations (Department)
37	JICA	Japan International Cooperation Agency
38	KAMSAB	Kampuchea Shipping Agency and Brokers
39	KHR	Khmer Riel
40	KPI	Key Performance Indicator
41	LAN	Local Area Network
42	M/T	Measurement Tonnage
43	MPTC	Ministry of Posts and Telecommunications
44	MPWT	Ministry of Public Works and Transport
45	N/T	Net Tonnage
46	NW	network

No.	Abbreviation	Formal Name
47	O&M	(System) Operation and Maintenance
48	OS	Operating System
49	PAS	Sihanoukville Autonomous Port
50	Port EDI System	Port EDI System
51	PPAP	Phnom Penh Autonomous Port
52	Pre Arrival Notice	Pre Arrival Notice
53	Quarantine (office)	Quarantine (office), Department of Communicable Disease Control, General Department of Health of the Ministry of Health
54	SCC	Ship Clearance Committee
55	server room	server room
56	SW	software
57	TCP/IP	Transmission Control Protocol/Internet Protocol
58	TFM	Task Force Meeting
59	UI	user interface
60	WAN	Wide Area Network

（parentheses）：Use to describe it more clearly.

Survey Report

Chapter1　Background of the Project

1-1　Background

　　Cambodia's economy has grown rapidly in the past 10 years. The real GDP growth rate was as high as about 7% on average in the past seven years, and imports and exports increased each year, especially the amount of imports.
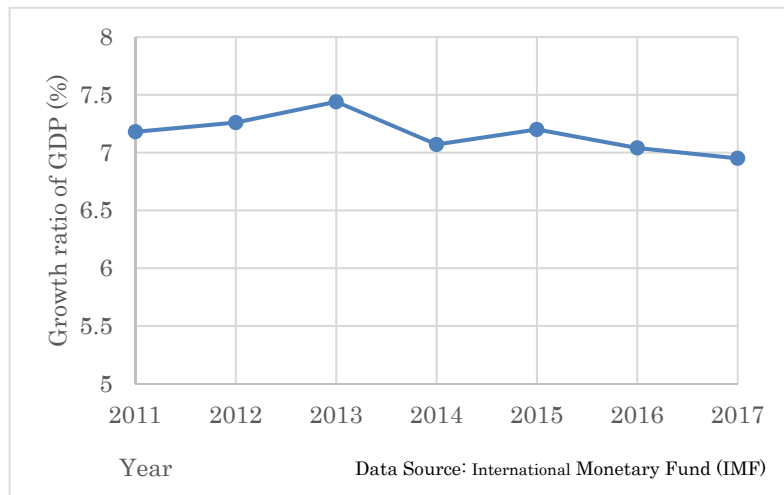
Figure 1: Real GDP Growth

Figure 2: Import and Export Amounts of Cambodia

Accordingly, the cargo handling volume has grown rapidly as shown in the next figure. Phnom Penh Autonomous Port (hereinafter referred to as "PPAP") in Phnom Penh handled less than half the freight of Sihanoukville Port; however, they increased throughout. At SHV Port handled by Sihanoukville Autonomous Port (hereinafter referred to as "PAS"), the exception was 2013 where the tendency for the number of containers handled was to increase every year. And, there are expansion plans for both ports; therefore, this tendency will be accelerated.

With the current business, the ship clearance formality procedure, which is an administrative procedure for inward- and outward-bound vessels in Cambodia, is carried out manually using paper. This manual procedure is time consuming and will be impossible to continue when the number of cargoes goes up substantially in the near future. The demand will be to handle the quantity of cargoes in a timely manner. Therefore, an improvement in the port facilities' functions is an urgent task. Under these circumstances, it is desirable to introduce electronic information processing for document applications and notification of port administrators (Port Electronic Data Interchange hereinafter referred to as "Port EDI") to rationalize and streamline all port administrative procedures.

Figure 3: Throughput of Containers

Moreover, the development program of the ASEAN Single Window (hereinafter referred to as "ASW") was decided at the ninth ASEAN Summit in 2003, and the member nations agreed that the National Single Window (hereinafter referred to as "NSW") of each nation would be developed by 2012. However, the development program was delayed for technical, constitutional, and financial reasons. It is necessary for Cambodia to develop the NSW to match the other advanced ASEAN countries. The Cambodian government created a draft plan for the NSW in 2014 to link the various systems for electronic data sharing with each ministry and the systems of all agencies. The NSW Steering Committee was established by the General Department of Customs and Excise of Cambodia (hereinafter referred to as "GDCE") in 2015. The updated development plan aimed to build the NSW in three phases. The first phase was completed at the end of 2017, the second phase is under construction and will be finished by August 2019, and the entire NSW plan will be completed in the third phase.

To develop the NSW, Port EDI also plays a major role as a constituent element, and the Ministry of Public Works and Transport, Kingdom of Cambodia (hereinafter referred to as the "MPWT"), requests the early introduction of Port EDI prior to construction of the NSW.

To define the development plan that includes the system scope, function, and schedule of Port EDI in Cambodia, the Preparatory Survey for the project for Port EDI for Port Modernization " (hereinafter referred to as "this survey") was conducted.

1-2 Policy on Natural and Environmental Conditions

The Project focuses on the implementation and introduction of IT systems, and thus natural and environmental conditions are not assumed to possibly affect the design and implementation.

On the other hand, it has been confirmed that there were no natural disasters, such as large earthquakes or floods, in the past in the area around the server room of the MPWT where the Port EDI System will be installed. Meanwhile, although temperature and humidity control are important for the server room, especially in the hot and humid Phnom Penh City, it has also been confirmed that the temperature and humidity in the server room of the Project are under proper control by air conditioning at all times, and the planned equipment will adopt a cooling system.

1-3 Policy on Social and Economic Conditions

With the continuous growth of the Cambodia economy, the volume of cargo, including containers, handled in Cambodia ports has increased rapidly in recent years, and it is expected to increase at a faster pace than economic growth in future. Therefore, the requirements and specifications of the Port EDI System should be designed in a way that corresponds sufficiently to the increasing volume of cargo in future.

Chapter2　Contents of the Project

2-1　Basic Concept of the Project

From March 2018 to August 2018, the Japan International Cooperation Agency (hereinafter referred to as "JICA") dispatched a survey team to Cambodia for the Project for Port EDI for Port Modernization (hereinafter referred to as "the Project"). The team conducted this survey including consultations with government officials in Cambodia and confirmed the main details of the request for Japan's grant aid. The basic concept of the Project is summarized in Table 1.

Table 1: Overview of the Project

Item	Description
Overall goal	Contributing to modernization of port administration through digitization and simplification of information on port logistics.
Project Purpose	The ship clearance procedures of Phnom Penh Port and Sihanoukville port will be computerized and simplified through the establishment of the Port EDI System based on Japan's technology and experience in establishing and operating the Port EDI System.
Output of the Project	The Port EDI System is introduced to Phnom Penh Port and Sihanoukville Port.
Requirements	The following software systems have been developed on the basis of Japan's technology and experience in establishing and operating the Port EDI System. [a] Ship Clearance Management System [b] Statistical Information Management System
Target areas	Sihanoukville Port (Under the administration of the Ship Clearance Committee of Sihanoukville Port) Phnom Penh Port (Under the administration of the Ship Clearance Committee of Phnom Penh Port)
Target vessels	Inward- and outward-bound vessels (cross-border vessels of Cambodia, under the administration of the Ship Clearance Committee)

Item	Description
Relevant organizations of Cambodia	Executing agency: Ministry of Public Works and Transport (MPWT)
	Operation and Maintenance Organization: Ministry of Public Works and Transport (MPWT)
	Business Operation Organization: Kampuchea Shipping Agency and Brokers (KAMSAB）
	Cooperating organization: Sihanoukville Autonomous Port (PAS）, Phnom Penh Autonomous Port (PPAP）
	Affiliated ministries / agencies: General Department of Customs and Excise of Cambodia of the Ministry of Economics and Finance (GDCE MEF / Customs), General Department of Immigration of the Ministry of Interior (MOI / Immigration), Quarantine Office, Department of Communicable Disease Control, General Department of Health of the Ministry of Health (MOH / Quarantine)
Beneficiaries	MPWT, KAMSAB, PAS, PPAP, Customs, Immigration, Quarantine, and shipside[3]

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[3] "shipside" means shipping line, shipping agent company (other than KAMSAB), and other related companies.

Undertakings by the Cambodian side	1)	Procurement of the necessary software, hardware, networks and workspace
	[a]	To secure an installation environment for the servers, such as a data server center or an in-house server room (equipped with adequate electricity, air conditioning, anti-natural disaster functions, and pest control) in the MPWT, and a disaster recovery site if necessary. MPWT is expected to notify the detail plan to JICA three months prior to prepare the procurement document.
	[b]	LAN / WAN for each user location, internet connection, SIM, email address for server notification, and global IP address.
	[c]	PC, printer, and other relevant hardware to use the Port EDI System, in addition to the grant equipment within the MPWT, PAS, PPAP, KAMSAB, Customs, Immigration, and Quarantine
	[d]	Workspace for the suppliers
	2)	Necessary organization, human resources, and training
	[a]	To establish the Port EDI System Implementation Working Group (Cambodian side, including the MPWT, KAMSAB, PAS, PPAP, Customs, Immigration, and Quarantine), and the MPWT leads the communication as the executing agency
	[b]	To assign the necessary personnel to the Port EDI System Implementation Working Group
	[c]	To make sure that the operation and maintenance organization that consists of the MPWT personnel and outsourcer (system development company) acquires knowledge and skills from the Japanese suppliers during project implementation
	[d]	To establish a business operation organization in KAMSAB and an operation and maintenance organization in the MPWT
	[e]	To assign the necessary personnel (including skilled IT engineers who are certified as the Team recommends) to the business operation organization in KAMSAB and the operation and maintenance organization in the MPWT
	[f]	To retain the necessary personnel (including skilled IT engineers who are certified as the Team recommends) to the business operation organization in KAMSAB and the operation and maintenance organization in the MPWT
	3)	To review and test the Port EDI System and prepare manuals and the master data tables
	[a]	To review the basic design, execute the acceptance test, and make other preparations by the Cambodian side in accordance with the project implementation schedule
	[b]	To prepare business operation manuals, helpdesk manuals, and operation and maintenance manuals
	[c]	To clarify the roles and responsibilities of the MPWT and

Item	Description
	outsourcers for the operation and maintenance of the Port EDI System
	[d] To define the user code, organization code, and master table contents of the Port EDI System
	[e] To register the master data tables
	4) Institutional Arrangement
	[a] To conclude the system requirements for the exchange of manifest data and Bill of Lading (B/L) from the NSW system within the grant aid budget and timely manner, if it is necessary.
	[b] To install the authorized certification to the Port EDI servers as soon as the Certification Authority (hereinafter referred to as "CA") service is available
	[c] To establish the new laws and rules for the ship clearance formality procedure using the Port EDI System as necessary
	5) Necessary budget for smooth implementation and sustainable operation and maintenance
	[a] To secure the necessary budget for the undertakings of Cambodia during Port EDI System implementation
	[b] To secure the necessary budget for business operations and operation and maintenance of the Port EDI System
	[c] To secure the necessary budget for renewal of hardware in the future (in general, renewal is necessary within five years after installation of the system)
Activities of the Soft Component	[a] Support for preparation of the business operation manuals
	[b] Support for preparation of the helpdesk manuals
	[c] Support for preparation of operation and maintenance manuals
	[d] Support for preparing proposal for operation and maintenance

2-2 Outline Design of the Japanese Assistance

2-2-1 Design policy

2-2-1-1 Basic Policy

The Port EDI System of Cambodia to be designed and developed in the Project will be based on the requirements defined in this survey. The requirements of the Port EDI System are defined through a survey of the current conditions of the ship clearance formality

procedure and hence to address the issue of modernization faced by Cambodian port-related organizations, such as the MPWT, Port Authorities, Shipping Agency, and other related ministries.

2-2-1-2 Policy on Procurement

Regarding the procurement of equipment, IT-related products (hardware, network equipment, and software products) to be procured in this project are not manufactured in Cambodia; products of Japan or third countries will be procured. The priority will be given to the adoption of Japanese products, but third-country procurement will not be inhibited as long as it is significantly less expensive.

Meanwhile, many agencies and vendors handle such equipment on-site, so these devices can be procured within Cambodia. Since the scope of procurement by this project will be up to the introduction of the system, and the expenses for operation and maintenance will be borne by the recipient country, and considering that the maintenance service after introduction can be received timely and properly, products will be procured from local vendors. However, taking into consideration the possibility that a product that cannot be procured locally is needed, and cases where the merits of Japan and third country procurement are great, any supplier can be selected.

2-2-1-3 Policy on the use of Local Vendors

The Port EDI System will be operated and maintained by Cambodia after the introduction of the Port EDI System. Therefore, it is advisable to allow the Cambodia engineers to participate in the work of application implementation as practice for the technology transfer. It is important for Cambodia to hire local vendors based on relevant experience with the technology of the application software and hardware in order to guarantee the smooth operation and further improvement of the system. And, it is advisable that Cambodian IT professional engineers are involved in the Information Technology and Public Relations Department (hereinafter referred to as "ITPR Department") as regular officials or fixed-term employment. Those persons are expected to show good performance during the basic design phase, system development, manual creation, user acceptance test, and other stages of the project.

2-2-1-4 Policy on Operation and Maintenance

i. Operation and Maintenance Structure

Operating the Port EDI System consists of two aspects: the helpdesk service for business operations, and operation and maintenance for the application, software, hardware, and network. The mission of the helpdesk service shall be shouldered by KAMSAB, and users in the MPWT, PPAP, PAS, and the competent authorities will inquire about system operation from the helpdesk of KAMSAB. KAMSAB is a specialist in the ship clearance formality procedure but is not now familiar with information technology (IT), so it is necessary for users to acquire IT skills through the implementation phase. When handling inquiries about technical matters, such as hardware or the network, KAMSAB will ask the ITPR Department of the MPWT to solve it.

The mission for system operation and maintenance is shouldered by the ITPR Department of the MPWT. Although the ITPR Department has handled several existing systems until now, in order to accept the Port EDI System, the ITPR Department must improve their IT skills to handle matters related to the Port EDI System. Moreover, the staff number must be increased

to meet the daily work requirements, or it will be necessary to cooperate with outside vendors to handle any problems or issues related to the system.

ii.   Design Plan for Replacement Parts and Consumables

Because the components of computer equipment, like hard disks, have a tendency to degrade over time, replacement parts are required to be in stock at all times so that they can be used to accommodate quickly and inexpensively in the event of a problem. Because the maintenance system for IT equipment in Cambodia at present is not as well developed as advanced countries, it is assumed that it will take a long time to recover from a system failure, and it is advisable to hold more replacement parts on-site or adopt a redundant configuration in the system.

The Port EDI System shall adopt a redundant configuration to make it possible to provide continuous services even if a failure occurs in one system. In addition, a warranty contract and spare equipment shall be provided in order to guarantee a redundant normal operating environment.

2-2-1-5 Policy on grade of the equipment

With regard to the grade of equipment for the Port EDI System, highly reliable equipment shall be provided in view of the importance of use for the formal procedures at the ports. However, attention shall be paid not to make excessive investments from the beginning if it is only necessary to gradually upgrade in line with the growth of Cambodia's port operations.

2-2-1-6 Policy on Implementation

Because most users of the Port EDI System are not familiar with IT systems, the prototype method will be adopted at the beginning of the basic design, and sufficient time for the User Acceptance test will be secured. These measures will help users understand the Port EDI System and the business processes that will be using IT.

2-2-2 Basic Plan (Construction Plan/Equipment Plan)

2-2-2-1 Conceptual Drawings for Systemization
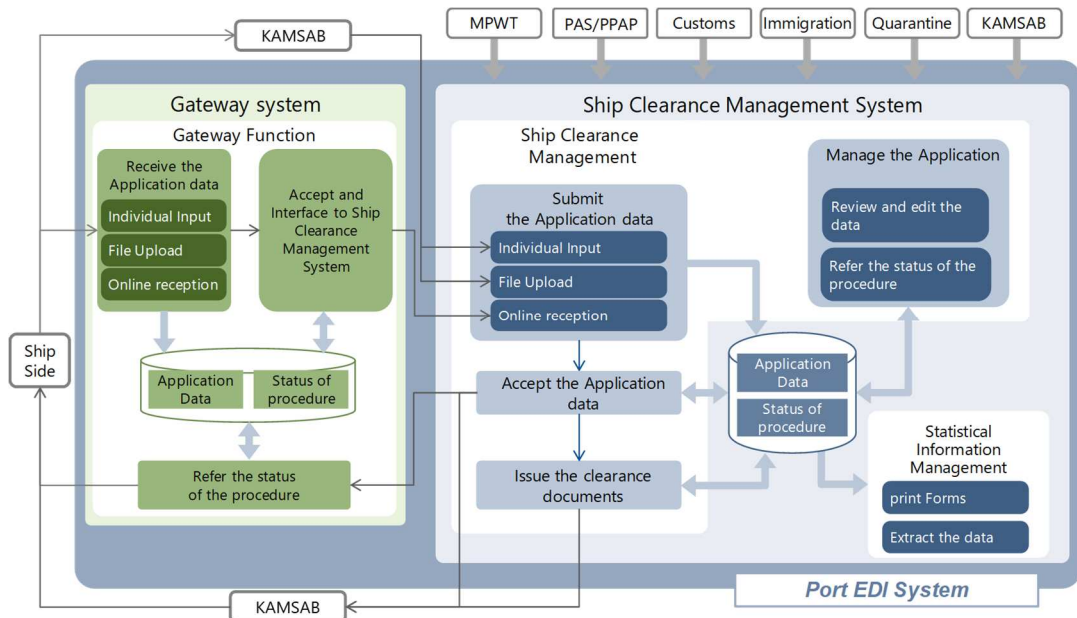
Figure 4: Overview of the Port EDI System

The Port EDI System consists of two subsystems: the Ship Clearance Management System and the Gateway System (Figure 4). The Ship Clearance Management System will be used for ship clearances and will share information on the procedures by the MPWT, Port Authority, Customs, Immigration, Quarantine, and KAMSAB. On the other hand, the Gateway System will be used for submitting declaration data to the Ship Clearance Management System by KAMSAB and shipside. The Port EDI System will be installed in the machine room inside the MPWT Headquarters office. The users of the Port EDI System will use the system with computer terminals via the internet.

2-2-2-2 Coverage of Systemization

i. Target Business

The target business of the Port EDI System is the ship clearance formality procedure. Thus, businesses will be covered by the Port EDI System as shown below.
- Pre-Arrival Notice
- Entry Permit
- Arrival Declaration
- Departure Declaration

And, for avoiding stagnation of berthing, the procedures for submitting the Ship Order and submitting the Declaration of Security will be included in target business of the Port EDI System.

Other procedures concerning the arrival and departure of vessels shown below will <u>not</u> be targeted for the business of the Port EDI System.

- Procedures for Passports and Seamans' books
- Procedures for Port State Control
- Procedures for Berth Allocation
- Procedures for Billing

ii. Physical Configuration

The physical configuration for the range of the Port EDI System is shown below. The parts in pink are the scope of procurement by grant aid (Figure 5).
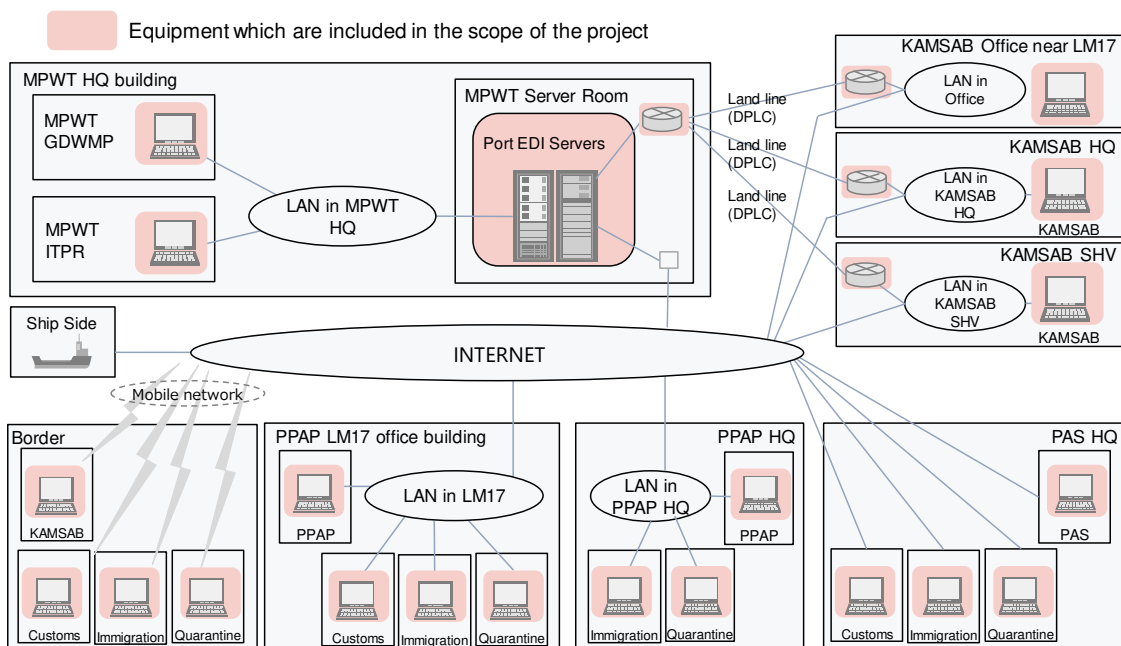
Figure 5: Physical Configuration

2-2-3 Outline Design Drawing

2-2-3-1 Requirement for Application

i. Major Policy for Application

A. Policy concerning Sign and Stamp

For the sake of the efficiency and the promptness of practical business, the Port EDI System shall adopt electronic applications and electronic approvals. Thus, signing and stamping of the documents shall be abolished. Toward the abolition of signing and stamping, the MPWT is

expected to prescribe regulations for operating the Port EDI System with the relevant organizations.

Figure 6: Policy for Sign and Stamp

B. Policy and Status of Digital Signatures in Cambodia

In Cambodia, a sub-decree on digital signatures (No. 246 ANKR.BK) was promulgated. The important points of the sub-decree on digital signatures (No. 246 ANKR.BK) are shown below.

- Any electrical message with an attached digital signature has the same legal effect as a written signature on paper. [Article 10]
- Article 10 only applies to digital signatures issued by certificate authorities (CA) licensed by the Ministry of Posts and Telecommunications (MPTC).
- Any person who intends to apply for a license for digital signature certification shall apply to the General Department of Information and Communication Technology, MPTC (GDICT). [Article 17]

Basically, government agencies must adopt the government CA developed by MPTC for using digital signatures. However, before the launch of the government CA, government agencies could adopt a foreign CA. At this time, no CAs exist in Cambodia, and there is no foreign CA licensed by the MPTC. The MPTC is now planning to establish a government CA of Cambodia in September 2019. Although the timeline for developing a government CA is scheduled to be earlier than the go-live date for the Port EDI System, considering the possibility that the establishment delays and digital signatures cannot be applied to the Port EDI System, the plan for adopting digital signatures for the Port EDI System is shown below.

- The function for using digital signatures shall be introduced into the Port EDI System.
- When digital signatures endorsed by the Cambodian government CA are not ready by the time the Port EDI System goes live, digital signatures endorsed by an internationally trusted CA shall be used.
- It shall be required in the requirement of the Port EDI System that the replacement CA can be handled by the engineer of the recipient country.

C. Policy on measures for application for ship clearance and issuing certificates

In accordance with the Sub-Decree, KAMSAB shall input the application data into the Ship Clearance Management System. Thus, KAMSAB and the ship side shall share the application data via the Gateway System. Three basic flows for data entry depending on the IT environment of the ship side will be considered as shown below. The Port EDI System shall have more than one input function.
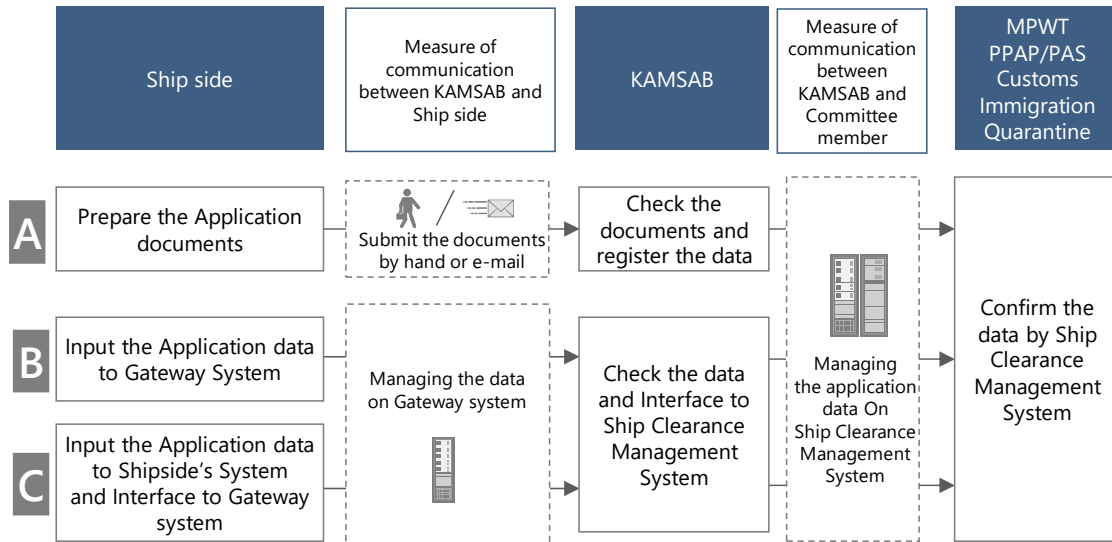
Figure 7: How to Communicate and Interface: Application

To issue a certificate, the basic data flow is shown below.
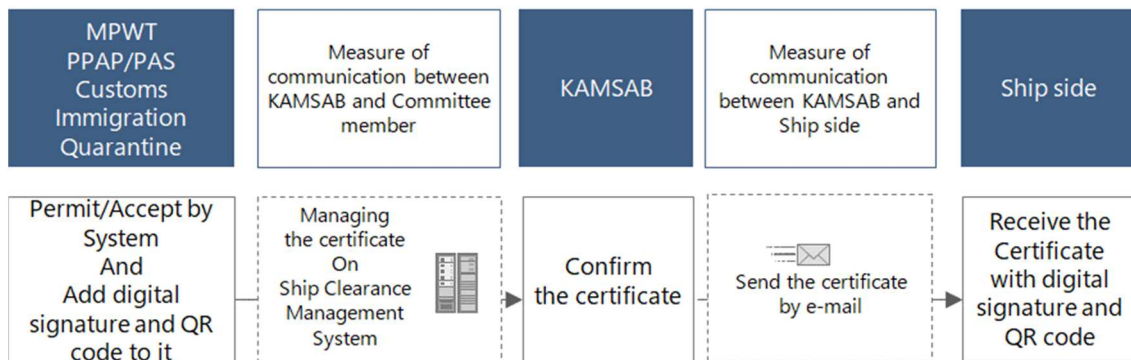
Figure 8: How to Communicate and Interface: Issue

Basic workflows for application and issue are shown in Figure 9 and Figure 10, respectively. For actors in the third slim lane from the left, note that the MPWT takes part in the process for entry permits, and PAS, PPAP, and CIQ take part in other ship clearance processes (Arrival Declaration and Departure Declaration).

13
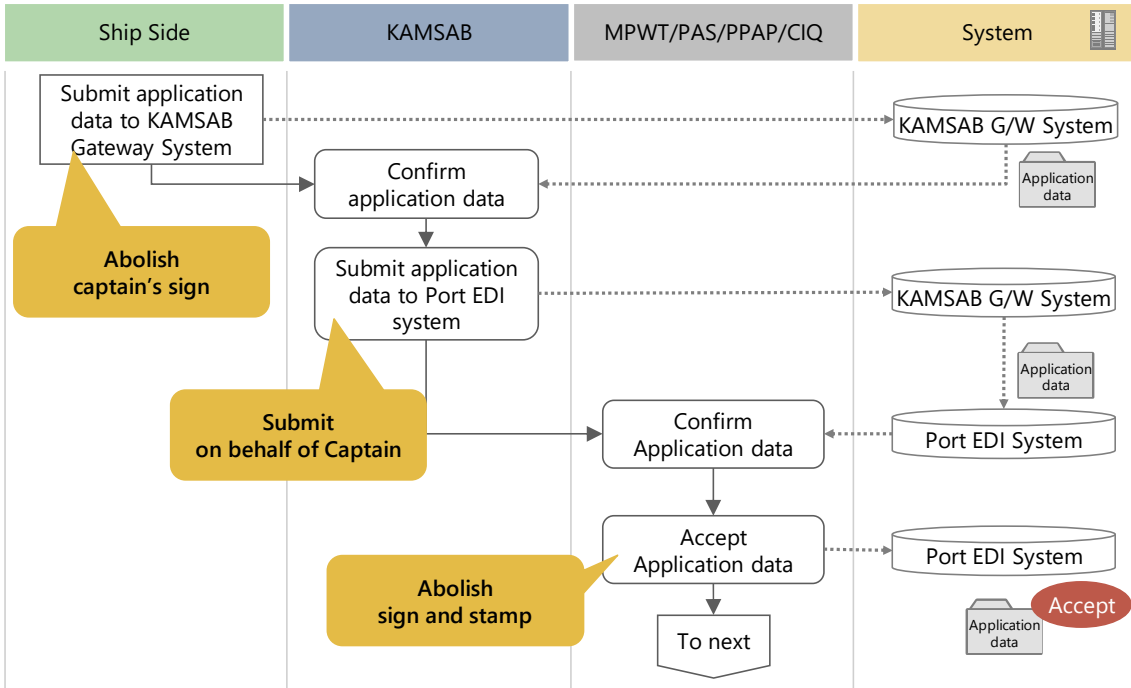
Figure 9: Basic Workflow for Applications
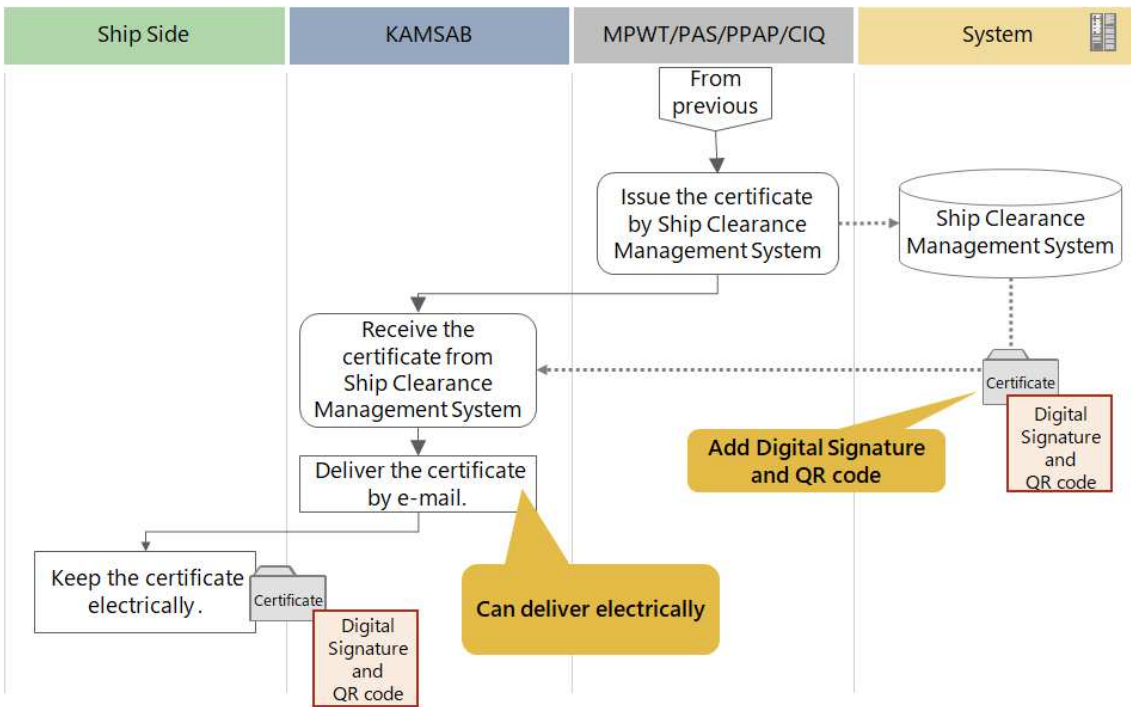
Figure 10: Basic Workflow for Issue

D. Relationship of Pre-Arrival Notice and Arrival Declaration

The forms for the Pre-Arrival Notice shall be replaced with the standard FAL forms FAL 1 – FAL7. Thus, Ship Clearance Committee members can get the information on Arrival Declaration in advance. The ship side shall submit the same information for the Pre-Arrival Notice and the Arrival Declaration.

- The Pre-Arrival Notice is tentative information. If the information is updated, the ship side and KAMSAB must resubmit the form.
- The Arrival Declaration is finalized information.
- Some items that can be fixed after arrival, such as the actual draft and the time of pilot on board, shall be included in only the Arrival Declaration.

Each registered data will be reviewed and updated through each procedure. The accuracy of registered data will be improved gradually as the procedure progresses (Figure 11).
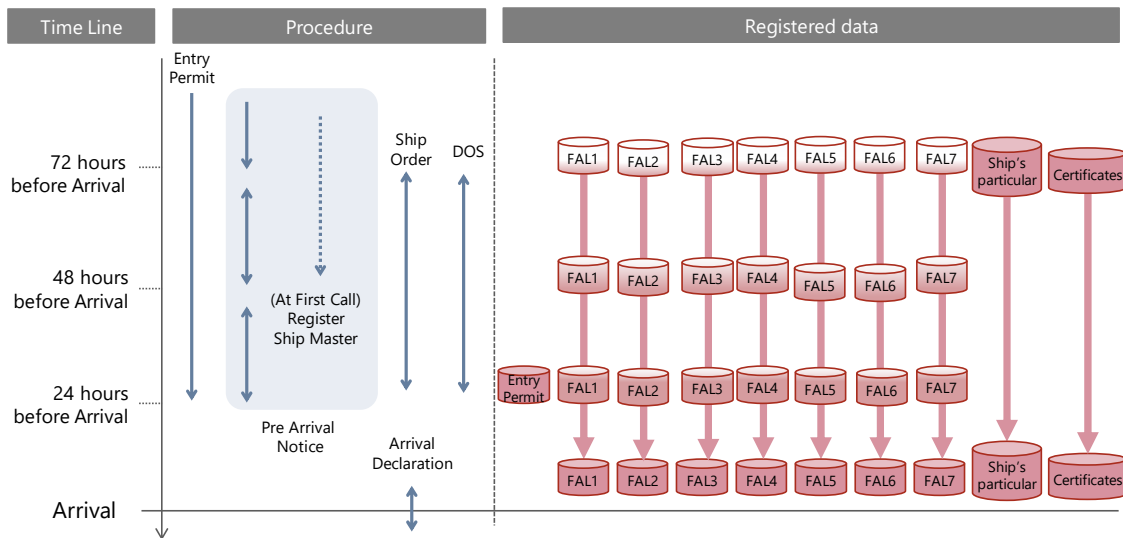
Figure 11: Images of Registering Application Data

E. Policy of Boarding Inspection

A terminal with a mobile communication module will be introduced into Customs, Immigration, and Quarantine. So, at the time of the boarding inspection, Customs, Immigration, and Quarantine will be able to review the data, accept the application data, and issue certificates through the Port EDI System using the mobile network on board.

F. Image of State of Application

If any mistake is detected in the application data during confirmation of the Committee members, KAMSAB must amend and resubmit the form immediately.
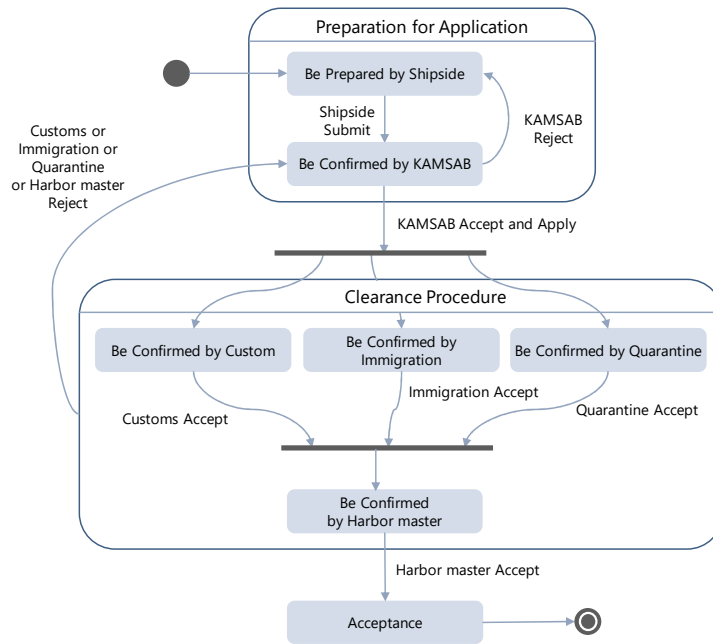
Figure 12: State Chart of Arrival Declaration: PAS
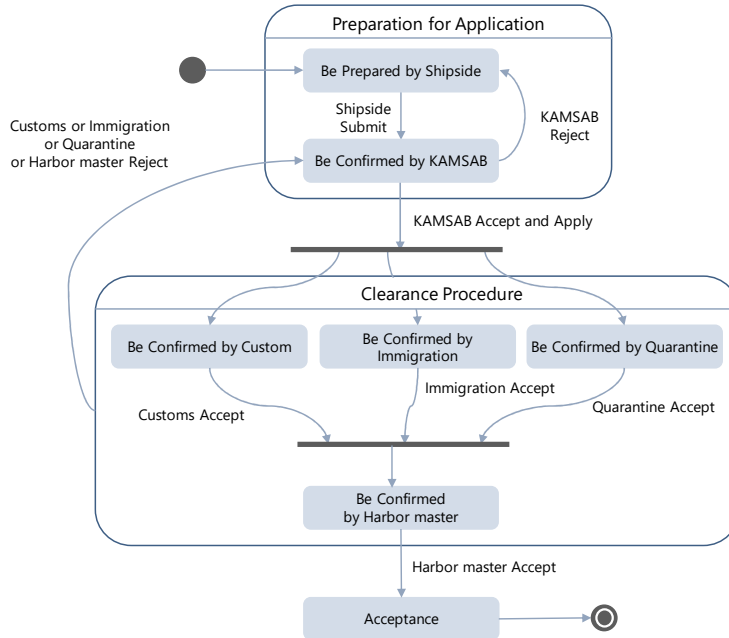
Figure 13: State Chart of Departure Declaration: PAS
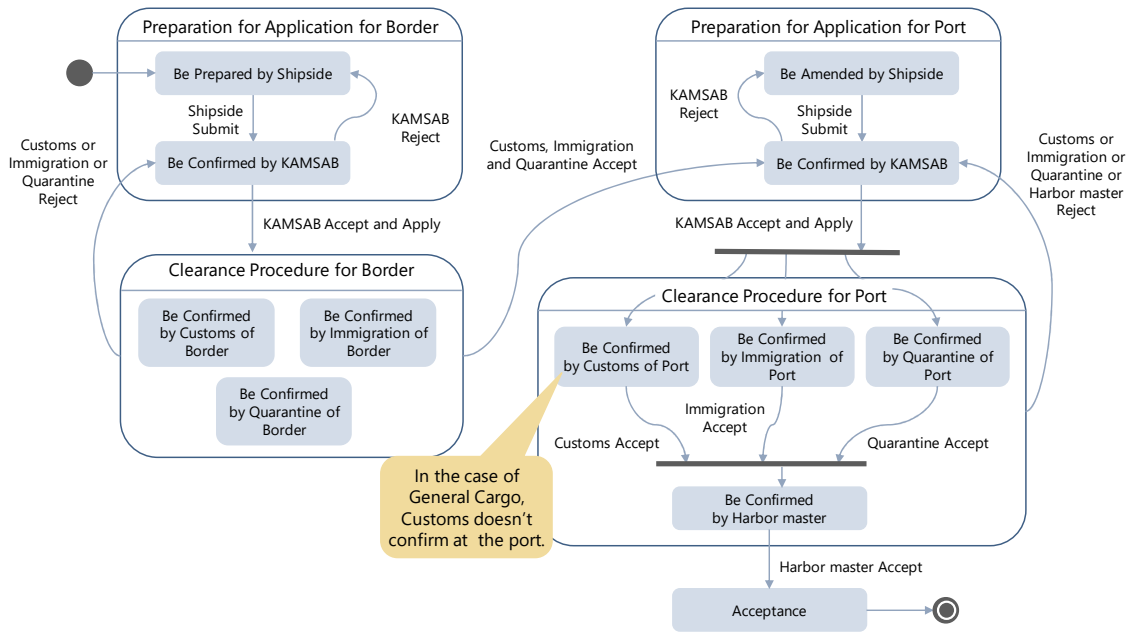
Figure 14: State Chart of Arrival Declaration: PPAP
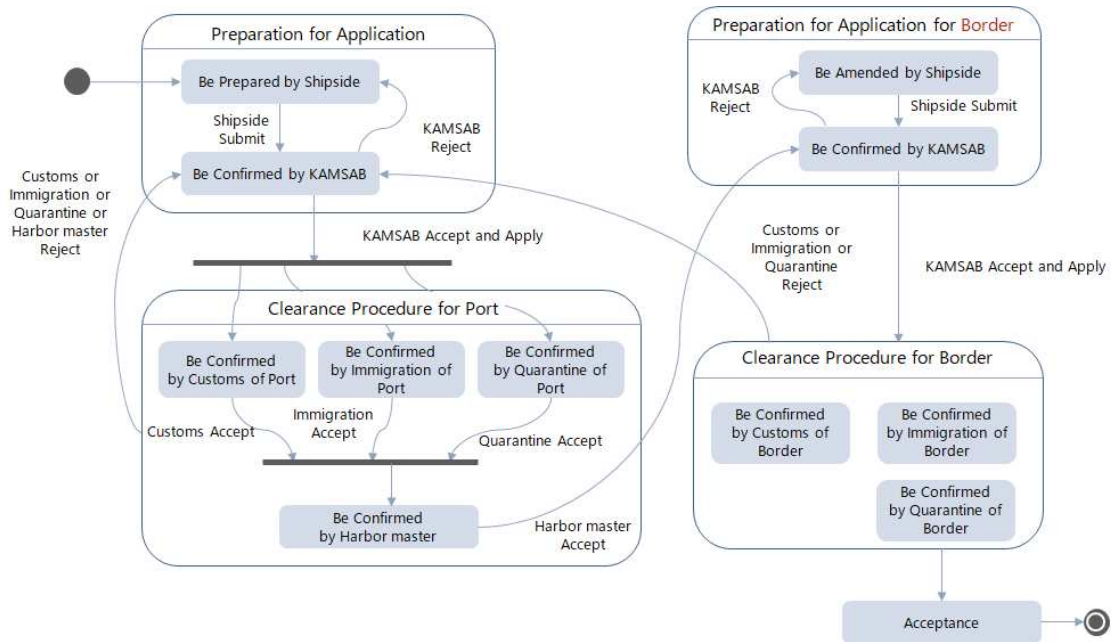
Figure 15: State Chart of Departure Declaration: PPAP

G. Access Rights

In the Ship Clearance Management System and Gateway System, access rights shall be defined properly (Table 2).

Table 2: Access Rights of Port EDI System

Users		Access right			
		Ship Clearance Management System		Gateway system	
		Data Concerning Sihanoukville Port	Data Concerning Phnom Penh Port	Data Concerning Sihanoukville Port	Data Concerning Phnom Penh Port
MPWT		All data	All data	N/A	N/A
PAS		All data	N/A	N/A	N/A
PPAP		N/A	All data	N/A	N/A
Customs	Sihanoukville	Data concerning Customs procedure	N/A	N/A	N/A
	Phnom Penh	N/A	Data on Customs procedure	N/A	N/A
Immigration	Sihanoukville	Data on Immigration procedure	N/A	N/A	N/A
	Phnom Penh	N/A	Data on Immigration procedure	N/A	N/A
Quarantine	Sihanoukville	Data on Quarantine procedure	N/A	N/A	N/A
	Phnom Penh	N/A	Data on Quarantine procedure	N/A	N/A
KAMSAB	HQ [as business operator of Port EDI System]	All data	All data	All data	All data
	Sihanoukville	All data	N/A	All data	N/A
	Phnom Penh	N/A	All data	N/A	All data
Ship Side		N/A	N/A	Data on own vessels	

Ｈ．Policy on Managing Data in the Port EDI System

The data submitted from the ship side for each Declaration shall be based on the FAL Convention. Thus, the data submitted from the ship side for each Declaration shall be brought together in the FAL forms.

- General Declaration (FAL Form 1)
- Cargo Declaration (FAL Form 2)
- Ship's Stores Declaration (FAL Form 3)
- Crew's Effects Declaration (FAL Form 4)
- Crew List (FAL Form 5)
- Passenger List (FAL Form 6)
- Dangerous Goods (FAL Form 7)

The documents shown below must be registered in the Port EDI System in accordance with the FAL Convention.

- Maritime Declaration of Health
- Security-related information as required under SOLAS
- Advance notification form for waste delivery to port reception facilities

The ship's particulars must be registered in the Port EDI System in addition to the items stipulated in the FAL Convention. The certificates shown below must be registered in the Port EDI System in PDF format in addition to the items stipulated in the FAL Convention.

- Registration Certificate
- International Tonnage Certificate
- International Load Line Certificate
- International Oil Pollution Prevention Certificate
- Sanitation Exemption Certificate
- Classification Certificate
- Safety Construction Certificate
- Ship Radio License Certificate
- Tender boat or Life Boat Certificate
- Document of Compliance
- Minimum Safe Manning Certificate
- Safety Management Certificate
- Safety Equipment Certificate
- International Ship Security Certificate

Some essential original items will be registered in the remarks section of FAL 1. Any files such as PDF, csv, or etc. will be attached to each application.

Registered forms for arrival are shown in Table 3

Table 3: Registered Forms for Arrival

Registered Forms		Current documents brought together to FAL forms	
Forms	Additional Items	Current documents	Omitted Items from current documents
General Declaration	These Item below are managed in Remarks • Draft at Arrival	Pre-Arrival Notice	N/A

Registered Forms		Current documents brought together to FAL forms	
Forms	Additional Items	Current documents	Omitted Items from current documents
(FAL Form 1)	• Air Draft • Pilot on Board	Declaration of Arrival	N/A
Cargo Declaration (FAL Form 2)	N/A	Declaration of Arrival	N/A
		Inward Manifest	• Shipper • Consignee • Notify Party • Place of Receipt • Place of Delivery • Rate of Freight USD
		General Cargo Declaration	N/A
Ship's Stores Declaration (FAL Form 3)	N/A	Ship's Stores Declaration	N/A
		Deck Store	N/A
		Provision Store List	N/A
		Bonded Stores List	N/A
Crew's Effects Declaration (FAL Form 4)	N/A	Crew's Effects Declaration	N/A
Crew List (FAL Form 5)	N/A	Crew List	N/A
Passenger List (FAL Form 6)	N/A	Passenger List	• Cabin No. • Visa (Type, Offered Place) • Place of Staying in Cambodia
		Embark/Disembark Passenger list	N/A
Dangerous Goods (FAL Form 7)	N/A	Declaration of Arrival	N/A
Maritime declaration of Health	N/A	Maritime Health Declaration	N/A
		List of Narcotic Drugs	N/A
		Crew Vaccination List	N/A
		Report of Water Taken Onboard	N/A
		International Vaccination Certificate (Yellow Book)	N/A

Registered Forms		Current documents brought together to FAL forms	
Forms	Additional Items	Current documents	Omitted Items from current documents
Security-related information as required under SOLAS	N/A	International Ship Security Certificate	N/A
		Port of Call List	N/A

These documents for arrival shown below are registered in the Ship Clearance Management System and Gateway System in PDF format.

- Last Port's Clearance Certificate
- Passport
- Seaman's book

Registered forms for departure are shown in Table 4.

Table 4: Registered Forms for Departure

Registered Forms		Current documents brought together to FAL forms	
Forms	Additional Items	Current documents	Omitted Items from current documents
General Declaration (FAL Form 1)	These Item below are managed in Remarks • Exact draft on departure • Pilot on Board • Air Draft	Declaration of Departure	N/A
Cargo Declaration (FAL Form 2)	N/A	Outward Manifest	• Shipper • Consignee • Notify Party • Place of Receipt • Place of Delivery • Rate of Freight USD
		General Cargo Declaration	N/A
Ship's Stores Declaration (FAL Form 3)	N/A	Ship's Stores Declaration	N/A
		Deck Store	N/A
		Provision Store List	N/A
		Bonded Stores List	N/A
Crew's Effects Declaration (FAL Form 4)	N/A	Crew's Effects Declaration	N/A

Registered Forms		Current documents brought together to FAL forms	
Forms	Additional Items	Current documents	Omitted Items from current documents
Crew List (FAL Form 5)	N/A	Crew List	N/A
Passenger List (FAL Form 6)	N/A	Passenger List	• Cabin No. • Visa (Type, Offered Place) • Place of Staying in Cambodia
		Embark/Disembark Passenger list	N/A
Maritime declaration of Health	N/A	Declaration of Health for Outbound Vessel	N/A

These documents for departure shown below are registered in the Ship Clearance Management System and Gateway System in PDF format.
• Passport
• Seaman's book

I. Omitted Current Forms

These current documents for the arrival of the vessel shown below are <u>not</u> registered in the Ship Clearance Management System and Gateway System.
• Articles Forbidden List
• NIL List
• Custom Application
• Arrival/Departure Condition
• Unloading Container List
• Inward Manifest
• B/L

These current documents for the departure of vessels shown below are not registered in the Ship Clearance Management System and Gateway System.
• Report on Receipt of Cargo
• Arrival/Departure Condition
• Outward Manifest
• B/L

J. Issued Forms in Ship Clearance Management System

These documents shown in Table 5 are issued from the Ship Clearance Management System.

Table 5: Issued Forms from Ship Clearance Management System

Business	Issued Documents
Pre-Arrival Notice	N/A
Entry Permit	Entry Permit
Arrival Declaration	Free Pratique Ship Sanitation Control Exemption Certificate
Departure Declaration	Port Clearance Quarantine Certificate of Departure
Ship Order	N/A
Declaration of Security	Declaration of Security

K. Statistical function

The forms managed in Statistic Management function are based on "Manual of Port Statistics Survey and Analysis. The project for Establishment of National Port Policy and Administration System in Cambodia" (The taskforce for Establishment of National Port Policy and Administration System and The Overseas Coastal Area Development Institute of Japan, 2011).

Basically, the items included in the forms will be collected and managed in the Ship Clearance Management System. The access rights shall be issued properly so that each authority has access to the information related to the organization only as shown in Table 2.

Printed forms are shown below.
- Information on Vessel calls
- Import Cargo Statistics by Vessel and Commodity
- Export Cargo Statistics by Vessel and Commodity
- International passengers

ii. System Functions Requirements

An overview of system functions is shown below.

A. Ship Clearance Management System

The function list of the Ship Clearance Management System is shown in Table 6.

B. Gateway System

The function list of the Gateway System is shown in Table 7.

Table 6: Function List of Ship Clearance Management System

Business	Function Name	Data Items		User*					
		Input data	Output data	M	P	C	I	Q	K
At first call And Once a year	Submit the certificates [Individual Input]	• Metadata of the Certificates [expire date] • Registration Certificate, International Tonnage Certificate and so on[PDF]							✓
	Refer and output the certificates		• Metadata of the Certificates [expire date] • Registration Certificate, International Tonnage Certificate and so on[PDF]	✓	✓				✓
	Register Ship's particular [Individual Input]	• Ship's particular							✓
	Refer and output Ship's particular		• Ship's particular	✓	✓				✓
Pre-Arrival Notice	Submit Pre-Arrival Notice [Individual Input/ File Upload/ Online reception]	• FAL 1, 5-6 • Security-related information as required under SOLAS							✓
	Refer and output Pre-Arrival Notice		• FAL 1, 5-6 • Security-related information as required under SOLAS	✓	✓	✓	✓	✓	✓
	Accept Pre-Arrival Notice			✓	✓	✓	✓	✓	
Entry Permit	Submit Entry Permit Application [Individual Input/ File Upload/ Online reception]	• Entry Permit application							✓
	Issue Entry Permit		• Entry Permit [with digital signature and QR code]	✓					
	Refer and output the certificates		• Entry Permit [with digital signature and QR code]	✓	✓				✓

Business	Function Name	Data Items		User*					
		Input data	Output data	M	P	C	I	Q	K
Arrival Declaration	Submit Arrival Declaration <For Port/ For Border> [Individual Input/ File Upload/ Online reception]	• FAL 1-7 • Maritime declaration of Health • Security-related information as required under SOLAS • Advance notification form for waste delivery to port reception facilities							✓
	Refer and output Arrival Declaration		• FAL 1-7 • Maritime declaration of Health • Security-related information as required under SOLAS • Advance notification form for waste delivery to port reception facilities	✓	✓	✓	✓	✓	✓
	Accept Arrival Declaration <For Port/ For Border>			✓	✓	✓	✓	✓	
	Issue Free Pratique		• Free Pratique [with digital signature and QR code]					✓	
	Refer and output Free Pratique		• Free Pratique [with digital signature and QR code]					✓	
	Issue Ship Sanitation Certificate		• Ship Sanitation Certificate [with digital signature and QR code]					✓	
	Refer and output Ship Sanitation Certificate		• Ship Sanitation Certificate [with digital signature and QR code]	✓	✓			✓	✓

Business	Function Name	Data Items		User*					
		Input data	Output data	M	P	C	I	Q	K
Departure Declaration	Submit Departure Declaration <For Port/ For Border> [Individual Input/ File Upload/ Online reception]	• FAL 1-7							✓
	Refer and output Departure Declaration		• FAL 1-7	✓	✓	✓	✓	✓	✓
	Accept Departure Declaration <For Port/ For Border>			✓	✓	✓	✓	✓	
	Issue Port Clearance		• Port Clearance [with digital signature and QR code]		✓				
	Refer and output Port Clearance		• Port Clearance [with digital signature and QR code]	✓	✓				✓
	Issue Quarantine Certificate of Departure		• Quarantine Certificate of Departure [with digital signature and QR code]					✓	
	Refer and output Quarantine Certificate of Departure		• Quarantine Certificate of Departure [with digital signature and QR code]	✓	✓			✓	✓
	Accept Departure Declaration			✓	✓	✓	✓	✓	
Ship Order	Submit Ship Order <For Port/ For Border> [Individual Input/ Online reception]	• Ship Order							✓
	Refer and output Ship Order		• Ship Order	✓	✓				✓
	Accept Ship Order <For Port/ For Border>				✓				

Business	Function Name	Data Items		User*					
		Input data	Output data	M	P	C	I	Q	K
Manage Application	Refer the status of the procedure			✓	✓	✓	✓	✓	✓
	Interface the status of the procedure with KAMSAB Gateway System								
Statistical Management	Refer and output statistics Forms		• Information on Vessel calls	✓	✓	✓	✓	✓	✓
			• Import Cargo Statistics by Vessel and Commodity	✓	✓	✓			✓
			• Export Cargo Statistics by Vessel and Commodity	✓	✓	✓			✓
			• International passengers	✓	✓		✓	✓	✓
	Extract the data		Data managed in Port EDI System	✓	✓	✓	✓	✓	✓

<User*>M: MPWT, P: PPAP and PAS, C : Customs, I : Immigration, Q : Quarantine, K : KAMSAB

Table 7: Function List of Gateway System

Business	Function Name	Data Items		User	
		Input	Output data	KAMSAB	Ship Side
At first call And Once a year	Submit the certificates [Individual Input]	• Metadata of the Certificates [expire date] • Registration Certificate, International Tonnage Certificate and so on[PDF]		✓	✓
	Refer and output the certificates		• Metadata of the Certificates [expire date] • Registration Certificate, International Tonnage Certificate and so on[PDF]	✓	✓
	Register Ship's particular [Individual Input]	• Ship's particular		✓	✓
	Refer and output Ship's particular		• Ship's particular	✓	✓
Pre-Arrival Notice	Submit Pre-Arrival Notice [Individual Input/ File Upload/ Online reception]	• FAL 1,5-6 • Security-related information as required under SOLAS		✓	✓
	Refer and output Pre-Arrival Notice		• FAL 1,5-6 • Security-related information as required under SOLAS	✓	✓
Arrival Declaration	Submit Arrival Declaration <For Port/ For Border> [Individual Input/ File Upload/ Online reception]	• FAL 1-7 • Maritime declaration of Health • Security-related information as required under SOLAS • Advance notification form for waste delivery to port reception facilities		✓	✓

Business	Function Name	Data Items		User	
		Input	Output data	KAMSAB	Ship Side
Arrival Declaration	Refer and output Arrival Declaration		• FAL 1-7 • Maritime declaration of Health • Security-related information as required under SOLAS • Advance notification form for waste delivery to port reception facilities	✓	✓
	Accept and Interface Arrival Declaration with Port EDI System <For Port/ For Border>			✓	
Departure Declaration	Submit Departure Declaration <For Port/ For Border> [Individual Input/ File Upload/ Online reception]	• FAL 1-7		✓	✓
	Refer and output Departure Declaration		• FAL 1-7	✓	✓
	Accept and Interface Departure Declaration with Port EDI System <For Port/ For Border>			✓	
Manage Application	Online reception of the application status			✓	✓
	Refer the application status			✓	✓

C. User Management Functions

For the user management function, the following functions are provided.
- Application from the use seekers and notice of application permission
- Management of user groups, including management of the departments concerned and approval authority
- Management of the roles of user groups and users in the procedures and their access authorities

D. Functions for Port EDI System Operation

a. System monitoring function

Error events involving hardware and software from the Port EDI System environment can be monitored in one place.

b. Data backup function

Function for backing up and restoring data will be installed. Target data for backups is shown below. Backup to removable media (tape) is also available.
- Business data and operational data: Business data in the database and access logs, etc.
- System image data: Used when re-installation of a server is required

c. Job scheduling function

Job scheduling functions are installed for operational tasks can be done automatically and periodically based on a schedule without manual operation.

E. Common Functional Requirements

a. Requirements for Query Function and Search Function
- As a specific search function commonly used by different businesses, it is necessary to enable users to search by corporate name and address and by combination of the two ways, etc.
- It is necessary to enable the search for one item by entering multiple search criteria.
- It is necessary to enable users to check the search criteria and search results on the same screen.
- If the target data corresponding to the search conditions is more than one, it is necessary to display the objects in a list and to enable users to select one for information in more detail.
- If the target data cannot be completely displayed on the screen, it is necessary to display the rest on the next page.
- It is necessary to display the total number of data corresponding to the search conditions on the screen.
- It is necessary to display on the screen that the search is in progress.

b. Requirements for EUC
- It is necessary to provide data in consideration of the convenience of users.
- It is necessary to output predefined Excel and CSV boilerplate data.

- It is necessary to enable users to output the data with an operation as simple as possible like one click, etc.
- It is necessary to provide a function for extracting atypical data in Excel and CSV format.
- It is necessary to enable users to operate by GUI when prescribing the extraction conditions.

c. Requirements for Character Encoding
- The character encoding system to be used in the Port EDI System will be UTF-8 or UTF-16.

d. Ensuring of Time Accuracy
- A function to synchronize the equipment of the Port EDI System with the correct time will be provided.

iii. Display Requirements

A. Layout and transition
- The language used on the screen of the Port EDI System will be English and Khmer in principle. Khmer-English translation is a disclaimer, and the Cambodia side is responsible for preparing the English-Khmer translation table.
- A systemized menu display will be conducted as routine business.
- The menu display can be changed depending on the authority of the user.
- Screen names, form names, and items displayed on the screen will be unified within the Port EDI System.
- Error and warning messages will be unified within the Port EDI System to avoid misunderstandings on the part of users with the contents of error and warning messages and the solutions expressed in a way that is easily understood.
- The mandatory and optional fields will be distinguished by labeling, etc.
- The layout, transition, and structure of the screens shall be designed in consideration of the user experience (UX).

B. Ensuring of Visibility
- Information will be displayed with a high value attached to brevity, accessibility, and understandability.
- The layout will be designed in consideration of the eye movement of users.
- User interface (UI) will be designed to responsively adapt to the size of the screen (responsive web design).

C. Mechanism to Contribute to the Input Load Reduction
- By way of the initial display of the appropriate value in the input field, etc., a mechanism enabling the reduction of the user input load will be realized.
- The Port EDI System will be equipped with a calendar input auxiliary function for the date entry items (year, month, and day) but will also be compatible with direct entry methods.
- If the entry of a code is required for an input item, a button will be placed on the screen to enable a search for the code from a list. Also, a means will be provided to facilitate the handling of memory transfer on the screen displays.

- In the process of business operations, when information processing across multiple screen displays is needed, a function for the takeover of information between the transition source screen and the destination screen will be provided as one of the measures to facilitate information referencing.

D. Mechanism to Contribute to the Improvement of Operability
- Through the appropriate use of icons, the operation will be devised in a way that it can be easily handled even by beginners.
- When a screen transition is being operated, appropriate messages corresponding to the degree of importance of the processing will be displayed. For operations, such as data deletion, etc., the display of a confirmation screen, etc. is imperative to avoid the occurrence of erroneous operation.
- In the process of business operations, when repeated screen processing is necessary, it will be possible that the operation can be continued without returning to the menu screen after the completion of one screen processing to save unnecessary screen transitions.

ⅳ. Requirements for Forms

A. Display Contents

a. Unification of Rules on Form Design
- The language to be used for the forms of the Port EDI System will be English and Khmer in principle. Khmer-English translation is a disclaimer, and the Cambodia side is responsible for preparing the English-Khmer translation table.
- The basic settings related to the layout of forms, including the setting of the width of the margin and font, will be unified within the Port EDI System.
- Item names and the like will be unified within the Port EDI System to avoid misconceptions about print items.

b. Ensuring of Visibility
- Fonts that are easy to read will be adopted.
- Numeric output will be expressed with digit grouping separation, and the number of digits for the same information will be unified among the different forms.

B. Requirements for Form Output
- The kind of paper used for the forms will be A4-size general-purpose paper, in principal.
- For the forms of A4 size general-purpose paper, printing by overlay will be the basic method without test printing.
- The printing method will be devised in a way that the data can be output by a general-purpose laser printer.

C. Requirements for Electric Documents
- The forms to be prepared during the various online operations and batch processes will be output in a certain style and file format (PDF or Excel) predetermined for the respective forms and will be stored on a predetermined form management server.

- For electronic forms stored on the form management server, different retention periods will be set for the respective types of form, and a form will be automatically deleted by the Port EDI System after its set retention period.
- The retention period for an electronic form to be stored on the form management server will be easily set and changed by users of the ordering party.
- The retention period for the electronic forms to be stored on the form management server will be five years. Those forms having been stored on the form management server for more than five years will be shifted to the original management server.
- Electronic forms stored on the form management server will be placed in folders in a logical hierarchy structure arranged and managed by the attribute of author or creation date, etc., and the screen displays will be provided whereby users can follow the hierarchy folders to specify the desired electronic form.
- It will be possible to retrieve electronic forms by attribute information.
- It will be possible to display, print, and download the specified electronic form.
- For each form being stored, a distinction will be made between printed and unprinted and between the downloaded and not yet downloaded so as to enable users to easily identify those forms unprinted and not yet downloaded.
- Regarding a created electronic form, only the user who performed the operation and the user who has been given the authority will be allowed to handle it. As to the other users, even the presence of the created form will not be known.
- Only the administrator who has been given the authority will be able to access directly to an electronic form file stored on the form management server, while other users are prohibited from doing so.
- The user's authority over an electronic form will be placed under master management as part of the user's authority over the entire Port EDI System, and users of operation and maintenance as the ordering party will be able to easily set and change it.
- When searching, displaying, printing, and downloading the forms, various logs will be adopted as in the case of other online operations.

v. Accessibility Requirements

- The contents described in English and Khmer will be handled in the Port EDI System.
- Through consultations with the ordering party, the contractor will make efforts to construct a system that combines usability and accessibility to information for users under a consistent design policy.

vi. System schematic design

The Port EDI System will be a Web system for a large number of users to use through the internet or leased lines.

2-2-3-2 System Physical Configuration

i. System Context Diagram of the Port EDI System

This diagram shows the relationship of the Port EDI System with all relevant entities.
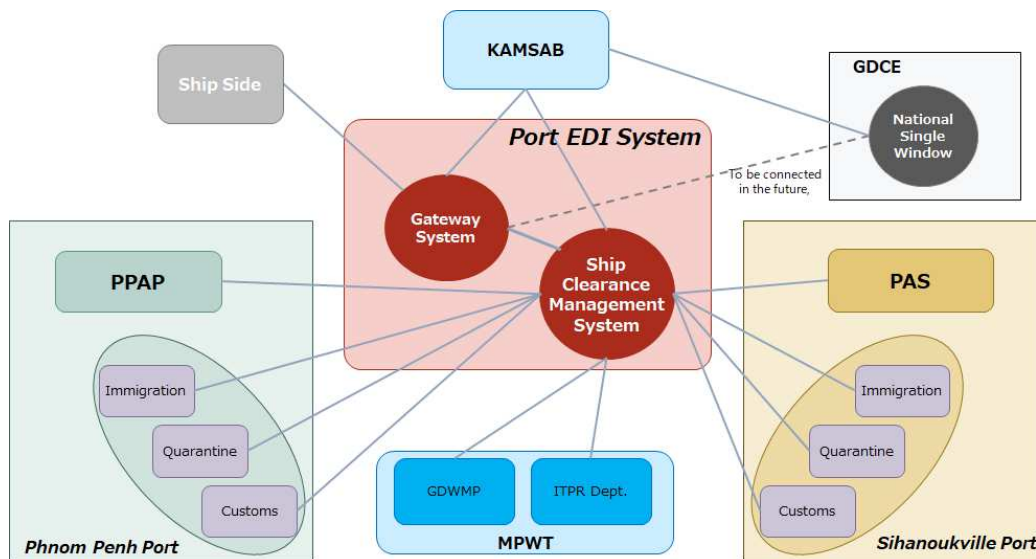
Figure 16: System Context Diagram

ii. Hardware Requirements

A. Basic Consideration

- Equipment, such as hardware, will be installed to enable the introduction and utilization of the Port EDI System.
- The redundancy of equipment, such as a server device, will be decided only if the reliability requirements and hardware maintenance requirements are fulfilled, and its usefulness in terms of economic rationality is confirmed. Besides, redundancy through mutual services with other servers will be possible.
- The utilization of virtualization technology to improve the efficiency of resources, etc., will be required to consider the economic rationality of hardware and other devices. Also, the functional requirements and performance requirements, etc. will be met in this case.
- When a failure occurs, it will be possible to replace the parts, disks, and other components without stopping the Port EDI System.
- It is desirable that equipment without a single point of failure will be chosen as much as possible to increase the reliability of all equipment.

B. List of Hardware

a. Server Environment

Regarding the procurement of equipment, such as hardware, the configuration and number will be determined based on the functional requirements and performance requirements, etc. In addition, a list of equipment is assumed to be as follows (Table 8).

Table 8: List of Equipment for Port EDI servers

Device Name	Number	Outline
Production Server Environment	1 set	Servers, storage and backup devices, cooling system, system monitoring equipment, racks, UPS etc., which facilitate the running of the Port EDI System.
Verification / Training Server Environment	1 set	Servers, etc., for carrying out the verification and training of refurbishment of the Port EDI System
WAN-related Network Equipment	1 set	Network equipment necessary for laying the WAN connecting to KAMSAB

Virtualization Technology (vSphere) is applied to the Port EDI System environment. Thus, each server for the Gateway System server and the Ship Clearance Management System server etc. is distributed on multiple servers as a virtual server. As a result, even if there is a problem with a physical server, the system is continuously available.

In addition, by sharing a physical server among multiple virtual servers, the initial and maintenance cost will be reduced.
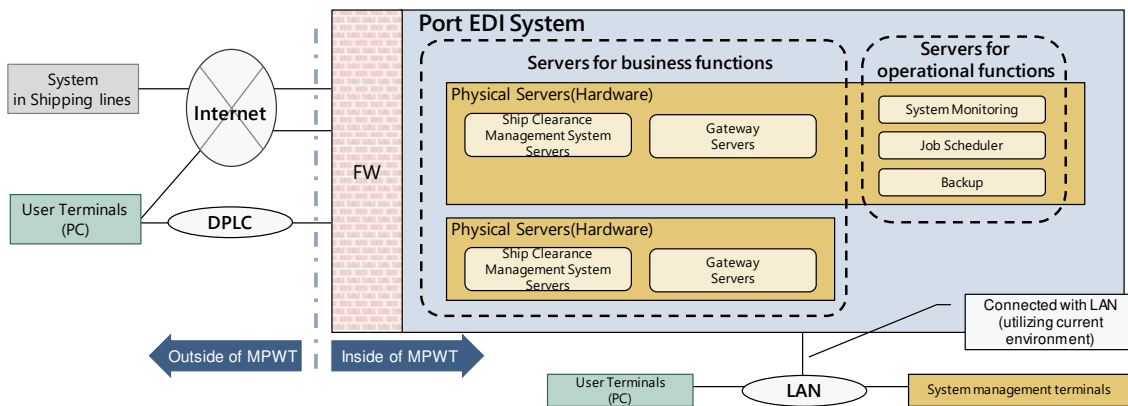
Figure 17: System Configuration Overview

b. User Environment

A minimum number of terminals (PC) and multifunction printers for accessing the Port EDI System will be delivered to each location (Table 9). If more terminals (PC) or printers are required, the relevant organizations are expected to procure the equipment themselves.

Table 9: Terminals/Printers for Port EDI System

No.	Users Group		Roles	Equipment introduced by the Project	
				Terminal (PC)	Multifunction printer
1	MPWT	GDWMP	Business User	4	1
2		ITPR Department	IT Administrator	2	1
3	KAMSAB	Phnom Penh	Business User	2	1
4			Business Operator	2	1
5		LM17	Business User	2	1
6		Border	Business User	2	1
7		Sihanoukville	Business User	2	1
8			Business Operator	2	1
9	PPAP	HQ	Business User	2	1
10		LM17	Business User	2	1
11	PAS		Business User	3	1
12	Customs	Phnom Penh	Business User	N/A	N/A
13		LM17	Business User	2	1
14		Border	Business User	2	1
15		Sihanoukville	Business User	2	1
16	Quarantine	Phnom Penh	Business User	2	1
17		LM17	Business User	2	1
18		Border	Business User	2	1
19		Sihanoukville	Business User	2	1
20	Immigration	Phnom Penh	Business User	2	1
21		LM17	Business User	2	1
22		Border	Business User	2	1
23		Sihanoukville	Business User	2	1
Total				47	22

iii. Software Requirements

- The supplier will propose the specifications for software like the OS and middleware, etc. needed to meet the requirements listed in this document.

- It is required that the products of the OS and middleware, etc. will be those with a record of being adopted in the same system and with high reliability. Also, the establishment of a quality control system is necessary to ensure the reliability of the service.

iv. Network Requirements

- Seven groups of the areas and locations are expected to connect the Port EDI System, except as ship side access (Table 10).
- Preparation of the network is a matter of responsibility for each organization of Cambodia side.(The MPWT should lead and manage this preparation.
- It is expected that users will utilize current internet access in each location for accessing the Port EDI System.
- KAMSAB will also use the DPLC service for accessing the Port EDI System from HQ in Phnom Penh, SHV office, and office of the LM17 area. (The preparation and cost for DPLC is covered by KAMSAB.).

Table 10: Network for Port EDI System

No.	Location	Users in location	Type of NW (DPLC or Internet)	Remarks
1	MPWT HQ	General Department of Waterway-Maritime Transport and Ports (GDWMP)	LAN	
		Information Technology and Public Relations (ITPR) Department	LAN	
2	KAMSAB HQ	KAMSAB in Phnom Penh	Internet / DPLC	DPLC will be prepared by KAMSAB
3	KAMSAB Sihanoukville Office	KAMSAB in Sihanoukville	Internet / DPLC	DPLC will be prepared by KAMSAB
4	Sihanoukville Port Area (PAS HQ)	PAS	Internet	
		Customs in Sihanoukville Port	Internet	
		Immigration in Sihanoukville Port	Internet	
		Quarantine in Sihanoukville Port	Internet	Internet will be prepared by Quarantine
5	Phnom Penh Port Area (PPAP HQ)	PPAP in PPAP HQ	Internet	
		Immigration in PPAP HQ	Internet	Using PPAP HQ NW
		Quarantine in PPAP HQ	Internet	Using PPAP HQ NW
6	Phnom Penh LM17 Area	PPAP in LM17	Internet	
		Customs in LM17	Internet	Using LM17 NW
		Immigration in LM17	Internet	Using LM17 NW
		Quarantine in LM17	Internet	Using LM17 NW
		KAMSAB office near LM17	Internet / DPLC	DPLC will be prepared by KAMSAB

No.	Location	Users in location	Type of NW (DPLC or Internet)	Remarks
7	Border Area	Customs office in Border	Internet (mobile network)	
		Immigration office in Border	Internet (mobile network)	
		Quarantine office in Border	Internet (mobile network)	
		KAMSAB office in Border	Internet (mobile network)	
-	Ministry of Economy and Finance General Department of Customs and Excise of Cambodia (GDCE)	National Single Window System (NSW)	-	To be connected in future.

ⅴ. Install location of servers

A. Location and the size of space for servers
- The server room will be located on the ground floor.
- Two or three standard server racks shall be installed. If the space is insufficient, the MPWT should expand the room.
- A cooling system shall also be installed between racks.
-

B. Request for MPWT
- Secure space for those racks
- Secure the space for outside unit of cooling system
- Secure a power supply for the Port EDI System
- Prepare global IP addresses, internet access for servers with global IP addresses, and DPLC connections between KAMSAB offices and   and the server room, and port for connecting LAN.

ⅵ. System Configurations Requirements

A. Basic Concept
- The Port EDI System is always running and available.
- Stops of the service for planned or non-planned maintenance are acceptable. (It means non-stop system operation 24/7 is not expected.)
- Server configuration for a production environment shall be considered to provide the service continuously in the case of a single failure (consideration of redundancy).
- The data is also secured by data backups onto media and RAID configuration in the case of the single failure of the hard disk.
- Disaster recovery sites (secondary site for the production) are not prepared for the Project. In the case the site all have problems, the Port EDI System stops and takes a long time for the recovery (fire, earthquake, etc.).
- Business records (data) shall be kept for 10 years.
- Installed technology of virtualization shall be vSphere in view of the affinity for the knowledge and environment of the ITPR Department in the MPWT.
- The LAN in the MPWT is utilized for access, so the Port EDI System is expected to connect to the LAN of the MPWT. (A connection with the core network switch of LAN in the MPWT is required.)
- The server environment shall be installed separately from the current ITPR Department environment.

B. Scale Requirements

a. Business Volume

Business volume will be based on the number of arrivals and departures of vessels.
- The number of ship calls is assumed to be 6,000 ships per year.

b. Number of Users

The number of users is assumed to be 171. The assumed number of users by organization at the start of the Port EDI System is indicated below.

Table 11: Number of Users of the Port EDI System

No.	Users Group			Roles	Num. of Users
1	MPWT	GDWMP		Business User	10
2		ITPR Department		IT Administrator	10
3	KAMSAB	Phnom Penh		Business User	14
4				Business Operator	6
5			HQ	Business User	5
6			LM17	Business User	5
7		Sihanoukville		Business User	30
8				Business User	6
9	PPAP	HQ		Business User	5
10		LM17		Business User	5
11	PAS			Business User	17
12	Customs	Phnom Penh		Business User	N/A
13			LM17	Business User	5
14			Border	Business User	5
15		Sihanoukville		Business User	5
16	Quarantine	Phnom Penh		Business User	5
17			LM17	Business User	5
18			Border	Business User	5
19		Sihanoukville		Business User	7
20	Immigration	Phnom Penh		Business User	5
21			LM17	Business User	5
22			Border	Business User	5
23		Sihanoukville		Business User	6

c. Hardware Resources

- Hardware resources will be provided on the basis of the application transaction requirement forecast for the next five years.
- System capacity will be decided in the design phase.

C. Performance Requirements

a. Online Response

The target value for online responses will be within 3 seconds. The compliance rate of online responses will be over 99%. However, the target value for online responses will exclude the time of aggregate calculation handling and network connection to the external system.

b. Batch Response

The performance of batch processing will not result in remarkable degradation of online processing.

D. Reliability Requirements

a. Integrity of Data
- Necessary measures will be implemented to ensure that no important data will be easily erased by erroneous operations.
- Data replication is required to ensure the reliability, accuracy, and maintainability of the data to be used in business.
- Data will be checked sufficiently during the update process to ensure data integrity. Furthermore, when the process is interrupted because of an error, the data will return to the state of the stage prior to the execution of the process.
- Backup of data with an external medium, such as tape, will be done to ensure maintainability of the data.

b. Data Confidentiality
- The functions and data of the Port EDI System will be available only to users with access authorization.
- Regarding unauthorized access and system operation failure, it will be possible to record and output the relevant trail (access log, event log, etc.) necessary for cause elucidation.

E. Availability Requirements

a. Operating Time

The Port EDI System will operate for 24 hours, except for planned downtime.

b. Operating Rate

The operating rate of the Port EDI System will be 99.9%.

c. Average Failure Recovery Time

The average failure recovery time of the Port EDI System will be within 24 hours, except for planned downtime.

d. System Failure Recovery Point
- The target duration of Port EDI System recovery will be one business day. Recovery will be made by restoring the daily backup data.

F. Scalability Requirements
- The Port EDI System configuration will facilitate the addition and change of business functions in response to institutional reform and organizational changes.
- For the CPU of the server and memory of the hard disk, etc., the average utilization rate every hour will be less than 80%. After the start of operations, the Port EDI System will continue running for up to five years.
- The scalability and flexibility required for the Port EDI System configuration will be ensured to enable the enhancement of servers and hard disks and load dispersion to accommodate an increase in utilization and accesses during the period of utilization of the Port EDI System.

G. System Compatibility Requirements
- In the selection of the OS, middleware, and other software, it is necessary to adopt products with high compatibility in later years.
- When using the OS, middleware, and package products, appropriate measures will be implemented in response to the assumed need for version upgrades during the period of implementation and five years after the start of operations.
- The Port EDI System will be constructed in a way that it will be able to correspond to the renewal of network specifications.
- Regarding version upgrades, if there is a technical problem, the work will be conducted on the basis of consultations with the ordering party.
- Regarding version upgrades, design and implementation will be conducted in a way that the need for refurbishment of business applications can be avoided as much as possible.

H. Use of Open Technology
- The Port EDI System will <u>not</u> adopt specific technology to make the equipment unique.
- Regarding the equipment, OS, middleware, and other software for this System, instead of depending on a particular technology or product, any technology conforming to industry standards or international standards will likely be adopted to ensure a continuous and stable guarantee of quality.
- In the procurement of equipment and software at the time of expansion and updating of the Port EDI System, any product or technology likely to stifle competition needed for procurement will not be adopted if at all possible.
- The Port EDI System configuration will ensure smooth data migration at the time of system renewal.

I. Security Requirements
- The Demilitarized Zone (DMZ) is configured using a firewall (FW) on the border between the Port EDI System and the internet or WAN.
- Access filtering via the FW will be applied to access from the internet.
- Communication between the user and the system and between the system and system is encrypted.
- Antivirus methods shall be applied to the servers and terminals.
- Other (user authentication, user management, access log management, etc.)

2-2-3-3 Pending Requirements

The requirements based on the request from the Cambodian side shown below will be reviewed again at the time of the Detail Design (D/D) Phase.

Table 12: Pending Requirements

#		Requirements
1	Methods to deliver issued certificates to ship side	Certificates issued from the Port EDI System will be shared with the ship side through the three methods below: • The Ship Clearance Management System sends the certificate via e-mail automatically to the ship side. • The ship side downloads the certificate from the Gateway System. • If the ship side cannot access e-mail or the system, KAMSAB will send the certificate electronically to the ship side.
2	Statistic form	To add import containers and export containers to the statistics form of the Statistic Management function, items that are not registered in the system through the ship clearance procedure must be registered manually.
3	Linkage to National Single Window	The Gateway System will be electrically linked to the National Single Window to exchange manifest data and Bill of Lading (B/L). KAMSAB shall receive manifest data and B/L from the ship side via the Gateway System for the customs clearance procedure (Figure 18).
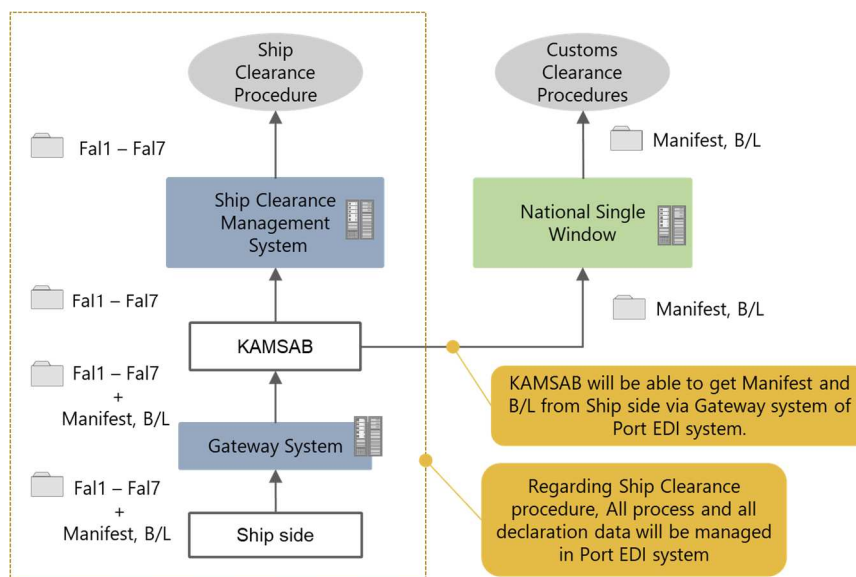
Figure 18: Policy of Linkage with NSW

2-2-4 Implementation Plan

2-2-4-1 Implementation Policy

The overall policy below related to the selection of procurement equipment that makes up the Port EDI System is shown as follows.

- The procurement of equipment will be arranged to enable the system to be constructed at lower cost and in a safe manner.
- It is necessary to effectively carry on the project so that system development of the EDI system is completed in a minimum period. Therefore, the procurement of equipment will not be divided into multiple lots, and the work loss arising from the procurement work and the communication between vendors will be minimized.

The characteristics of the Port EDI System are 1) it is the government formal procedure, 2) users are not familiar with IT. For 1), the Project set the confirmation point (sign off) to exit the basic design. This method is adopted for the large size and mission critical system, to avoid the delay in the implementation schedule, and to keep the high-quality system. Moreover, it is planned that the period of the acceptance test that includes the function test and running test by the user consumes six months.

For 2), in the beginning of the basic design, the prototype method is adopted. There are various kinds of prototype methods, but users can see other picture story shows, video clips, and simple tentative systems. This method contributes to users understanding what the Port EDI System is or what business process will be using IT. Also, an adequate length of time for the user acceptance test will be secured in order to make it possible to sufficiently confirm business operations using the Port EDI System before system go-live.

The MPWT will restructure its organization for system implementation so as to become capable of implementing the Port EDI System. The organization will be structured in line with the example as shown in Figure 19.
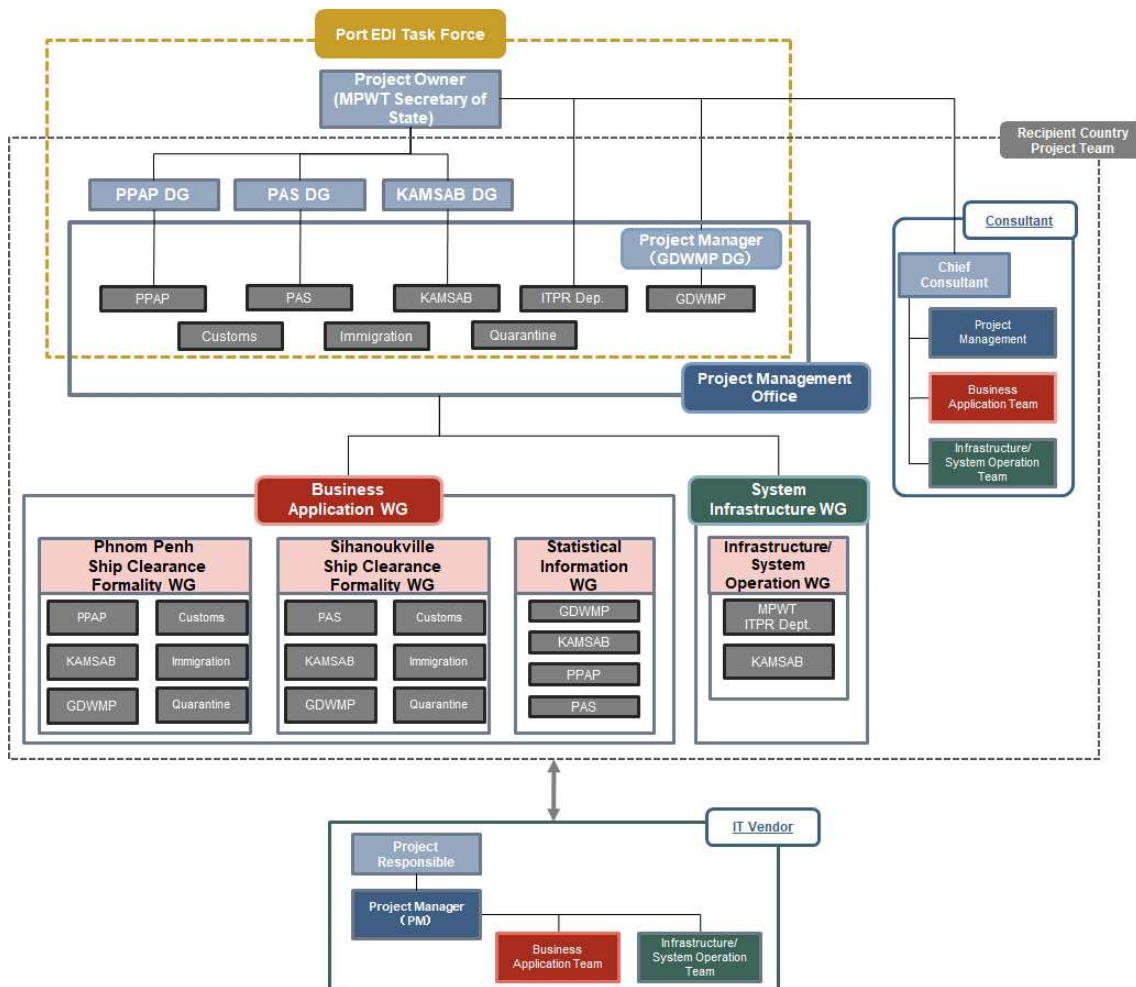
Figure 19: Proposed Organogram of Implementation of Port EDI System

2-2-4-2 Implementation Conditions

i. Conditions for Supplier Procurement

As for the Japanese grant aid project, the recipient is to enter into a contract with a Japanese consultant for consulting services with regard to the design, tendering, cost estimation, and supervision of the procurement work for the Project. The contract with the consultant is to be made by the single-source method on the basis of a recommendation letter issued from JICA in accordance with the procurement guidelines.

As for the procurement of the goods or services in the government of the Kingdom of Cambodia, the following guideline has been enacted by the sub-decree as of 8 June 2012. The sub-decree for the procurement manual for all externally financed projects and programs in Cambodia (May 2012). On the other hand, JICA had its own rules to apply for the grant aid, such as the Procurement Guidelines for Japanese Grants, Feb. 2016. There is a description in the Cambodia Guidelines: international bidding should be adopted to secure transparency and an adequate procurement price. However, it is also permitted to adopt the special conditions of the development partner (DP; such as the World Bank, Asian Development Bank, and JICA) for the project using loans or grants from the DP.

Hence, the Japanese grant aid rules are adopted for the procurement of the Port EDI System, and the Cambodian government of the Kingdom of Cambodia applies the competitive bidding rules among the Japanese tenderers. In addition, it does not prevent the Japanese tender from taking on the company or person of Cambodia or third countries as a subcontractor.

The owner of the bidding is the recipient country; therefore, the bidding is executed by the owner. However, the bidding will be held in Japan to procure the Japanese tender, so the consultant supports the procurement activity.

At the first step in the procurement, the tender document shall be prepared by the owner and supported by the consultant to describe the technical specifications and the various conditions. Technical specifications are described in accordance with the final report of the preparatory survey.

The proposals submitted from the tenderers are checked by the consultant and owner as to whether the proposal satisfies the requirements. The tenderer, whose proposal does not satisfy the requirements, cannot be a candidate for bidding. Finally, the winner of the tender is evaluated by the bidding price.

As a principle of the grant aid project, the prime contractors of the products and services mentioned above, as well as the prime consulting firms, are limited to Japanese nationals.

ii. Condition for Equipment Procurement

In the Project, it is very important to ensure timely and proper maintenance services from official vendors for the hardware, OS, and middleware, including their local agents in Cambodia, when the Port EDI System has been initially put into operation. Accordingly, as a policy on the procurement of hardware, OS, and middleware, timely and proper maintenance services from the said official vendors, including their local agents, are to be ensured. Although IT related products (hardware, network equipment, and software products) to be procured in this project are not manufactured in Cambodia, the products of Japan or third countries will be procured, and there are agencies and vendors dealing with such equipment on site, so these devices can be procured within Cambodia.

2-2-4-3 Scope of Work

The responsibilities of the grant and the recipient country are shown in Table 13, hardware and software will be procured and installed by the supplier of the Japanese grant aid. The responsible division points of work are described below:

- Preparation of the server room for installing the server is a matter to be borne by the recipient country. The supplier of the Japanese grant aid will install equipment into the space prepared by the recipient country.
- Preparation of physical network connection between the sites (contract of WAN service, contract of Internet connection service, etc.) shall be carried out by the recipient country. On the other hand, it is the scope of the Japanese grant aid to establish the connection using the environment.
- The maintenance of the LAN environment within the offices of each organization shall be the scope of the implementation of the recipient country. However, confirming the establishment of internet access from the user terminal is carried out under the Japanese grant aid.

During system development, the recipient country has the following responsibilities.

- To manage the progress and tasks of the entire project and make timely and appropriate decisions. To conduct taskforce meetings to make the important decisions and convene progress meetings to confirm progress and issues.

- To conduct quality control of the system development through confirmation and approval of the basic design, confirmation of test plans and results, etc.
- To conduct the user acceptance test in order to judge whether the system can be used for actual work.
- To take over the system through training and other means.
- To explain the Port EDI System to the ship side and conduct the system connection test.

The details of the work to be conducted by the Cambodia side are described in 2.3.

Table 13: Major demarcation for the development

Items	Grant	Recipient Country
Server room (space for three server racks, adequate electricity, air conditioning, security, countermeasure for the small animals and natural disaster)	-	✓
Equipment for the Port EDI Servers and its installation work (servers, storage, backup devices, cooling system, system monitoring equipment, racks, UPS, OS, DB, middleware, and application)	✓	-
Equipment for the client PC and multifunctional printer, and its installation work at the user site of the MPWT, KAMSAB, PAS, PPAP, Customs, Immigration, and Quarantine,	✓: At least two PC and multifunctional printer are delivered.	✓: In the event more PCs are required at each location, users are expected to shoulder the purchase costs.
LAN, WAN, and internet connection	-	✓
Prepare the network equipment for the DLPC	✓	-

note: ✓ is responsible for the preparation

2-2-4-4　Consultant Supervision

Once the Project has been officially approved under the conclusion of the Exchange of Notes (E/N) and the Grant Agreement (G/A), the MPWT will proceed to the procurement of developers and vendors. As the procedure requires specialized skills, the MPWT will be requested by JICA to hire management consultants who will support the MPWT in detailed designs and implementation supervision. The management consultants will be appointed by the MPWT based on JICA recommendation. This is the standard procedure for JICA grant aid. Contracts between the MPWT and the management consultants will be concluded by means of a standard contract format offered by JICA. JICA expects the MPWT to appoint and hire

the management consultants, so that procurement and detailed design procedures can be started in an efficient manner. The consultants, on the other hand, are expected to start negotiating the contract with the MPWT soon after the conclusion of the Grant Agreement.

The following points are basic policies for implementation of consultant supervision.

- As to the supervision of system development, in view of the circumstances where development companies undertake development management, overlapping management shall be avoided. During the development period of 21 months, consultants will make the situation of development transparent to the owner MPWT and support decision making, information provisioning, and preparatory work, which the recipient country agency must do.
- In consideration of the V-order model of system development, to support activities that the owner intends to act on entrance and exit (requirements definition, basic design completion judgment, system test completion judgment, function confirmation inspection, comprehensive operation test, etc.).
- For the purpose not only of the completion of the information system but also of making recipient countries autonomously continue to operate the completed system, consultants support manual preparation, education, training, explanatory meeting for related persons, the planning of operation and maintenance, etc.

The consultants will support the MPWT on the items mentioned below throughout the procurement and implementation period of the Port EDI System. Such tasks will be conducted by a team as illustrated in the following execution structure.

i. Detailed Design:

Implementation items of the consultants in the detailed design phase are as follows:
- Support for confirmation of the project plan
- Support for confirmation of specification
- Support for procurement of suppliers and vendors

The team structure is as shown in the figure below.
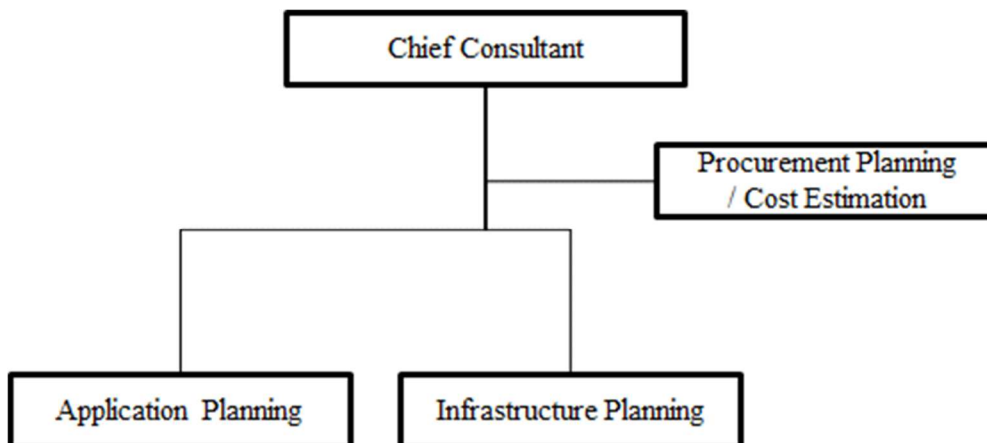
Figure 20: Team Structure of the Consultants for Detail Design

ii. Supervision of Implementation:

Implementation items of the consultants in the implementation phase are as follows:

- Support for system implementation process management
- Support for checks of the basic design
- Support for acceptance test (functional test and running test)
- Evaluate and advise for training results
- Support for involving the ship side
- Support for business migration and operations

The team structure is as shown in the figure below (Figure 21).
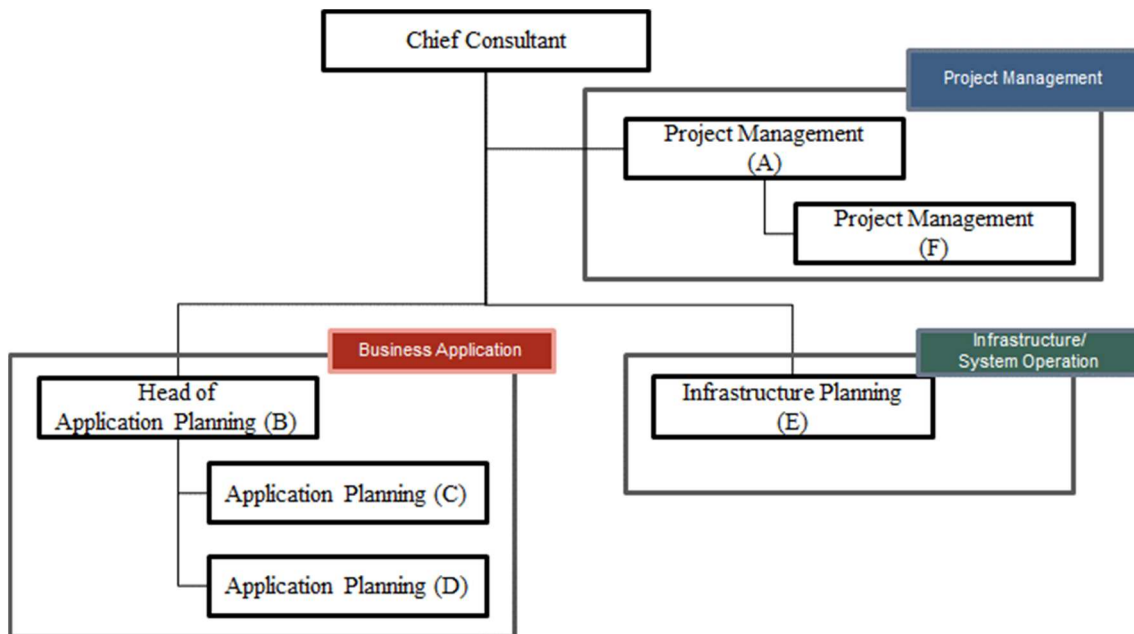
Figure 21: Team structure for Supervision of Implementation

iii. Soft Component (Technical Assistance);

Implementation items of the consultants as the soft component (technical assistance) are as follows:
- Support for preparation of the business manuals
- Support for preparation of the helpdesk
- Support for planning of operation and maintenance
- Support for preparation of the IT service management process

The team structure is as shown in the figure below (Figure 22).
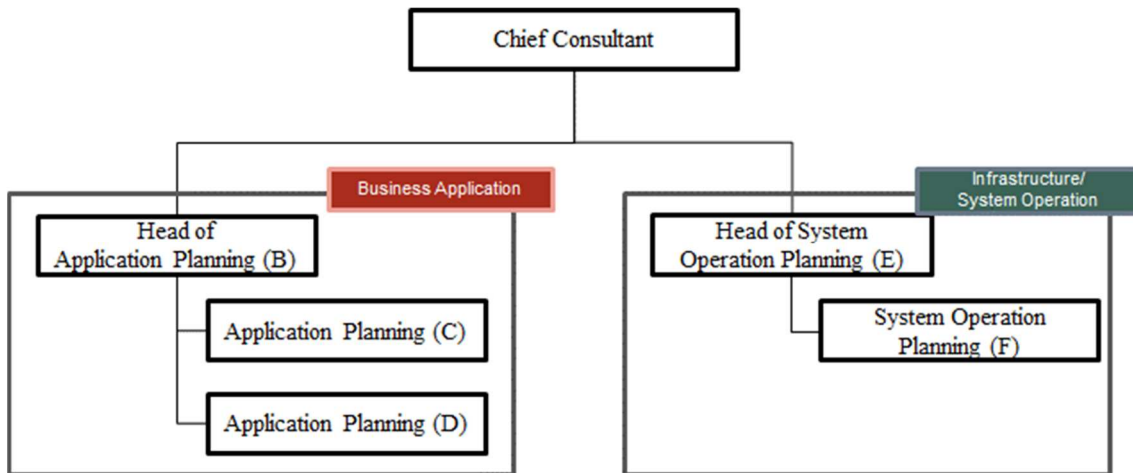
Figure 22: Team Structure for Supervision of Implementation

2-2-4-5 Quality Control Plan

While the unit tests, integration tests, and system tests will be conducted by the vendor, test plans provided by the vendor shall be examined by the Cambodia side. The vendor shall report the results of the tests to the Cambodia side. In order to realize the smooth introduction of the Port EDI System in Cambodia, user acceptance tests shall be conducted by the Cambodia side. That will be done for six months: two months for function tests of which test operators from the Cambodia side check the Port EDI System functions in accordance with the basic design, two months for running test phase 1 of which the test operators use the actual data for the tests, and finally, two months for running test phase 2 of which test operators use the actual data and apply the actual timeline. These test operations are to be hosted and conducted in the production environment by the MPWT. The consultant team will support the activities described above.

2-2-4-6 Procurement Plan

i. Plan for Supplier Procurement

The basic policy for procurement in the Project aims for competitive pricing to obtain the reliability of the integrated systems and to minimize the total cost of ownership. As such, the survey team has set the following points. The first point is the competitive pricing approach. The second point is bundling the procurement items to ensure the reliability of the integrated system. The Port EDI System consists of various kinds of H/W and S/W, and they have a close mutual relationship. Therefore, if the procurement is separated inappropriately, the complexity of the Port EDI System linkage and the risk of leading to incomplete construction will increase. Therefore, the elements that make up the Port EDI System will be procured by a single vendor. The third point is to take it into consideration that the total cost of ownership shall be minimized. The price of initial procurement and the operation and maintenance service shall be considered.

ii. Plan for Equipment Procurement

Concepts for procurement of equipment and the guarantee are as follows:
- As for the equipment, the priority will be given to the adoption of Japanese products, but third-country procurement will not be inhibited provided that it is significantly less expensive.
- Procurement equipment is subject to the provision of appropriate maintenance services from local agents and regular vendors in Cambodia.
- For the PC and multiple function printer, it is the policy to maintain a reservation rate of approximately 5% as against the total quantity in use.
- For the server, as it may take time for a vendor to deliver service after the order for technical support is placed, the preparation of a standby machine is an indispensable policy to ensure a normal operating environment even when a failure occurs in the server.

2-2-4-7 Operational Guidance Plan

The software development vendor is to provide the designated officials of the recipient country with training so that they can fulfill their responsibility of providing other officials and ship side users with training on how to use the Port EDI System.

For the period of the acceptance test, development vendors will support system verification by users, which includes support to prepare the system environment and data setup, Q&A compliant during the test, etc. In addition, in three months after go-live, on-site support for the initial operation of the system is planned for smooth business migration.

2-2-4-8 Soft Component (Technical Assistance) Plan

To create an operation manual and relevant activities shall be conducted by recipient country, however. it might be difficult for them to accomplish the works alone. Therefore, it is necessary to support the works by the consultant as a soft component. The contents of the soft component are following four items.
- Support for preparation of IT service management process
- Support for preparation of the helpdesk
- Support for planning of operation and maintenance
- Support for preparation of the business manuals,

A. Support for preparation of IT service management process

The manuals for IT service management process (inventory management, incident management, problem management) will be prepared. The business workflow related to IT service management process for handling inquiries will be also prepared. Mainly, ITRP staff have to consider the idea. It is necessary to help their work, because they don't have background of IT service planning. The necessary functions and organization for the IT service will be introduced by the consultant.

B. Support for preparation of the helpdesk

The manuals for the operation of the helpdesk will be prepared, and the person in charge of the helpdesk will be able to execute their work by themselves with the manuals. Also, rules and methods for managing inquiries will be prepared. Mainly, KAMSAB have to shoulder

this preparation work, while they don't have the experience for those works. The consultant will support the preparation for them.

C. Support for planning of operation and maintenance

The plan for operation and maintenance for proper operation of the Port EDI System is prepared. The formation, not only in the MPWT but is also with the maintenance vendors, for operation and maintenance and contracts will be clarified. Also, the preparation of the budgeting for operation and maintenance will be done. The member of ITPR is not used to plan and prepare these kinds of planning work. The soft component support is expected to provide for them.

D. Support for preparation of the business manuals

New business flow with the Port EDI System will be described in the business manuals. Business users will be able to operate by themselves with the manuals. The business procedure is not completed in the IT system only. All procedures, including outside of the IT system, are described in the business manuals for correctly supporting the execution of business procedures. The project member of recipient country is not familiar with writing manuals, therefore it is necessary to support their activity, by providing a work flame work, reviewing documents.

2-2-4-9 Implementation Schedule

When the Project is implemented under Japan's grant aid scheme, the procurement of a software implementation vendor for the Port EDI System will be carried out after the work on implementation design, which includes finalization of the specifications and services related to the tender, by a consultant.

It will require five months for work on the basic design, ten months for work on the software implementation that includes preparation of the manual and guidelines for operation and maintenance, and six months for the acceptance test (function confirmation test and comprehensive running test). Since part of the work will be performed simultaneously, the total duration of the Project is expected to be 24 months (Figure 23).

During the implementation period, taskforce meetings for important decisions and progress meetings to confirm the progress and issues will be conducted to manage the progress and tasks of the entire project and for making timely and appropriate decisions.

While application development and IT infrastructure installation work is implemented by the supplier, the Cambodia side should check the basic design documents and accept them. This review work is important since no design change will be acceptable after the approval of the basic design. After the basic design, the supplier will conduct application development (programming work, etc.), infrastructure installation (server installation, etc.), and perform tests on each.

After system development by the supplier, a user acceptance test will be conducted by the Cambodia side. Based on the basic design, actual users of each organization shall check the system to confirm whether it can be used in actual work. Before the acceptance test, the recipient country shall plan the test and create test scenarios. The acceptance test will be divided into three stages (functional test, running test 1, and running test 2) as previously mentioned.

There are several tasks other than the above, While system manuals and user training for system operation will be provided by the supplier, the Cambodia side shall prepare business manuals, O&M manuals, and the helpdesk manual toward the start of the business using the

system. Also, the explanation of the Port EDI System for the ship side and the connection test between the Port EDI System and system of the ship side shall be carried out.

The system will go-live in April 2021 after confirming completion of data migration, master data master, and the above-described tasks. In addition, the supplier and consultant will support system operation for three months after go-live.
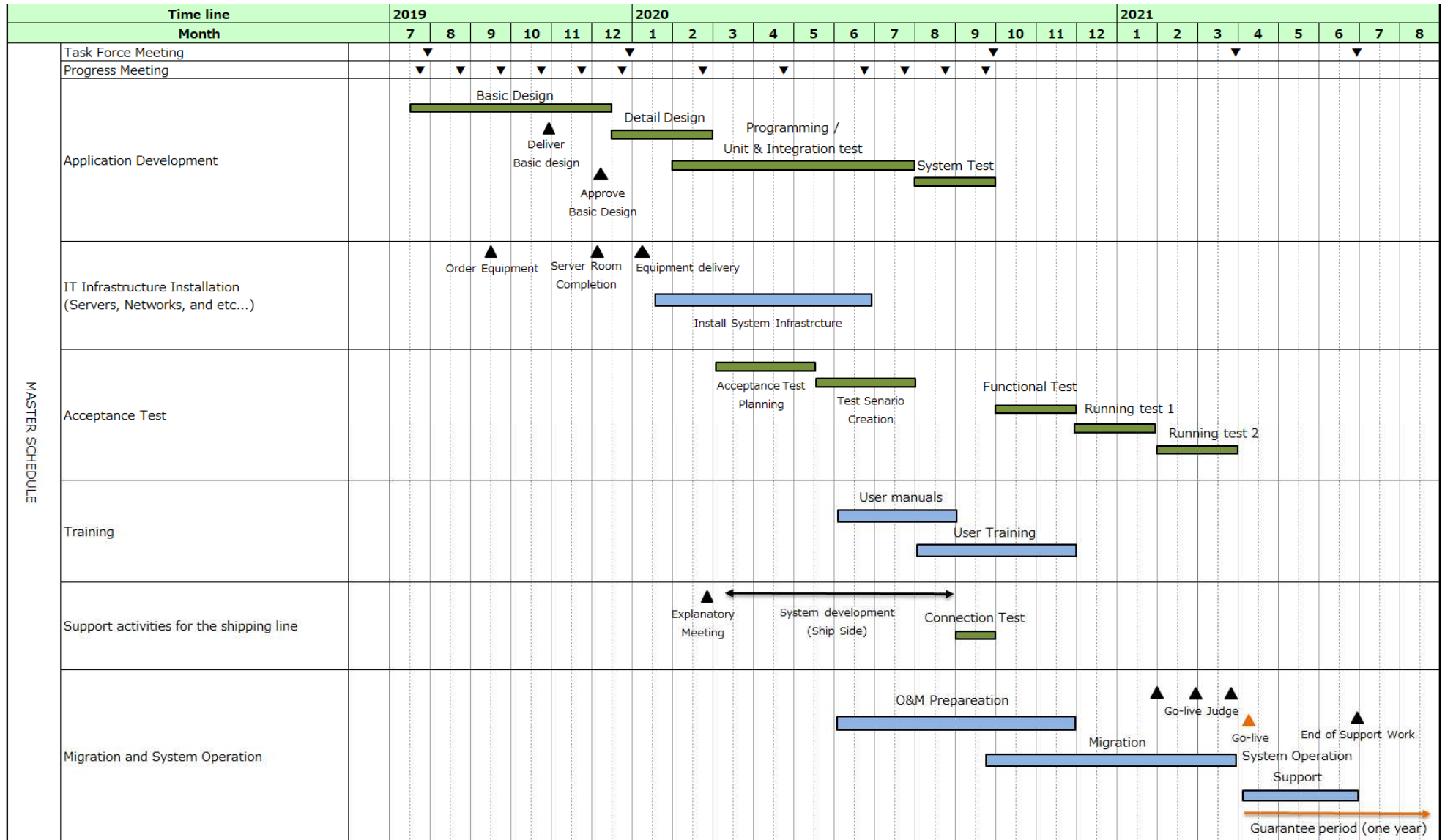
Figure 23: Implementation Schedule

55

2-3 Obligations of Recipient Country

2-3-1 Specific Obligations of the Government of Cambodia not Funded by Grant

In the minutes of discussions on the preparatory survey for the Project for Port EDI for Port Modernization which will be confirmed on the day of 30 August 2018, Annex 5 "Major Undertakings by the Government of the Kingdom of Cambodia" is defined. And the tasks are shown in the following sections: 2-3-1-1 Before the Tender., 2-3-1-2 During the Project Implementation, 2-3-1-3 After the Project.

2-3-1-1 Before the Tender

Table 14: Undertakings Before the Tender

No.	Items	Deadline	In charge	Estimated Cost (USD)	Ref.
1	To open bank account (B/A)	Within one month after the signing of the G/A	MEF	---	
2	To issue A/P to a bank in Japan (the Agent Bank) for the payment to the consultant	Within one month after the signing of the contract with the consultant	MPWT	---	
3	1) To secure installation environment for the server, such as the data server center or in-house server room (equipped with adequate electricity, air conditioning, anti-natural disaster functions, and pest control) in the MPWT, and disaster recovery site if necessary 2) To report its details to JICA	Three months before notice of the bidding documents	MPWT	---	
4	To arrange the institutional matter 1) To conclude the system requirement for the exchange of manifest and B/L data from National Single Window (NSW) system within the grant aid budget	Two months before notice of the bidding documents	MPWT	---	
5	To submit Project Monitoring Report (with the result of Detail Design)	Before preparation of bidding documents	MPWT	---	

No.	Items	Deadline	In charge	Estimated Cost (USD)	Ref.
6	Necessary organization and human resources for the Project implementation 1) To establish Port EDI System implementation working group (Cambodian side, including the MPWT, KAMSAB, PAS, PPAP, Customs, Immigration, and Quarantine), and the MPWT leads the communication as the executing agency 2) To assign the necessary personnel to the Port EDI System implementation working group	By the signing of the contracts with the Suppliers	MPWT KAMSAB PAS PPAP	---	
7	Necessary organization and human resources for operation and maintenance 1) To make the operation and maintenance organization which consists of MPWT personnel and outsourcer (system development company) take over the knowledge and skills from Japanese Suppliers during Project implementation 2) To establish business operation organization in KAMSAB, and operation and maintenance organization in the MPWT 3) To assign the necessary personnel (including IT skilled engineers who are certified by the way the Team recommends) to the business operation organization in KAMSAB and operation and maintenance organization in MPWT	By the signing of the contracts with the Suppliers	MPWT KAMSAB	---	

Note: B/A: Banking Arrangement, A/P: Authorization to pay, N/A: Not Applicable

2-3-1-2 During the Project Implementation

Table 15: Undertakings During the Project

No.	Items	Deadline	In charge	Estimated Cost (Thousand USD)	Ref.
1	To issue A/P to a bank in Japan (the Agent Bank) for the payment to the Suppliers	Within one month after the signing of the contracts	MPWT	---	
2	To bear the following commissions to a bank in Japan for the banking services based upon the B/A		MPWT	---	
2	1) Advising commission of A/P	Within one month after the signing of the contracts		---	
	2) Payment commission for A/P	every payment		13	
3	To procure necessary Software, Hardware, Network and Work space 1) Adequate Server room at MPWT headquarters to install Port EDI System 2) LAN/WAN of each user location, Internet connection, SIM, email address for the server notification, and global IP address 3) PC, printer, and other relevant hardware to use the Port EDI System, which exceeds the number of grant equipment within the MPWT, PAS, PPAP, KAMSAB, Customs, Immigration, and Quarantine 4) Workspace for Suppliers	One month before installation of each equipment	MPWT	179	
4	To periodically provide training for the personnel in above section (2-3-1-1) 6 2) and 7 3)	During Project implementation	MPWT	78	

58

No.	Items	Deadline	In charge	Estimated Cost (Thousand USD)	Ref.

5	To review and test the Port EDI System and prepare the manuals and master data tables
	  1) To review the basic design, execute the acceptance test, and other preparations by the Cambodian side in accordance with the project implementation schedule
	  2) To prepare business operation manuals, helpdesk manuals, and operation and maintenance manuals
	  3) To clarify roles and responsibilities of the MPWT and outsourcers for operation and maintenance of the Port EDI System
	  4) To define the user code, organization code, and master table contents of the Port EDI System
	  5) To register the master data tables
		During Project implementation	MPWT
			KAMSAB
			PAS
			PPAP
				--- 		

6	To arrange the institutional matter
	  1) To install the authorized certification to the Port EDI servers as soon as the Certification Authority (hereinafter referred to as "CA") service is available.
	  2) To establish the new laws/rules for the formal ship clearance procedures using Port EDI System as necessary
		During Project implementation	MPWT	---	

7	To secure necessary budget for undertakings of Cambodia during Project implementation	During Project implementation	MPWT KAMSAB	---	
8	To ensure that customs duties, internal taxes and other fiscal levies that may be imposed in Cambodia with respect to the purchase of the products and/or the services be exempted	During Project Implementation	MPWT	---	

No.	Items	Deadline	In charge	Estimated Cost (Thousand USD)	Ref.
9	To bear all the expenses, other than those covered by the grant, necessary for the implementation of the Project	During Project Implementation	MPWT	---	
10	1) To submit Project Monitoring Report after each work under the contracts, such as basic design, equipment delivery, manual preparation, training, functional confirmation test, and comprehensive running test	Within one month after completion of each work	MPWT	---	
	2) To submit the Project Monitoring Report (final)	Within one month after signing of Certificate of Completion for the works under the contracts	MPWT	---	
11	To submit a report concerning completion of the Project	Within six months after completion of the Project	MPWT	---	

2-3-1-3 After the Project

Table 16: Undertakings After the Project

No.	Items	Deadline	In charge	Estimated Cost (Thousand USD)	Ref.
1	Necessary organization, human resources, and their training 1) To retain the necessary personnel (including IT skilled engineers who are certified by the way the Team recommends) to the business operation organization in KAMSAB and operation and maintenance organization in MPWT 2) To periodically provide training for the above-mentioned	After completion of the equipment installation	MPWT KAMSAB	---	

No.	Items	Deadline	In charge	Estimated Cost (Thousand USD)	Ref.
2	To arrange the institutional matter 1) To install the authorized certification to the Port EDI servers as soon as Certification Authority (CA) service is available (if necessary). 2) To modify the Port EDI System in compliance with the laws, rules and revisions.	After completion of the equipment installation	MPWT	---	
3	To secure the necessary budget for business operation and operation and maintenance of the Port EDI System	After completion of the equipment installation	MPWT KAMSAB	354 (per year)	
4	To secure the necessary budget for renewal of hardware in the future (in general, renewal is necessary five years after installation of the system)	After completion of the equipment installation	MPWT	---	

2-3-2 Work by the Cambodia Side

The work to be conducted by the Cambodia side during the period of system implementation for smooth introduction and operation of the Port EDI System and the deadlines for such work are summarized in Table 17. Part of the undertakings will include the obligation of the other organizations, which are PPAP, PAS, KAMSAB, Customs, Immigration, Quarantine, and ship side. However, the MPWT have the obligation to force them to conform to those undertakings because the MPWT is the executing agency for the Project.

Table 17: Work to Be Conducted by MPWT

#	Category	Undertakings of MPWT	Deadline
1	Coordination and communication	Establish the PMO (Project Management Office; controller of the project) in MPWT for communication and coordination with PAS, PPAP, KAMSAB, ship side, and other government agencies.	By one month prior to commencement of the project.
2		Hold the progress meeting with necessary organization (may be monthly basis).	As needed during implementation period
3		Hold the Task Force Meeting with MPWT, other ministries, PPAP, PAS, KAMSAB, vendors, and consultant defined in the project plan.	As needed during implementation period
4		Hold explanatory meetings to the ship side and private agencies, and support to conduct the connection test for these ship side and private agencies.	As needed during implementation period
5	Human resource assignment and implementation	Define the responsible end user (MPWT, PPAP, PAS, KAMSAB, Customs. Immigration, Quarantine) to discuss, review, and approve Port EDI System design. Those users are delegated from each organization to make decision of Port EDI System design. The leader is expected to be assigned for each of the following. And based on their request, necessary work personnel shall be assigned. ・ Project Management Office (from MPWT) ・ Phnom Penh Ship Clearance Formality WG (from PPAP) ・ Sihanoukville Ship Clearance Formality WG (from PPAP) ・ Statistical Information WG (from MPWT) ・ Infrastructure / System Operation WG (from ITPR) (*) end user; actually, execute the ship clearance formality procedure	By the beginning of the project.
6		Define the responsible end user (as same as No. 18) to conduct the acceptance test. The leader and personnel are selected as well as the system design.	By three months prior to commencement of functional test (acceptance test).
7		Define the business operation organization in KAMSAB, and assign the necessary personnel based on the request from the leader.	By three months prior to commencement of functional test (acceptance test).
8		Define system maintenance and operation responsible person (MPWT, defined in 16), and assign the necessary personnel based on the request from the leader.	By the beginning of the project.

#	Category	Undertakings of MPWT	Deadline
9		All personnel above (No.5-No.8) are expected to be trained and acquire the necessary skills through training. The MPWT is expected to guide and follow-up them for the smooth operation.	As needed during implementation period.
10		Training, which is particular to the Port EDI System, will be provided by the project. However, the basic trainings are prepared by the Cambodia side. "Basic" means, for example, PC operation for end users, basic hardware, OS, middleware, and network knowledge of computer systems for operation and maintenance personnel.	As needed during implementation period.
11	Review and test of Port EDI System	Review the basic design, execute the acceptance test, and other preparations by the Cambodian side in accordance with the project implementation schedule.	At the basic design phase and test phase
12		Determination of code rules, such as the user code and organization code, etc.	Promptly after commencement of detail design
13		Definition of the user authority, type of business (group, organization scheme)	Promptly after commencement of detail design
14		Prepare and Distribute user's ID and password to private users (ship side and private agency) and users (MPWT, KAMSAB, PAS, PPAP, other government agencies)	By start to prepare three months prior, and distribute one month to commencement of test operation
15	Business processing procedure	Preparation of business manual that is elaborated based on Port EDI System operation manuals.	By one months prior to commencement of functional test (acceptance test).
16		Preparation of the helpdesk manuals used by the KAMSAB helpdesk.	By one months prior to commencement of functional test (acceptance test).
17		Preparation of IT service management manuals used at the MPWT operation and maintenance organization	By one months prior to commencement of functional test (acceptance test).
18	Data migration	The MPWT and relevant user organization shall register the master data (if necessary)	Migration period to be considered according to the contents of migration data

2-4 Project Operation Plan

2-4-1 Roles and Responsibilities of Operation and Maintenance

The MPWT is to be responsible for the maintenance of the Port EDI System introduced by the Project in collaboration with KAMSAB and the vendors concerned. As such, it is expected that the MPWT will establish the organizational structures for operation and maintenance and ensure common recognition of the burden-sharing among parties concerned expeditiously. Proposed operation and maintenance structure of the Port EDI System is shown in Figure 24, and the roles and responsibilities are described in Table 18.
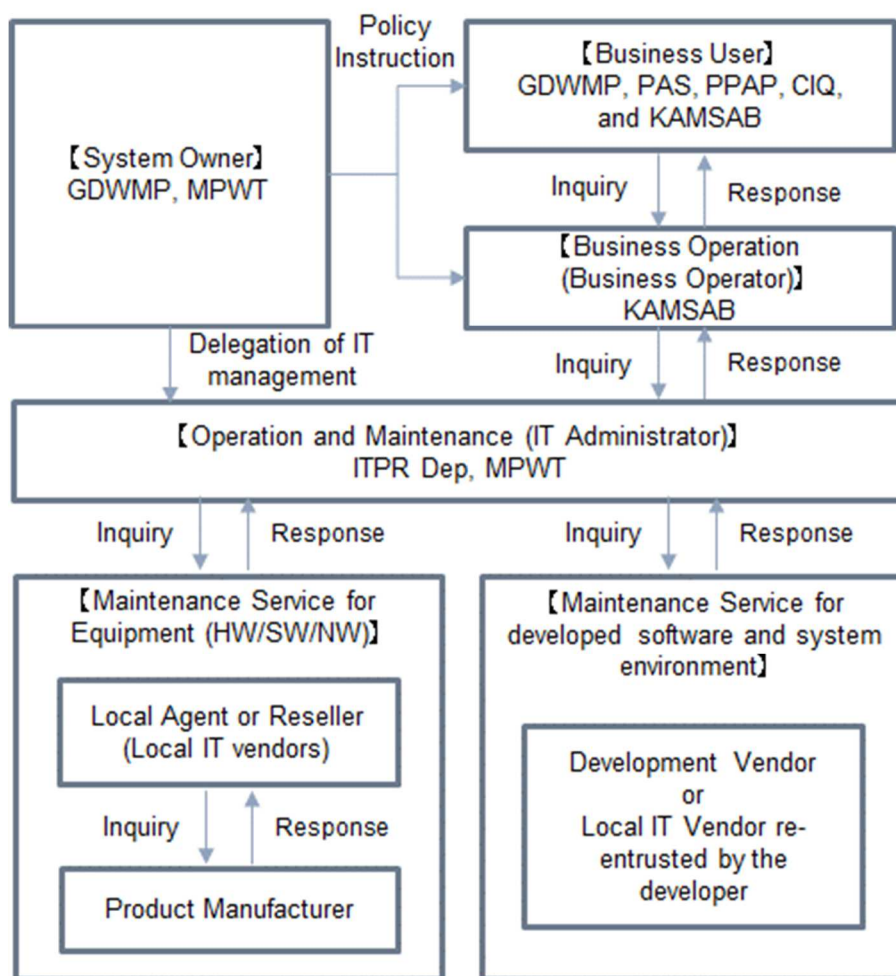
Figure 24: Proposed Operation and Maintenance Organization of Port EDI System

Table 18: Roles and Responsibilities of Operation and Maintenance

Roles	Responsibilities	Entity
System Owner	✓ Secure the budget to operate the system sustainably ✓ Control the relevant organization for the system	GDWMP, MPWT
Business Users	✓ Operate the system in accordance with their business process	GDWMP, PAS, PPAP, Customs, Immigration, Quarantine, KAMSAB, and Ship side
Business Operation (Business Operator)	✓ User assistance (operation support, provide training) ✓ Helpdesk service (answer for inquiries, fix the user problems, etc.) ✓ Master-table maintenance in accordance with the business rule / condition changes	KAMSAB
System Operation and Maintenance (IT Administrator)	✓ Maintenance of the server room, electricity, air conditioning, etc. ✓ Security service of the server room ✓ Maintenance of the equipment (hardware, software, application program) ✓ Operation of the Port EDI System (monitoring, turn on/off, reboot, backup, etc.) ✓ Incident management ✓ Management of the system vendors (providers) ✓ Management of future upgrade and/or modification of the Port EDI System.	ITPR Department, MPWT
Maintenance Service for Equipment	✓ Maintenance support for hardware product, software product, and network equipment.	Local Agent or Reseller (Local IT vendors) Product Manufacturer
Maintenance Service for developed software and system environment	✓ Application technical support and solution work including providing fixed module and update module.	Development Vendor Local IT Vendor re-entrusted by the developer

2-4-2 Responsibilities of ITPR Department

The ITPR Department of the MPWT is expected to shoulder the missions described in Table 18. After development of the system, the assigned ITPR Department will be authorized to have full access to the source code, database, and server on behalf of the owner of the system and further continue to lead and facilitate improvement and maintain the sustainability of the system with relevant stockholders. For example, when a problem occurs, personnel in the ITPR Department shall analyze the cause of the problem, classify it, and respond with a solution. If necessary, they shall call the responsible vendors to support and solve the problem.

The skillset for operation and maintenance can be separated into two categories: one is application maintenance and the other is infrastructure maintenance. The leader for the Port EDI System operation and maintenance as the head, and at least two personnel are expected

to be assigned both for application and infrastructure maintenance. The leader shall be the MPWT official, and the rest of the team consists of MPWT officials and IT experts from the outsourcer.

For application maintenance, the experience of application development is necessary for the personnel and desirable for them to acquire the well-known certificate related to the application development. Note that the application's programming language will be selected by the ITPR Department and JICA expert based on the condition of the Cambodian IT team capacity, sustainability of the technology, and the cost effectiveness of the operation and maintenance period.

For the infrastructure maintenance, the experience of system infrastructure operation in practical terms is required for personnel. When the skill level is expressed by the well-known certificate, it is equivalent to the certificate as CCNA (Cisco Certified Network Associate), RHCSA (Red Hat Certified System Administrator), and VCA (VMware Certified Associate).

As Japanese grant aid is eligible for the public sector only, the outsourcer will not be able to be trained by the supplier of the Port EDI System. Therefore, officials in the MPWT trained by the supplier shall acquire the skills and knowledge for operation and maintenance from the outsourcer. In this regard, it is better to choose an IT expert in the MPWT and outsourcer in the early stage of the Project.

2-4-3 Responsibilities of KAMSAB

The business operation of the Port EDI System consists of the missions described in Table 18, which is shouldered by KAMSAB. User assistance work is support work for the Port EDI System users, which includes training classes or hands-on lessons. This service is mainly provided for beginners.

The helpdesk service is carried out by the special teams newly established in Sihanoukville and Phnom Penh. This service is a daily service in which the helpdesk handles inquiries from users and resolves problems reported by users. Note that for the question for IT infrastructure, helpdesk staff shall refer the inquiry to the ITPR Department, MPWT.

As for the master table maintenance work, data registration to the master table of the system in accordance with the business change shall be done (for example, in the case when a new user joins, two vessel companies merged into one, etc.).

The number of people in the department for business operations is expected to be five at least, headed by the leader, two persons from the KAMSAB Phnom Penh Head office and two from KAMSAB Sihanoukville Branch. The knowledge of the Port EDI System operation, which will be described in the business operation manuals, is required for these persons. In this regard, these staff are not expected to have the advanced IT skills but should be very familiar with the Port EDI System in the point of view of the end user. Therefore, these persons are expected to be assigned among the personnel who are appointed to create the business manuals.

2-5 Project Cost Estimation

2-5-1 Initial Cost Estimation

The Initial Cost of the project that are shouldered by the recipient country is shown in Table 2.

Table 19: Initial Cost Shouldered by the Recipient Country

Item	Estimated Cost (Thousand USD)
Banking Arrangement (B/A), Authorization to Pay (A/P) and Bank Commission	13
Preparation of server room	152
PC, printer, and other relevant hardware to use Port EDI System, which excess the number of grant equipment within MPWT, PAS, PPAP, KAMSAB, Customs, Immigration, and Quarantine	27
Training to improve IT skill of MPWT and the Port EDI System users	78
TOLAL	**270**

2-5-2 Operation and Maintenance Cost

The cost for operation and maintenance of the ICT system will be incurred from the time of handing over of the Port EDI System to the MPWT. Under the current timetable, operation and maintenance costs will be payable from the go-live.

The operation and maintenance costs consist of three categories.

Table 20: Categories of Operation and Maintenance Cost

No.	Category	Description
1	Maintenance service for developed software	• Provide a service for fixing an issue, consultation for modification of the developed software. • Contact point when the MPWT or KAMSAB has a trouble on developed software.
2	Maintenance service for hardware product	• Provide parts for replacement when equipment has a trouble. • Contact point when the MPWT or KAMSAB has a trouble on hardware
3	Maintenance service for software product	• Provide fix module for fixing an issue when software has a trouble. • Contact point when the MPWT or KAMSAB has a trouble on software

Annual operation and maintenance costs, including all of the above-mentioned categories, are expected to reach to USD 354,267. JICA, therefore, asks the MPWT to start preparing for securing a budget for the expense of the operation and maintenance costs for the Port EDI System.

Table 21: Operation and Maintenance Costs of Port EDI System

No.	Category	5 years total	Annual average
1	Maintenance service for developed software	$760,422 (¥85,000,000)	$152,084 (¥17,000,000)
2	Maintenance service for hardware product	$608,339 (¥68,000,000)	$121,668 (¥13,600,000)
3	Maintenance service for software product	$402,576 (¥45,000,000)	$80,515 (¥9,000,000)
	Total	$1,771,337 (¥198,000,000)	$354,267 (¥39,600,000)

1 USD = 111.78 JPY (14 Aug. 2018)

Other than the cost mentioned above, the equipment of the system has a lifecycle. Generally, it is about five years. This is because the possibility of the failure of the equipment will increase as time passes, and production makers may not provide spare parts. Therefore, the MPWT will have to make a replacement plan and secure a budget for the equipment, including the PC terminals delivered to users.

Chapter3　Project Evaluation

3-1　Precondition

To measure the effectiveness of the Port EDI System, the precondition is that the system is property operated by users. All the ship clearance formality procedure for all target vessels must have been applied using the Port EDI System. To accomplish this, all work contracted between the recipient and the system developer should have been completed. On the other side, the obligations of the recipient country should have been satisfied in a timely manner as well.

3-2　Necessary Inputs by Recipient Country

All the obligations of recipient country should be completed to properly operate the Port EDI System. In particular, the Port EDI System is checked and confirmed by the acceptance test; all users of the Port EDI System are well trained and motivated to use it; the necessary rules, regulations, and laws are established; and the operation and maintenance organization is established and trained adequately in accordance with the time-line defined by the project plan.

3-3　Important Assumptions

To sustainably operate the Port EDI System, the following are the important assumptions:
・　The Cambodian government keeps promoting the modernization of port-related and other related business procedures with ICT, including digital signatures.
・　The users of the Port EDI System are motivated to enhance the use of ICT, stimulated by the Port EDI System.
・　The numbers of vessels entering Phnom Penh Port and Sihanoukville Port are expected to increase in accordance with the growing of the economic conditions of the recipient country. That is the condition that the conventional manual business procedure will not be able to handle.

3-4　Project Evaluation

3-4-1　Relevance

The project provides modernized electronic procedures for ship clearance in Cambodia. The new procedure adopts the international standard and Japanese information technology to build the system. Therefore, the system will be simplified, accurate, and speedy in Cambodia compared to the old procedures. The economic conditions in Cambodia are expected to grow rapidly, and the number of vessels and cargo will increase as well. The Port EDI System shall contribute to handling the number of vessels efficiently and smoothly. The beneficiaries of the system are not limited to the MPWT, ports, shipping agencies, Customs, Immigration, and Quarantine, but the ship side as well. Therefore, the project is considered relevant.

3-4-2 Effectiveness

3-4-2-1 Quantitative Effects

The key indicators for expected outcomes are as follows. The Cambodian side will be responsible for the achievement of the agreed key indicators targeted for the year 2024 and shall monitor the progress based on those indicators.

Table 22: Quantitative Indicators

Index	Base Line (2018)	Target (2024) (3 years after completion of the Project)
Duration of the ship clearance committee (minutes)	PAS: 30 (minutes)	PAS : 0 (minutes)
	PPAP: 30 (minutes)	PPAP: 0 (minutes)
The utilization rate of the Port EDI System for ship clearance procedures for port entry/departure at Sihanoukville Port and Phnom Penh Port (%)	0 (%)	100 (%)

3-4-2-2 Qualitative Effects

By introducing the Port EDI System, electronical ship clearance procedures will be realized at Sihanoukville Port and Phnom Penh Port, and that procedures are streamlined and modernized. The major qualitative effect is shown in Table 23.

Table 23: Qualitative effect

No.	Qualitative effect	Explanation
1	Modernization of port administration in Cambodia	The ship clearance procedures that have been handled by manual procedure will be modernized by introducing the electronical system. As the result, the capacity of the transaction and the service level of the port service for the ship side will be improved.
2	Simplify the business procedures	The Port EDI System adopts the FAL convention endorsed by IMO as a international standard. Therefore, data handled by the ship clearance formality procedure are simplified, and the business procedures are also simplified.
3	Adopt the international standard procedures	The ship clearance formality procedure plays an important role of NSW conception. Considering of join to ASW in the future, it is necessary to adopt the international standard.

Appendices

1. Member List of the Study Team

2. Study Schedule

3. List of Parties Concerned in the Recipient Country

4. Discussion Material

5. Soft Component (Technical Assistance Plan)

6. Other Relevant Data

7. References

1. Member List of the Study Team

No.	Name	Role	Affiliation
1	Masahiko Furuichi	Leader of preparatory survey team	Japan International Cooperation Agency
2	Atsushi Ito	Preparatory Survey Team	Japan International Cooperation Agency
3	Hiroshi NISHIOKA	The head of the consultant team, and responsible for system development planning	Mitsubishi Research Institute, INC. Social ICT Innovation Division
4	Tatsuyuki SHISHIDO	Business analysis and design	The Overseas Coastal Area Development Institute of Japan
5	Gen KINOSHITA	Planning of systemization	Mitsubishi Research Institute, INC. Social ICT Innovation Division
6	Toshiyuki IMAZEKI	Survey and outline design of the system infrastructure	Mitsubishi Research Institute, INC. Social ICT Innovation Division
7	Norihiro FUKAZAWA	Analysis of business and system operations	The Overseas Coastal Area Development Institute of Japan
8	Toru KAWASE	Survey and analysis of system environment	Mitsubishi Research Institute, INC. Social ICT Innovation Division
9	Norishige HATAKEYAMA	Conducting cost estimation and compiling specification	Mitsubishi Research Institute, INC. Social ICT Innovation Division

2. Study Schedule

	2018								
	March	April	May	June	July	August	September	October	November
Milestone	Agreement of the objective, approach, and the scope of the system	Discussion of overall system design	Agreement of the basic policy and the overall system design	Agreement of the basic policy and the overall system design		Confirmation of the DFR	Survey for the I/F with NSW		

Schedule

On-site Survey: 1st (March), 2nd (April), 3rd (May), 3rd additional (June), 4th (August), 5th (August), 6th (September)

Activity in Japan: 1st (March), 2nd (April), 3rd (May–June), 4th (July–August), 5th (August–November)

		March	April	May	June	July	August	September	October	November
現地調査	1) Kick-off meeting	■								
	2) Explanation of, and consultation on the inception report	■								
	3) Confirm project implementation plan and scope	■								
	4) Project O&M Plan	■								
	5) Confirmation of facilities, electricity, communication and the other equipment	■								
	6) Confirmation of the regulation of procurement	■								
	7) Confirmation of procurement plan	■	■							
	8) Confirm the system scope, development plan, and validity of the work	■	■		■					
	9) Confirm the necessity of introducing the soft component		■		■		■			
	10) Outline design and preliminarily project cost		■	■	■		■	■		
	11) Confirm procurement plan									
	12) Development of plan of operatin and mentenace, cost,			■						
	13) Discussion on the items to be undertaken by the Recipient Country			■			■	■		
	14) Gather and report taxation information						■			
	15) Explanation of the grand project						■	■		
	16) Discussion on the evaluation criteria of the project						■			
	17) Drafting of Preparatory Survey Report							■		
国内調査										

○ : Survey in Cambodia   ■ : Analysis in Japan

March

March	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
H.NISHIOKA																■			■	■		■	■		○	○	○	○	○	○	○
T.SHISHIDO																			■	■	○	○	○	○	○	○	○	○	○	○	
G.KINOSHITA															■	■															
T.IMAZEKI															■	■			■			■		○	○	○	○	○	○	○	○
N.FUKAZAWA																					○	○	○	○	○	○	○	○	○	○	○
T.KAWASE																■						■			○	○	○	○	○	○	○
N.HATAKEYAMA															■							■			○	○	○	○	○	○	○

April

April	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
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T.SHISHIDO											■		■			■	■						○			○				
G.KINOSHITA	○	○	○	○	○	○	○	○	■		■	■	■			■					○	○	○	○	○	○	○			
T.IMAZEKI	○	○	○	○	○	○	○	○	■	■	■	■				■	■	■	○	○	○	○	○	○	○	○	○			
N.FUKAZAWA		■	■		■				■		■		■				○	○	○	○	○	○	○	○	○	○	○			
T.KAWASE		■											■				■		■											
N.HATAKEYAMA	○	○	○	○	○	○	○	○			■	■	■			■	■		○	○	○	○	○	○	○	○	○			

May

May	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
H.NISHIOKA								■	■					■	■	○	○	○	○	○	○	○	○	○	○	○	○				
T.SHISHIDO								■	■	■				■	○	○	○	○	○	○	○	○	○	○	○						
G.KINOSHITA																			○	○	○	○	○	○	○						
T.IMAZEKI							■	■	■	■				■		○	○	○	○	○	○	○	○	○	○	○					
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June

June	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
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N.FUKAZAWA								■										■												
T.KAWASE																														
N.HATAKEYAMA				■	■						■																			

July

July	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
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N.FUKAZAWA					■	■																									
T.KAWASE																															
N.HATAKEYAMA																				■			■		■	■			■		

August

August	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
H.NISHIOKA						■	■	■			○	○	○	○	○	○	○				■	■	■	■		○	○	○	○	○	○
T.SHISHIDO																						■				○	○	○	○	○	○
G.KINOSHITA	■	■	■				○	○	○	○	○	○	○	○	○	○	○	○				■				○	○	○	○	○	○
T.IMAZEKI		■	■				○	○	○	○	○	○	○	○	○	○	○	○				■				○	○	○	○	○	○
N.FUKAZAWA	■																														
T.KAWASE																															
N.HATAKEYAMA	■	■	■					■					■	■	■	■	■					■									

September

September	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	
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T.SHISHIDO	○		■																												
G.KINOSHITA	○						■											■	■	■						○	○	○	○		
T.IMAZEKI	○		■	■	■		■																								
N.FUKAZAWA																															
T.KAWASE																															
N.HATAKEYAMA			■	■		■				■			■	■				■													

October

October	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
H.NISHIOKA											■	■				■						■	■		■						
T.SHISHIDO																															
G.KINOSHITA									■	■	■	■			■	■		■	■			■	■								
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N.FUKAZAWA	■		■		■				■																						
T.KAWASE																															
N.HATAKEYAMA	■																														

November

November	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	
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G.KINOSHITA															■	■			■	■	■	■									
T.IMAZEKI																															
N.FUKAZAWA																															
T.KAWASE																															
N.HATAKEYAMA																															

3. List of Parties Concerned in the Recipient Country

MPWT

No.	名前	部署・役職
1	Tauch Chankosal	Secretary of State
2	Chan Dara	General Department of Waterway-Maritime Transport Ports / Director General
3	Mak Sideth	General Department of Waterway-Maritime Transport Ports / Deputy Director General
4	Sou Phally	General Department of Waterway-Maritime Transport Ports Port Administration Department / Director
5	Srey Sokhdara	General Department of Waterway-Maritime Transport Ports Port Administration Department / Chief
6	Suon Vansar	Marchant Marine Department / Director
7	Sotheayuth Heang	Information Technology and Public Relations Department / Director
8	Chem Visal	Information Technology and Public Relations Department staff
9	Khun Rarssa	Information Technology and Public Relations Department staff
10	Kith Chandararith	General Department of Logistics / Deputy Director General

PPAP

No.	名前	部署・役職
1	Hiek Phirun	Deputy Director General in charge of Maritime Service and Traffic
2	Phanin Hei	Deputy Director General in charge of Business and Operation
3	Morm Neang	Deputy Manager Harbor / AIS System Service
4	Chui Vichet	Head of Engineering Department
5	Cheam Sophane	Manager of Information Communication Technology

PAS

No.	名前	部署・役職
1	Lou Kim Chhun	Delegate of the Royal Government in charge as Chairman and CEO
2	Thay Rithy	Deputy Director General
3	Thong Viro	Director Harder Master and Pilot Department / Chief of Port Security
4	Pith Prakath	Director of Business Department

KAMSAB

No.	名前	部署・役職
1	Ros Vanna	Royal Government Delegate in charge of Chairman and CEO
2	Nhean Sokol	Deputy Director General of Business
3	Ros Chan Sras	Deputy Director General in charge of Admin and Management
4	Chea Sophal	Deputy Manager of Sihanoukville Branch

Ministry of Economy and Finance

No.	名前	部署・役職
1	Nuon Chanrith	General Department of Customs and Excise / Deputy Director of General
2	Pha Eng Veng	Department of Customs Procedures / Director
3	Sok Ratana	Sihanoukville Port Deputy Chief
4	Phang Chan	Sihanoukville Port Officer
5	Mao Sansona	Phnom Penh Port Deputy Chief

Quarantine

No.	名前	部署・役職
1	Try Chheng	Sihanoukville Port Deputy of Chief
2	Ly Sam Ath	Sihanoukville Port Deputy of chief
3	Song Maty	Phnom Penh Port Officer
4	Ket Sovanna	Phnom Penh Port Officer

Immigration

No.	名前	部署・役職
1	Heng Saoklry	Sihanoukville Port Deputy of Section
2	Chhun Narsn	Sihanoukville Port Police
3	Sor Cheat	Phnom Penh Port Deputy Chief
4	Heng Pichet	Phnom Penh Port Deputy Chief

Ministry of Posts and Telecommunications

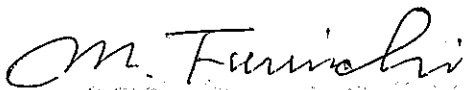| No.	名前	部署・役職
1	Neang Mao	General Department of Information and Communication Technology / Deputy Director
2	Heng Mara	General Department of Information and Communication Technology Department of ICT Security / Deputy Director
3	Ourng Sophea	General Department of Information and Communication Technology Department of ICT Security / Chief of PKI Bureau

4. Discussion Material

Minutes of Discussion (30 August 2018)

Minutes of Discussions
on the Preparatory Survey for
the Project for Port EDI for Port Modernization
(Explanation on Draft Preparatory Survey Report)
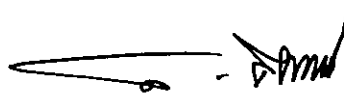
With reference to the minutes of discussions signed between Ministry of Public Works and Transport (hereinafter referred to as "MPWT") and the Japan International Cooperation Agency (hereinafter referred to as "JICA") on March 29, 2018 and in response to the request from the Government of the Kingdom of Cambodia (hereinafter referred to as "Cambodia") dated June 27, 2017, JICA dispatched the Preparatory Survey Team (hereinafter referred to as "the Team") for the explanation of Draft Preparatory Survey Report (hereinafter referred to as "the Draft Report") for the Project for Port EDI for Port Modernization (hereinafter referred to as "the Project"), headed by Dr. Masahiko FURUICHI, Senior Adviser of JICA, from August 26 to September 1, 2018.

As a result of the discussions, both sides agreed on the main items described in the attached sheets.

Phnom Penh, August 30, 2018

Dr. FURUICHI Masahiko

Leader

Preparatory Survey Team

Japan International Cooperation Agency

Japan

H.E. Tauch Chankosal

Secretary of State

Ministry of Public Works and Transport

Cambodia

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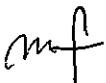1. Objective of the Project, Title of the Preparatory Survey, Project site, Procedures and Basic Principles of Japanese Grant, and Environmental and Social Considerations
   Both sides confirmed the above-captioned subjects unchanged from those agreed in the Minutes of Discussions signed on March 29, 2018, as attached in Annex 1.

2. Responsible authorities for the Project
   As the Preparatory Survey has proceeded, both sides understood that "operation and maintenance" of Port EDI system should be clearly re-classified and re-defined. Through a series of discussions in Port EDI Task force meetings, both sides agreed the following re-classification and re-definition of "operation and maintenance" of Port EDI system, accordingly re-definition of related responsible authorities.
   1) "Operation and maintenance" of Port EDI system is re-defined as i) maintenance of the server room, electricity, air-conditioning, etc., ii) security service of the server room, iii) maintenance of the equipment (hardware, software, application program), iv) operation of the Port EDI system (monitoring, turn on/off, re-boot, backup, etc.), v) incident management, vi) management of the system venders (providers), and vii) management of future renewal and/or large-scale modification of Port EDI system.
   2) "Business operation" of Port EDI system is newly defined as i) user assistance, ii) help desk operation and iii) master table maintenance.

   Taking these re-classification and re-definition of "operation and maintenance", "business operation" and role of related responsible authorities into account, both sides agreed that MPWT shall be "the executing agency" of the Project and "the operation and maintenance organization" of Port EDI system, and that Kampuchea Shipping Agency and Brokers (hereinafter referred to as "KAMSAB") shall be "the business operation organization" of Port EDI system.

3. Contents of the Draft Report
   After the explanation of the summary of the Draft Report as attached in Annex 2 by the Team, the Cambodian side agreed in principle to its contents.

4. Cost estimate
   Both sides confirmed that the cost estimate including the contingency, as attached

in Annex 3, explained by the Team is provisional and will be examined further by the Government of Japan for its approval. The contingency would cover the additional cost against natural disaster, unexpected natural conditions, etc.

5. Confidentiality of the cost estimate
Both sides confirmed that the cost estimate of the Project should never be disclosed to any third parties until all the contracts under the Project are concluded. The Preparatory Survey Report from which project cost is excluded will be disclosed to the public after completion of the Preparatory Survey.

6. Timeline for the project implementation
The Team explained to the Cambodian side that the expected timeline for the project implementation is as attached in Annex 4.

7. Expected outcomes and indicators
Both sides agreed that key indicators for expected outcomes are as follows. The Cambodian side will be responsible for the achievement of agreed key indicators targeted in year 2024 and shall monitor the progress based on those indicators.

[Quantitative indicators]

Index	Base Line (2018)	Target (2024) (3 years after completion of the Project)
Duration of the ship clearance committee (minutes)[1]	PAS: 30 (minutes)	PAS : 0 (minute)
	PPAP: 30 (minutes)	PPAP: 0 (minute)
The utilization rate of Port EDI System for ship clearance procedures for port entry/departure at Sihanoukville Port and Phnom Penh Port (%)	0 (%)	100 (%)

Remarks)
1) This indicator directly represents the required time for the ship clearance formality procedure.

[Qualitative indicators]
1) Streamlining ship clearance procedures at Sihanoukville Port and Phnom Penh Port
2) Realizing electronical ship clearance procedures at Sihanoukville Port and Phnom Penh Port
3) Modernization of port administration in Cambodia

8. Technical assistance ("Soft Component" of the Project)
Considering the sustainable operation and maintenance of the products and services granted through the Project, the following technical assistance is planned under the Project. The Cambodian side confirmed to deploy necessary number of counterpart personnel who are appropriate and competent in terms of its purpose of the technical assistance as described in the Draft Report.

1) Support to develop business operation manuals of Port EDI System (for Business users: General Department of Waterway-Maritime Trasnport and Port, MPWT (hereinafter referred to as "MPWT GDWMP"), KAMSAB, Sihanoukville Autonomous Port (hereinafter referred to as "PAS"), Phnom Penh Autonomous Port (hereinafter referred to as "PPAP"), Quarantine, Customs, and Immigration)
2) Support to develop helpdesk manuals (for KAMSAB)
3) Support to develop operation and maintenance manuals (for Information Technology and Public Relations (ITPR) Department, MPWT (hereinafter referred to as "MPWT ITPR")
4) Support to prepare proposal for operation and maintenance of Port EDI system (MPWT GDWMP and MPWT ITPR)

9. Undertakings of the Project
1) Procurement of necessary Software, Hardware, Network and Work space
   a) Adequate Server room at MPWT headquarters to install Port EDI System
   b) LAN/WAN of each user location, Internet connection, SIM, email address for the server notification, and Global IP address
   c) PC, printer, and other relevant hardware to use Port EDI System, which exceeds the number of grant equipment within MPWT, PAS, PPAP, KAMSAB, Customs, Immigration, and Quarantine
   d) Work space for the Supplier(s)
2) Installation environment of the server(s)
   a) To secure installation environment for the server such as data server center or in-house server room (equipped with adequate electricity, air-conditioning,

anti- natural-disaster, and pest-control) in MPWT, and disaster recovery site if necessary

b) To report its details to JICA by three (3) months before notice of the bidding document(s)

3) Necessary organization, human resources and their training

    a) To establish Port EDI system implementation working group (Cambodian side, including MPWT, KAMSAB, PAS, PPAP, Customs, Immigration, Quarantine), and MPWT leads the communication as the executing agency

    b) To establish business operation organization in KAMSAB, and operation and maintenance organization in MPWT

    c) To assign the necessary staffs to the Port EDI system implementation working group

    d) To assign the necessary staffs (including IT skilled engineers who are certified by the way the Team recommends) to the business operation organization in KAMSAB and operation and maintenance organization in MPWT during the Project implementation and retain them after the Project

    e) To make the operation and maintenance organization which consists of MWPT staffs and outsourcer (system development company) take over the knowledge and skills from Japanese tenderer during Port EDI system implementation

    f) To periodically provide training for the staffs in above c) and d) during the Project implementation and after the Project

4) Review and test of Port EDI system, and preparation of the manuals and master table data

    a) To review the basic design, execute acceptance test and other preparations of Cambodian side in accordance with the project implementation schedule

    b) To prepare business operation manuals, helpdesk manuals and operation and maintenance manuals

    c) To clarify roles and responsibilities of MPWT and outsourcer(s) for operation and maintenance of Port EDI system

    d) To define the user code, organization code, and master table contents of Port EDI system

    e) To register the master table data

5) Arrangement of the institutional matter

    a) To conclude the system requirement for the exchange of manifest data from National Single Window (hereinafter referred to as "NSW") system within the grant aid budget, by two (2) months before the notice of the bidding

document(s)

b) To install the authorized certification to the Port EDI server(s) as soon as Certification Authority (hiereinafter referred to as "CA") service is available

c) To establish the new laws/rules for the ship clearance formality procedures using Port EDI System as necessary

d) To modify Port EDI system in compliance with the laws/rules revision(s)

6) To secure necessary budget for undertakings of Cambodia during the Project implementation

7) To secure necessary budget for business operation and operation and maintenance of Port EDI System

8) To secure necessary budget for renewal of hardware in the future (in general, renewal is necessary five (5) years after installation of the system)

9) Both sides also confirmed that Annex 5 (Major undertakings to be taken by the Government of Cambodia) will be used as an attachment of G/A.

10. Monitoring during the implementation

The Project will be monitored by the Executing Agency and reported to JICA by using the form of Project Monitoring Report (PMR) attached as Annex 6. The timing of submission of the PMR is described in Major Undertakings to be taken by the Government of Cambodia (Annex 6).

11. Project completion

Both sides confirmed that the project completes when all the equipment procured and installed properly by the grant are in operation, and planned support activities are completed. The completion of the Project will be reported to JICA promptly, but in any event not later than six (6) months after completion of the Project.

12. Ex-Post Evaluation

JICA will conduct ex-post evaluation after three (3) years from the project completion, in principle, with respect to five evaluation criteria (Relevance, Effectiveness, Efficiency, Impact, Sustainability). The result of the evaluation will be publicized. The Cambodian side is required to provide necessary support for the data collection.

13. Schedule of the Study

Cambodian side agreed that further comments on the Draft Report will be submitted in written form to JICA Cambodian Office no later than 30th of

September, 2018. The Team will finalize the Preparatory Survey Report by incorporating the further comments submitted. The report will be sent to the Cambodian side in November 2018.

14. Digital signature

In case that CA service is not available at the time Port EDI system starts services, Japanese side recommended to continue paper-based ship clearance formality procedure in order to avoid any potential risks, based on the Draft Report. However, in its discretion, Cambodian side requested to Japanese side that Port EDI system should be technically developed to adopt QR code and other international CA, in order to avoid paper works once the Port EDI sytem is in use. Japanese side understood Cambodian side's request.

Annex 1: Minutes of Discussions (signed on March 29, 2018)
Annex 2: Summary of the Draft Preparatory Survey Report
Annex 3: Cost Estimate of the Project
Annex 4: Project Implementation Schedule
Annex 5: Major Undertakings to be taken by the Government of Cambodia
Annex 6: Project Monitoring Report (template)
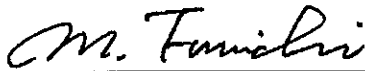
Minutes of Discussions
on the Preparatory Survey for
the Project for Port EDI for Port Modernization

In response to the request from the Government of the Kingdom of Cambodia (hereinafter referred to as "Cambodia"), Japan International Cooperation Agency (hereinafter referred to as "JICA") dispatched the Preparatory Survey Team for the Outline Design (hereinafter referred to as "the Team") of the Project for Port EDI for Port Modernization (hereinafter referred to as "the Project"), headed by Masahiko Furuichi, Senior Transport Sector Advisor of JICA, from March 21 to 30, 2018. The Team held a series of discussions with the officials of the Government of Cambodia and conducted a field survey. In the course of the discussions, both sides have confirmed the main items described in the attached sheets.

Phnom Penh, March 29, 2018

Dr. Furuichi Masahiko
Leader
Preparatory Survey Team
Japan International Cooperation Agency
Japan

H.E. Tauch Chankosal
Secretary of State
Ministry of Public Works and Transport
Cambodia

1. Objective of the Project

    The objective of the Project is to rationalize and electronize ship clearance procedures for port entry/departure at Sihanoukville Port and Phnom Penh Port by building necessary Port EDI system, thereby contributing to improvement of logistics system and modernization of port administration in Cambodia.

2. Title of the Preparatory Survey

    Both sides confirmed the title of the Preparatory Survey as "the Preparatory Survey for the Project for Port EDI for Port Modernization".

3. Project site

    Both sides confirmed that the target ports of the Project are two (2) ports as follows:

    1)   Sihanoukville Port,

    2)   Phnom Penh Port

4. Responsible authorities for the Project

    Both sides confirmed the authorities responsible for the Project are as follows:

    4-1. Ministry of Public Works and Transport (hereinafter referred to as "MPWT") will be the executing agency for the Project (hereinafter referred to as "the Executing Agency"). The Executing Agency shall coordinate with all the relevant authorities, i.e. Sihanoukville Autonomous Port (hereinafter referred to as "PAS") and Phnom Penh Autonomous Port (hereinafter referred to as "PPAP"), as well as Customs, Immigration Police and Port Quarantine, to ensure smooth implementation of the Project and ensure that the undertakings for the Project shall be properly managed on time. The organization chart of MPWT is shown in Annex 1. MPWT, as the Executing Agency, will be responsible to secure the necessary budget and facilities for operation and maintenance in the future after introducing Port EDI by the Project.

    4-2. The operation and maintenance organization of Port EDI is Kampuchea Shipping Agency and Brokers (hereinafter referred to as "KAMSAB"). MPWT shall be responsible for the supervising KAMSAB. The organization chart of KAMSAB is shown in Annex 2.

    4-3. Port EDI Task force consists of some members of MPWT, KAMSAB, PAS, PPAP. Port EDI Task force will support the Team for smooth introduction of Port EDI during the Preparatory Survey.

5. Items requested by the Government of Cambodia

    As a result of discussions between both sides, the items in the following table were finally

requested by the Cambodian side. JICA will assess the feasibility of the above requested items through the survey and will report the findings to the Government of Japan. The final scope of the Project will be decided by the Government of Japan.

Scope of the Project

Scope of the Project
1. Ship Clearance Formality Procedure System
2. Server Hardware (server, storage, and network equipment)
3. Necessary software to execute "Ship Clearance Formality Procedure System" such as OS, Database, system monitoring and maintenance software
4. Spare parts

6. Procedures and Basic Principles of Japanese Grant

6-1. The Cambodian side agreed that the procedures and basic principles of Japanese Grant as described in Annex 3 shall be applied to the Project.

6-2. The Cambodian side agreed to take the necessary measures, as described in Annex 4, for smooth implementation of the Project. The contents of the Annex 4 will be elaborated and refined during the Preparatory Survey and be agreed in the mission dispatched for explanation of the draft Preparatory Survey Report.
The contents of Annex 4 will be updated as the Preparatory Survey progresses, and eventually, will be used as an attachment to the Grant Agreement.

6-3. As for the monitoring of the implementation of the Project, JICA requires Cambodian side to submit the Project Monitoring Report, the form of which is attached as Annex 5.

7. Schedule of the Preparatory Survey

7-1. The consultant members of the Team will proceed with further survey in Cambodia until April 6, 2018.

7-2. JICA will dispatch the Team for the discussion of system concept of Port EDI in Cambodia around middle of May, 2018.

7-3. JICA will dispatch the Team for the technical discussion of requirement definition of Port EDI in Cambodia around middle of June, 2018.

7-4. JICA will dispatch the Team for the technical discussion of cost estimation of Port EDI in Cambodia around early August, 2018.

7-5. JICA will prepare a draft Preparatory Survey Report in English and dispatch a mission to Cambodia in order to explain its contents in early September 2018.

7-6. If the contents of the draft Preparatory Survey Report are accepted and the undertakings of the Project are fully agreed by the Cambodian side, JICA will finalize

the Preparatory Survey Report and send it to Cambodia around December 2018.

7-7. The above schedule is tentative and subject to change.

8. Environmental and Social Considerations

8-1. The Cambodian side confirmed to give due environmental and social considerations before and during implementation, and after completion of the Project, in accordance with the JICA Guidelines for Environmental and Social Considerations (April 2010).

8-2. The Project is categorized as "C" from the following considerations:
Not located in a sensitive area, nor has it sensitive characteristics, nor falls it into sensitive sectors under the Guidelines, and its potential adverse impacts on the environment are not likely to be significant.

9. Ship Clearance Process

9-1. The Team emphasized the significant importance of internationally standardized ship clearance process. Port EDI Task force agreed to streamline ship clearance procedures and realize efficient and transparent electrical approval process at Sihanoukville port and Phnom Penh Port.

9-2. The Team also emphasized that the leadership of MPWT is critically important in explaining the outline of the Project to port users and coordinating relevant authorities to cooperate for electrical approval process at Sihanoukville port and Phnom Penh Port.

10. Interface of Customs Clearance System
Cambodian side explained the possibility of introducing new customs clearance system in Cambodia. The Team will study the interface of Port EDI to the customs management system, e.g. ASYCUDA and NACCS.

11. IT literacy of MPWT and KAMSAB

11-1. MPWT and KAMSAB confirmed that they will assign IT skilled engineers to the Project, who are certified by the way the Team recommends, before the system development phase.

11-2. JICA explained that "Project for Capacity Development on Container Terminal Management and Operation in Sihanoukville Port Phase 2" will support PAS and Port EDI Task Force for the smooth introduction of Port EDI, such as support for streamline of paper documents, amendment of relevant laws and regulations and start-up of port statistics.

12. Operation and Maintenance
The Team will study the expected amount of budget and provide the information on

operation and maintenance during the Preparatory Survey. Both side agreed that this issue would be reconfirmed in the minutes of the discussions on the explanation of the draft Preparatory Survey Report.

13. Other Relevant Issues

13-1. Cambodian side shall, at its own expense, provide the Team with the following items in cooperation with other organizations concerned:

(1) Data and information related to the Preparatory Survey;

(2) Counterpart personnel;

(3) Credentials or identification cards;

(4) Entry permits necessary for the Team members to conduct field surveys;

(5) Support in obtaining other privileges and benefits, if necessary;

(6) Security-related information as well as measures to ensure the safety of the Team; and

(7) Information as well as support in obtaining medical service.

13-2. Cambodian side agreed that custom duties, internal taxes and other fiscal levies which may be imposed in Cambodia with respect to the purchase of the products and/or services procured by Japanese Grant under the Project should be exempted. For smooth tax exemption process, MPWT is to start the following preparations for the application of tax exemption and consultation with Ministry of Economy and Finance (hereinafter referred to as "MEF") and relevant organizations, if any, based on the past E/N contents as soon as possible.

(1) MPWT consults with MEF to acquire comprehensive approval for the exemption from MEF for all imposed tax with respect to the project, just after the completion of detailed design.

(2) MPWT consults with MEF to apply "automatic" tax exemption procedures for each shipment, procurement, and purchase of products and/or services in response to MPWT's request based on the comprehensive approval abovementioned.

In case the exemption would not be processed in a timely manner, anyhow, both sides confirmed such tentative payment(s) would be owned by Cambodian side.

13-3. The Team explained the undertakings by the Cambodian side in details, in addition to the items mentioned at Annex-4, as follows;

- Network (WAN (Wide Area Network) / LAN (Local Area Network))
- Operation and Maintenance cost (operation labor cost, hardware and software license maintenance cost, network(WAN/LAN) cost, software modification cost for the application if necessary)

-4-

- Installation environment for the server such as Datacenter or in-house server room (equipped with adequate electricity, air-conditioning, anti-natural-disaster, pest-control, and disaster recovery site if necessary)
- Client PC or tablet for the system users
- Adequate human resources to operate the system, and continuous training shall be provided for the staffs
- Building the Operation and Maintenance team which consist of MPWT staffs and outsourcer (system development company), to take over the knowledge and skills from Japanese tenderer during the · system development period, and secure the budget for that.
- System renewal cost in the future

13-4. Both sides agreed that the contents of the Preparatory Survey Report excluding cost estimation of the Project will be disclosed to the public after completion of the Preparatory Survey. All the contents of the Preparatory Survey Report including cost estimation of the Project will be disclosed to the public after the contract for supply of the Project equipment is concluded. Nevertheless of the above, both can discuss the parts of the Preparatory Report that should not be disclosed to the public from security aspect, and exclude those parts from disclosure before the Preparatory Survey Report is published.

Annex 1: Organization Chart of MPWT
Annex 2: Organization Chart of KAMSAB
Annex 3: Japanese Grant
Annex 4: Major Undertakings to be taken by the Government of Cambodia
Annex 5: Project Monitoring Report (template)

Annex 1

Organization Chart of Ministry of Public Works and Transport

- **Minister**
- **Secretary of State**
- **Under Secretary of State**
- **Cabinet of Minister & Advisors**

General Department of Administration and Finance
- Department of Administration
- Department of Human Resource
- Department of Finance
- Department of International Cooperation
- Department of Legislation

General Department Planning and Policy
- Department of Planning
- Department of Information System Managment
- Department of Policy
- Department of Monitoring and Evaluation

General Department of Technique
- Department of Road
- Department of Public Infrastructure
- Technical Dept. of Public Works and Transport
- National Institute of Technical Training for Public Works and Transport

General Department of Public Works
- Department of Expressway, Mega Bridge and Investment
- Department of Sewage system & Engineering
- Department of Equipment and Road Construction
- Department of Roads Repair and Maintenance

General Department of Road Transport
- Department of Road Transport
- Department of Road Safety
- Department of Urban Transport

General Department of Waterway - Maritime Transport and Port
- Department of Inland Waterways Transport
- Department of Merchant Marine
- Department of Port Administration
- Department of Waterways Infrastructure and Port construction

General Department of Logistics
- Department of Logistics Information
- Department of Logistics
- Department of Logistics Cooperation
- Department of Survey and Reports

General Inspectorate
- Department of IT & Public Relation
- Financial Control Unit
- Department of Internal Audit
- Department of Railway

- Procurment Unit

- Municipal, Provincial Department of Public Works and Transport
- Sihanoukville Autonomous Port
- Phnom Penh Autonomous Port
- Kampuchea Shipping Agency & Brokers (KAMSAB)
- Public Works and Contruction Lab Entity

Organization Chart of Kampuchuea Shipping Agency and Brokers

Kampuchea Shipping Agency & Brokers
(KAMSAB)

Organizational Chart of KAMSAB

Board of Director

Royal Government Delegate In Charge as CHAIRMAN & CEO

Internal Auditing Department

Deputy Director General Of Business Operation

Deputy Director General Of Administration & Management

Deputy Director General Of Planning & Private Port Branch

Marketing Department

Shipping Department

Administration & Human Resource Department

Sihanoukville Branch

Accounting Department

Procurement Department

Planning Department

Private Port Branch

Okhna Mong Port Branch

Phnom Penh, 07th November 2017
CHAIRMAN of board Directorly of

Dr. ROS YANNA

JAPANESE GRANT

The Japanese Grant is non-reimbursable fund provided to a recipient country (hereinafter referred to as "the Recipient") to purchase the products and/or services (engineering services and transportation of the products, etc.) for its economic and social development in accordance with the relevant laws and regulations of Japan. Followings are the basic features of the project grants operated by JICA (hereinafter referred to as "Project Grants").

1. Procedures of Project Grants

Project Grants are conducted through following procedures (See "PROCEDURES OF JAPANESE GRANT" for details):

(1) Preparation

- The Preparatory Survey (hereinafter referred to as "the Survey") conducted by JICA

(2) Appraisal

-Appraisal by the government of Japan (hereinafter referred to as "GOJ") and JICA, and Approval by the Japanese Cabinet

(3) Implementation

Exchange of Notes

-The Notes exchanged between the GOJ and the government of the Recipient

Grant Agreement (hereinafter referred to as "the G/A")

-Agreement concluded between JICA and the Recipient

. Banking Arrangement (hereinafter referred to as "the B/A")

-Opening of bank account by the Recipient in a bank in Japan (hereinafter referred to as "the Bank") to receive the grant

Construction works/procurement

-Implementation of the project (hereinafter referred to as "the Project") on the basis of the G/A

(4) Ex-post Monitoring and Evaluation
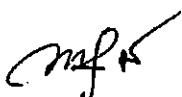
-Monitoring and evaluation at post-implementation stage

2. Preparatory Survey

(1) Contents of the Survey

The aim of the Survey is to provide basic documents necessary for the appraisal of the the Project made by the GOJ and JICA. The contents of the Survey are as follows:

- Confirmation of the background, objectives, and benefits of the Project and also institutional capacity of

relevant agencies of the Recipient necessary for the implementation of the Project.

- Evaluation of the feasibility of the Project to be implemented under the Japanese Grant from a technical, financial, social and economic point of view.

- Confirmation of items agreed between both parties concerning the basic concept of the Project.

- Preparation of an outline design of the Project.

- Estimation of costs of the Project.

- Confirmation of Environmental and Social Considerations

The contents of the original request by the Recipient are not necessarily approved in their initial form. The Outline Design of the Project is confirmed based on the guidelines of the Japanese Grant.

JICA requests the Recipient to take measures necessary to achieve its self-reliance in the implementation of the Project. Such measures must be guaranteed even though they may fall outside of the jurisdiction of the executing agency of the Project. Therefore, the contents of the Project are confirmed by all relevant organizations of the Recipient based on the Minutes of Discussions.

(2) Selection of Consultants

For smooth implementation of the Survey, JICA contracts with (a) consulting firm(s). JICA selects (a) firm(s) based on proposals submitted by interested firms.

(3) Result of the Survey

JICA reviews the report on the results of the Survey and recommends the GOJ to appraise the implementation of the Project after confirming the feasibility of the Project.

3. Basic Principles of Project Grants

(1) Implementation Stage

1) The E/N and the G/A

After the Project is approved by the Cabinet of Japan, the Exchange of Notes (hereinafter referred to as "the E/N") will be singed between the GOJ and the Government of the Recipient to make a pledge for assistance, which is followed by the conclusion of the G/A between JICA and the Recipient to define the necessary articles, in accordance with the E/N, to implement the Project, such as conditions of disbursement, responsibilities of the Recipient, and procurement conditions. The terms and conditions generally applicable to the Japanese Grant are stipulated in the "General Terms and Conditions for Japanese Grant (January 2016)."

2) Banking Arrangements (B/A) (See "Financial Flow of Japanese Grant (A/P Type)" for details)

a) The Recipient shall open an account or shall cause its designated authority to open an account under the name of the Recipient in the Bank, in principle. JICA will disburse the Japanese Grant in Japanese yen for the Recipient to cover the obligations incurred by the Recipient under the verified contracts.

b) The Japanese Grant will be disbursed when payment requests are submitted by the Bank to JICA under an Authorization to Pay (A/P) issued by the Recipient.

3) Procurement Procedure

The products and/or services necessary for the implementation of the Project shall be procured in accordance with JICA's procurement guidelines as stipulated in the G/A.

4) Selection of Consultants

In order to maintain technical consistency, the consulting firm(s) which conducted the Survey will be recommended by JICA to the Recipient to continue to work on the Project's implementation after the E/N and G/A.

5) Eligible source country

In using the Japanese Grant disbursed by JICA for the purchase of products and/or services, the eligible source countries of such products and/or services shall be Japan and/or the Recipient. The Japanese Grant may be used for the purchase of the products and/or services of a third country as eligible, if necessary, taking into account the quality, competitiveness and economic rationality of products and/or services necessary for achieving the objective of the Project. However, the prime contractors, namely, constructing and procurement firms, and the prime consulting firm, which enter into contracts with the Recipient, are limited to "Japanese nationals", in principle.

6) Contracts and Concurrence by JICA

The Recipient will conclude contracts denominated in Japanese yen with Japanese nationals. Those contracts shall be concurred by JICA in order to be verified as eligible for using the Japanese Grant.

7) Monitoring

The Recipient is required to take their initiative to carefully monitor the progress of the Project in order to ensure its smooth implementation as part of their responsibility in the G/A, and to regularly report to JICA about its status by using the Project Monitoring Report (PMR).

8) Safety Measures

The Recipient must ensure that the safety is highly observed during the implementation of the Project.

9) Construction Quality Control Meeting

Construction Quality Control Meeting (hereinafter referred to as the "Meeting") will be held for quality assurance and smooth implementation of the Works at each stage of the Works. The member of the Meeting will be composed by the

Recipient (or executing agency), the Consultant, the Contractor and JICA. The functions of the Meeting are as followings:

a) Sharing information on the objective, concept and conditions of design from the Contractor, before start of construction.

b) Discussing the issues affecting the Works such as modification of the design, test, inspection, safety control and the Client's obligation, during of construction.

(2) Ex-post Monitoring and Evaluation Stage

1) After the project completion, JICA will continue to keep in close contact with the Recipient in order to monitor that the outputs of the Project is used and maintained properly to attain its expected outcomes.

2) In principle, JICA will conduct ex-post evaluation of the Project after three years from the completion. It is required for the Recipient to furnish any necessary information as JICA may reasonably request.

(3) Others

1) Environmental and Social Considerations

The Recipient shall carefully consider environmental and social impacts by the Project and must comply with the environmental regulations of the Recipient and JICA Guidelines for Environmental and Social Considerations (April, 2010).

2) Major undertakings to be taken by the Government of the Recipient

For the smooth and proper implementation of the Project, the Recipient is required to undertake necessary measures including land acquisition, and bear an advising commission of the A/P and payment commissions paid to the Bank as agreed with the GOJ and/or JICA. The Government of the Recipient shall ensure that customs duties, internal taxes and other fiscal levies which may be imposed in the Recipient with respect to the purchase of the Products and/or the Services be exempted or be borne by its designated authority without using the Grant and its accrued interest, since the grant fund comes from the Japanese taxpayers.

3) Proper Use

The Recipient is required to maintain and use properly and effectively the products and/or services under the Project (including the facilities constructed and the equipment purchased), to assign staff necessary for this operation and maintenance and to bear all the expenses other than those covered by the Japanese Grant.

4) Export and Re-export

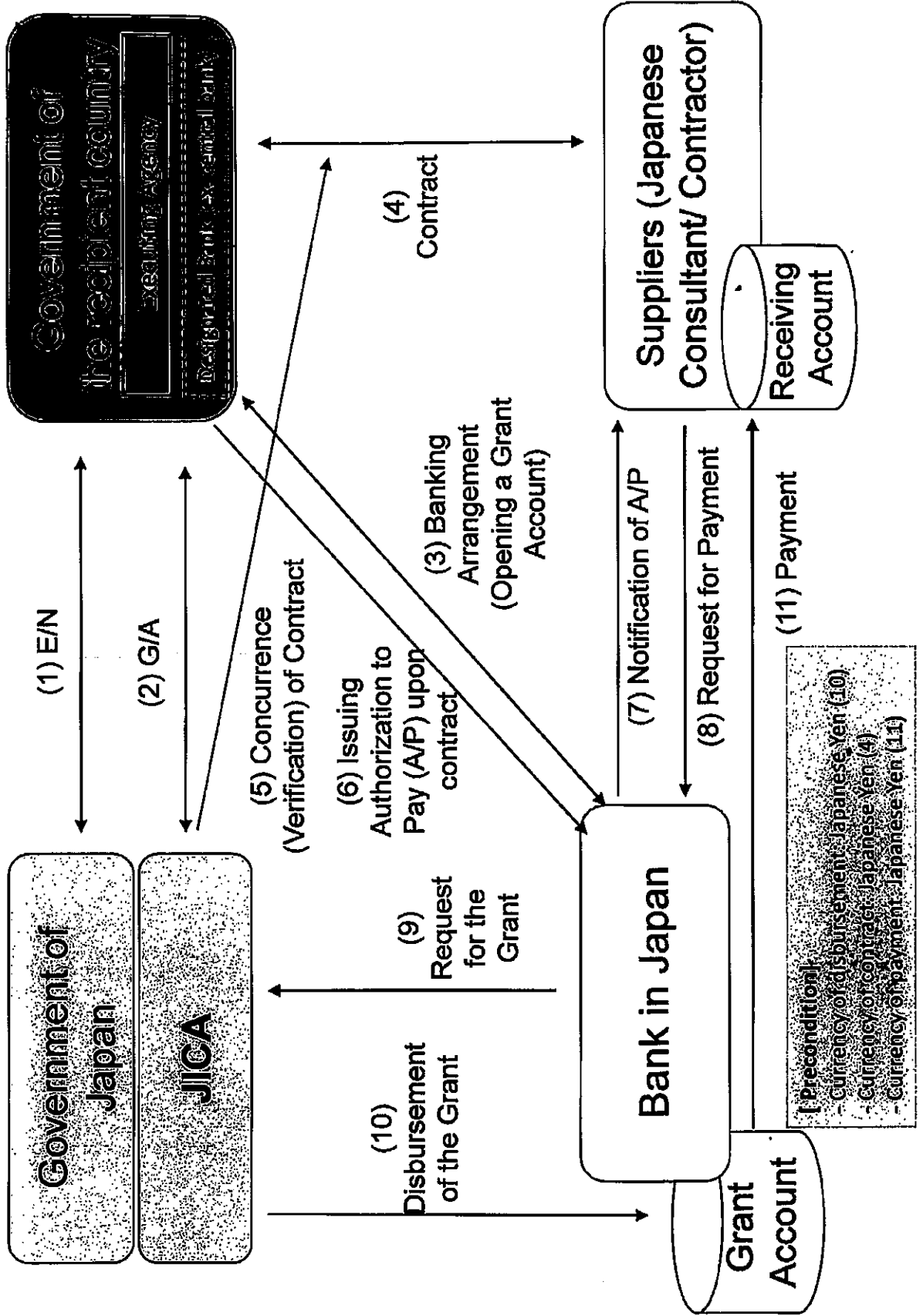The products purchased under the Japanese Grant should not be exported or re-exported from the Recipient.

PROCEDURES OF JAPANESE GRANT

Stage	Procedures	Remarks	Recipient Government	Japanese Government	JICA	Consultants	Contractors	Agent Bank
Official Request	Request for grants through diplomatic channel	Request shall be submitted before appraisal stage.	x	x				
1. Preparation	(1) Preparatory Survey Preparation of outline design and cost estimate		x		x	x		.
2. Appraisal	(2)Preparatory Survey Explanation of draft outline design, including cost estimate, undertakings, etc.		x		x	x		
	(3)Agreement on conditions for implementation	Conditions will be explained with the draft notes (E/N) and Grant Agreement (G/A) which will be signed before approval by Japanese government.	x	x (E/N)	x (G/A)			
	(4) Approval by the Japanese cabinet			x				
3. Implementation	(5) Exchange of Notes (E/N)		x	x				
	(6) Signing of Grant Agreement (G/A)		x		x			
	(7) Banking Arrangement (B/A)	Need to be informed to JICA	x					x
	(8) Contracting with consultant and Issuance of Authorization to Pay (A/P)	Concurrence by JICA is required	x			x		x
	(9) Detail design (D/D)		x			x		
	(10) Preparation of bidding documents	Concurrence by JICA is required	x			x		
	(11) Bidding	Concurrence by JICA is required	x			x	x	
	(12) Contracting with contractor/supplier and issuance of A/P	Concurrence by JICA is required	x				x	x
	(13) Construction works/procurement	Concurrence by JICA is required for major modification of design and amendment of contracts.	x			x	x	
	(14) Completion certificate		x			x	x	
4. Ex-post monitoring & evaluation	(15) Ex-post monitoring	To be implemented generally after 1, 3, 10 years of completion, subject to change	x		x			
	(16) Ex-post evaluation	To be implemented basically after 3 years of completion	x		x			

notes:

1. Project Monitoring Report and Report for Project Completion shall be submitted to JICA as agreed in the G/A.

2. Concurrence by JICA is required for allocation of grant for remaining amount and/or contingencies as agreed in the G/A.

Financial Flow of Japanese Grant (A/P Type)

Government of the recipient country

Executing Agency

Designated Bank (ex. Central Bank)

Suppliers (Japanese Consultant/ Contractor)

Receiving Account

Government of Japan

JICA

Bank in Japan

Grant Account

(1) E/N

(2) G/A

(5) Concurrence (Verification) of Contract

(6) Issuing Authorization to Pay (A/P) upon contract

(3) Banking Arrangement (Opening a Grant Account)

(4) Contract

(7) Notification of A/P

(8) Request for Payment

(9) Request for the Grant

(10) Disbursement of the Grant

(11) Payment

[Precondition]
- Currency of disbursement: Japanese Yen (10)
- Currency of contract: Japanese Yen (4)
- Currency of payment: Japanese Yen (11)

Major Undertakings to be taken by the Government of Cambodia

1. **Specific Obligations of the Government of Cambodia which will not be funded with the Grant**

(1) Before the Tender

No.	Items	Deadline	In charge	Estimated Cost	Ref.
1	To open bank account (B/A)	within 1 month after the signing of the G/A	MEF		
2	To issue A/P to a bank in Japan (the Agent Bank) for the payment to the consultant	within 1 month after the signing of the contract(s) to the consultant	MPWT		
3	To secure and clear the following sites and spaces 1) project sites (data server center) in MPWT	before notice of the bidding document(s)	MPWT		
4	To submit Project Monitoring Report (with the result of Detail Design)	before preparation of bidding document(s)	MPWT		

Note: B/A: Banking Arrangement, A/P: Authorization to pay, N/A: Not Applicable

(2) During the Project Implementation

No.	Items	Deadline	In charge	Estimated Cost	Ref.
1	To issue A/P to a bank in Japan (the Agent Bank) for the payment to the Supplier(s)	within 1 month after the signing of the contract(s)	MPWT		
2	To bear the following commissions to a bank in Japan for the banking services based upon the B/A		MPWT		
	1) Advising commission of A/P	within 1 month after the signing of the contract(s)			
	2) Payment commission for A/P	every payment			
3	To secure sites and spaces for installation of the equipment	1 month before installation of each equipment	MPWT		
4	To enable provision of electric power supply for the equipment	1 month before installation of each equipment	MPWT		
5	To ensure prompt unloading and customs clearance at ports of disembarkation in the country of Recipient and to assist the Supplier(s) with internal transportation therein	during the Project	MPWT		
6	To accord Japanese physical persons and/or physical persons of third countries whose services may be required in connection with the supply of the products and the services such facilities as may be necessary for their entry into the country of the Recipient and stay therein for the performance of their work	during the Project	MPWT		
7	To ensure that customs duties, internal taxes and other fiscal levies which may be imposed in the country of the Recipient with respect to the purchase of the products and/or the services be exempted	during the Project	MPWT		

8	To bear all the expenses, other than those covered by the Grant, necessary for the implementation of the Project	during the Project	MPWT		
9	To submit Project Monitoring Report after each work under the contract(s) such as shipping, hand over, installation and operational training	within 1 month after completion of each work	MPWT		
	1) To submit Project Monitoring Report (final)	within 1 month after signing of Certificate of Completion for the works under the contract(s)			
	2) To submit a report concerning completion of the Project	within 6 months after completion of the Project			
10	To submit a report concerning completion of the Project	within six months after completion of the Project	MPWT		

(3) After the Project

No.	Items	Deadline	In charge	Estimated Cost	Ref.
1	To maintain and use properly and effectively the equipment provided under the Grant Aid 1) Allocation of maintenance cost 2) Operation and maintenance structure 3) Routine check/Periodic inspection	After completion of the equipment installation	MPWT		

2. Other Obligations of the Government of Cambodia funded with the Grant

No.	Items	Deadline	Amount (Million Japanese Yen)
1	1) To provide and install equipment 2) To provide equipment with installation and commissioning	To be estimated	
2	To implement detailed design, bidding support and procurement supervision (Consulting Services)	To be estimated	
3	Contingency		
	Total		To be estimated

*The Amount is provisional. This is subject to the approval of the Government of Japan.
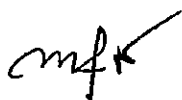
Project Monitoring Report
on
Project Name
Grant Agreement No. XXXXXXX
20XX, Month

Organizational Information

Signer of the G/A (Recipient)	Person in Charge	(Designation)
	Contacts	Address: Phone/FAX: Email:
Executing Agency	Person in Charge	(Designation)
	Contacts	Address: Phone/FAX: Email:
Line Ministry	Person in Charge	(Designation)
	Contacts	Address: Phone/FAX: Email:

General Information:

Project Title	
E/N	Signed date: Duration:
G/A	Signed date: Duration:
Source of Finance	Government of Japan: Not exceeding JPY _____ mil. Government of (_____): _____

1: Project Description

1-1 Project Objective

1-2 Project Rationale
- Higher-level objectives to which the project contributes (national/regional/sectoral policies and strategies)
- Situation of the target groups to which the project addresses

1-3 Indicators for measurement of "Effectiveness"

Quantitative indicators to measure the attainment of project objectives		
Indicators	Original (Yr)	Target (Yr)
Qualitative indicators to measure the attainment of project objectives		

2: Details of the Project

2-1 Location

Components	Original (proposed in the outline design)	Actual
1.		

2-2 Scope of the work

Components	Original* (proposed in the outline design)	Actual*
1.		

Reasons for modification of scope (if any).

(PMR)

2-3   Implementation Schedule

Items	Original		Actual
	(proposed in the outline design)	*(at the time of signing the Grant Agreement)*	

Reasons for any changes of the schedule, and their effects on the project (if any)

2-4   Obligations by the Recipient

  2-4-1   Progress of Specific Obligations
    See Attachment 2.

  2-4-2   Activities
    See Attachment 3.

  2-4-3   Report on RD
    See Attachment 11.

2-5   Project Cost

2-5-1   Cost borne by the Grant(Confidential until the Bidding)

	Components		Cost (Million Yen)	
	Original *(proposed in the outline design)*	Actual *(in case of any modification)*	Original[1)2)] *(proposed in the outline design)*	Actual
	1.			
Total				

Note: 1) Date of estimation:
      2) Exchange rate: 1 US Dollar =   Yen

2-5-2   Cost borne by the Recipient

	Components		Cost (1,000 Taka)	
	Original *(proposed in the outline design)*	Actual *(in case of any modification)*	Original[1)2)] *(proposed in the outline design)*	Actual
	1.			

3

Note: 1) Date of estimation:
        2) Exchange rate: 1 US Dollar =

Reasons for the remarkable gaps between the original and actual cost, and the countermeasures
(if any)

(PMR)

2-6   Executing Agency
-   Organization's role, financial position, capacity, cost recovery etc,
-   Organization Chart including the unit in charge of the implementation and number
    of employees.

Original *(at the time of outline design)*
name:
role:
financial situation:
institutional and organizational arrangement (organogram):
human resources (number and ability of staff):
Actual *(PMR)*

2-7   Environmental and Social Impacts
- The results of environmental monitoring based on Attachment 5 (in accordance with Schedule
4 of the Grant Agreement).
 - The results of social monitoring based on in Attachment 5 (in accordance with Schedule 4 of
the Grant Agreement).
 - Disclosed information related to results of environmental and social monitoring to local
stakeholders (whenever applicable).

3: Operation and Maintenance (O&M)

3-1   Physical Arrangement
- Plan for O&M (number and skills of the staff in the responsible division or section,
availability of manuals and guidelines, availability of spareparts, etc.)

Original *(at the time of outline design)*
Actual *(PMR)*

3-2   Budgetary Arrangement
- Required O&M cost and actual budget allocation for O&M

Original *(at the time of outline design)*

Actual *(PMR)*

4: Potential Risks and Mitigation Measures

- Potential risks which may affect the project implementation, attainment of objectives, sustainability
- Mitigation measures corresponding to the potential risks

Assessment of Potential Risks (*at the time of outline design*)

Potential Risks	Assessment
1. (Description of Risk)	Probability: High/Moderate/Low
	Impact: High/Moderate/Low
	Analysis of Probability and Impact:
	Mitigation Measures:
	Action required during the implementation stage:
	Contingency Plan (if applicable):
2. (Description of Risk)	Probability: High/Moderate/Low
	Impact: High/Moderate/Low
	Analysis of Probability and Impact:
	Mitigation Measures:
	Action required during the implementation stage:
	Contingency Plan (if applicable):
3. (Description of Risk)	Probability: High/Moderate/Low
	Impact: High/Moderate/Low
	Analysis of Probability and Impact:
	Mitigation Measures:
	Action required during the implementation stage:

	Contingency Plan (if applicable):
Actual Situation and Countermeasures	
(PMR)	

5: Evaluation and Monitoring Plan (after the work completion)

5-1 Overall evaluation

Please describe your overall evaluation on the project.

5-2 Lessons Learnt and Recommendations

Please raise any lessons learned from the project experience, which might be valuable for the future assistance or similar type of projects, as well as any recommendations, which might be beneficial for better realization of the project effect, impact and assurance of sustainability.

5-3 Monitoring Plan of the Indicators for Post-Evaluation

Please describe monitoring methods, section(s)/department(s) in charge of monitoring, frequency, the term to monitor the indicators stipulated in 1-3.

Attachment

1. Project Location Map
2. Specific obligations of the Recipient which will not be funded with the Grant
3. Monthly Report submitted by the Consultant
Appendix - Photocopy of Contractor's Progress Report (if any)
    - Consultant Member List
    - Contractor's Main Staff List
4. Check list for the Contract (including Record of Amendment of the Contract/Agreement and Schedule of Payment)
5. Environmental Monitoring Form / Social Monitoring Form
6. Monitoring sheet on price of specified materials (Quarterly)
7. Report on Proportion of Procurement (Recipient Country, Japan and Third Countries) (PMR (final)only)
8. Pictures (by JPEG style by CD-R) (PMR (final)only)
9. Equipment List (PMR (final)only)
10. Drawing (PMR (final)only)
11. Report on RD (After project)

Monitoring sheet on price of specified materials

1. Initial Conditions (Confirmed)

	Names of Specified Materials	Initial Unit Price (A)				Current Unit Price (D)	Result for Comparison
1	Item 1	●●t	●		●	●	●
2	Item 2	●●t	●		●	●	●
3	Item 3						
4	Item 4						
5	Item 5						

2. Monitoring of the Unit Price of Specified Materials
(1) Method of Monitoring : ●●

(2) Result of the Monitoring Survey on Unit Price for each specified materials

	Names of Specified Materials					
1	Item 1					
2	Item 2					
3	Item 3					
4	Item 4					
5	Item 5					

(3) Summary of Discussion with Contractor (if necessary)

. . . .

Report on Proportion of Procurement (Recipient Country, Japan and Third Countries)

(Actual Expenditure by Construction and Equipment each)

	Domestic Procurement (Recipient Country) A	Foreign Procurement (Japan) B	Foreign Procurement (Third Countries) C	Total D
Construction Cost	(A/D%)	(B/D%)	(C/D%)	
Direct Construction Cost	(A/D%)	(B/D%)	(C/D%)	
others	(A/D%)	(B/D%)	(C/D%)	
Equipment Cost	(A/D%)	(B/D%)	(C/D%)	
Design and Supervision Cost	(A/D%)	(B/D%)	(C/D%)	
Total	(A/D%)	(B/D%)	(C/D%)	

cm/K

Kingdom of Cambodia
Ministry of Public Works and Transport

Summary of the
Draft Preparatory Survey Report

The Project for
Port EDI for Port Modernization

August 2018

Japan International Cooperation Agency (JICA)

Mitsubishi Research Institute, Inc.
The Overseas Coastal Area Development Institute of Japan

Table of Content

Chapter1　Basic Concept of the Project

1-1　Background of the Project

Cambodia's real GDP growth rate in the past 10 years is as high as about 7% on average annually and cargo handling volume has been rapidly growing accordingly. Therefore, the improvement of port facilities' function is an urgent task.

Under these circumstances, it is desirable to introduce electronic information processing such as documents application and notification to port administrators, etc. (Port Electronic Data Interchange, hereinafter referred to as "Port EDI"), to rationalize and streamline administrative procedures at ports.

In addition, the Cambodian government created a draft plan of the "National Single Window" (hereinafter referred to as "NSW"), which aims to link various systems and electronic data related to trade with each ministry and agency in 2014 and the NSW Steering Committee, the Secretariat of which is the "General Department of Customs and Excise of Cambodia "(hereinafter referred to as "GDCE"), is established in 2015.

In anticipation of the operation of the "ASEAN Community Initiative" (ASEAN Single Window, hereinafter referred to as "ASW") during 2017, NSW and ASW of the ASEAN countries until the end of December 2017 are supposed to be experimented.

In introducing the NSW, the port EDI also plays a major role as a constituent element, and the "Ministry of Public Works and Transport, the Kingdom of Cambodia" (hereinafter referred to as "MPWT") requests the early introduction of port EDI prior to construction of the NSW.

To investigate the scope and methods of port EDI in Cambodia, "Preparatory Survey for the Project for Port EDI for Port Modernization " (hereinafter referred to as "this survey") will be implemented.

1-2　Purpose of Systemization

Current ship clearance formality procedure, which involves 1) Pre-Arrival Notice, 2) Entry Permit, 3) Arrival Declaration, 4) Departure Declaration, are conducted manually (ship side creates application paper, KAMSAB checks it manually, carries the paper to the competent authorities for approval), and thus consumes much time.

To adopt Port EDI System to "ship clearance formality procedure", paper preparation work will be decreased by re-use of the data, transition time of paper delivery will be minimized. Moreover, if the Ship Clearance Committee goes on board the vessel, each member of the Committee will be able to see most of the documents in advance to minimize the open hours of the Committee.

In addition to above, by utilizing the Data Base of Port EDI System, the statistical information will be generated automatically. The accuracy will be increased, and burden for preparation will be decreased.

1-3　Basic Concept of the Project

From March 2018 to August 2018, the Japan International Cooperation Agency (hereinafter referred to as "JICA") dispatched the survey team to Cambodia for the Project for Port EDI for Port Modernization (hereinafter referred to as "the Project"). The team conducted a preparatory survey including consultations with government officials in Cambodia and confirmed the main contents of request for Japan's Grant Aid. The basic concept of the Project is summed in Table 1.

Table 1 Overview of the Project

Item	Description
Overall goal	Contributing to more efficient logistics system and modernization of port administration through digitization, simplification and visualization of information on port logistics
Project Purpose	The operations of Cambodian Port Authorities (PPAP and PAS), ship clearance agency (KAMSAB) and the concerned government agencies are modernized through the establishment of Port EDI System based on Japan's technology and experience in establishing and operating Port EDI System.
Output of the Project	By introducing Port EDI System necessary for port EDI at Sihanoukville Port / Phnom Penh Port, to streamline the procedure of electronification such as document application and notification at vessel arrival and departure.
Requirement	The following software systems are developed based on Japan's technology and experience in establishing and operating Port EDI System. [a] Ship Clearance Management System [b] Statistical Information Management System
Target area	Sihanoukville Port (Under PAS ship clearance control) Phnom Penh Port (Under PPAP ship clearance control)
Target vessel	Inward and Outward vessels (cross-border vessels of Cambodia, under the administration of Ship Clearance Committee)
Relevant organizations of Cambodia	Executing agency: Ministry of Public Works and Transport (MPWT) Operation and Maintenance Organization: Ministry of Public Works and Transport (MPWT) Business Operation Organization: Kampuchea Shipping Agency and Brokers (KAMSAB) Cooperating organization: Sihanoukville Autonomous Port (PAS) , Phnom Penh Autonomous Port (PPAP) Affiliated ministries / agencies: General Department of Customs and Excise of Cambodia of the Ministry of Economics and Finance (GDCE MEF), General Department of Immigration of the Ministry of Interior (MOI), Quarantine Office, Department of Communicable Disease Control, General Department of Health of the Ministry of Health (MOH)
Beneficiary	MPWT, KAMSAB, PAS, PPAP, Customs, Immigration, Quarantine, and shipping lines
Undertakings by the Cambodian side	1) Procurement of necessary software, hardware, network and work space [a] Adequate server room at MPWT headquarters to install Port EDI System [b] Lan / Wan of each user location, internet connection, SIM, email address for the server notification, and global IP address, and communication cost during the implementation [c] PC, printer, and other relevant hardware to use Port EDI System, which exceeds the number of grant equipment within MPWT, PAS, PPAP, KAMSAB, Customs, Immigration, and Quarantine [d] Work space for the vender 2) Necessary organization, human resources and their training [a] To establish Port EDI System Implementation Working Group (Cambodian side, including MPWT, KAMSAB, PAS, PPAP, Customs, Immigration, Quarantine), and MPWT leads the communication as the executing agency [b] To establish business operation organization in KAMSAB, and operation and maintenance organization in MPWT [c] To appoint the necessary staff to the Port EDI System Implementation Working Group

Item	Description
	[d] To assign the necessary staff to the business operation organization in KAMSAB and operation and maintenance organization in MPWT. [e] To periodically provide training for the staff in above [c] and [d] 3) Review and test of Port EDI System, and preparation of the manuals and master table data [a] To review the basic design, execute acceptance test and other preparation of Cambodian side in accordance with the project implementation schedule. [c] To prepare helpdesk manuals, business operation manuals and operation and maintenance manuals [d] To prepare proposal for operation and maintenance of Port EDI System [e] To define the user code, organization code, and master table contents of Port EDI System [f] To register the master table data 4) Institutional Arrangement [a] To conclude the system requirements for the acquisition of manifest data from NSW (National Single Window system) within the grant aid budget [b] To adopt digital signature technology as soon as it is available [c] To establish the new law / rules for the ship clearance formality procedure using Port EDI System as necessary 5) Necessary budget for smooth implementation and sustainable operation and maintenance [a] To secure necessary budget for undertakings of Cambodia during Port EDI System implementation [b] To secure necessary budget for business operation and operation and maintenance of Port EDI System [c] To secure necessary budget for renewal of hardware in the future (in general, renewal is necessary within 5 years after installation of the system)
Activities in Soft Component	[a] Support for preparation of the business operation manuals [b] Support for preparation of the helpdesk manuals [c] Support for preparation of operation and maintenance manuals [d] Support for preparing proposal for operation and maintenance

1-3-1 Software Implementation

The software of Port EDI System consists of three major sub functions.

1-3-1-1 Gate Way System

In accordance with the law and regulations of Cambodia, all the application from the ship side are registered by KAMSAB. Gate Way System consists of the three functions, which are data registration, check the data, and submit the data to Ship Clearance Management System. To follow the Cambodian law and regualtions and hold the flexibility for future modification and enhancement, this function is independent from Ship Clearance Management System.

The major features of this system are 1) to follow FAL standard, and 2) to provide the various input methods for the users. FAL is an international standard form for maritime business endorsed by IMO (International Maritime Organization). To register the application data in accordance with FAL, considering the various kind of shipping company and smooth migration of business procedure, Gate Way System provides i) registration data by KAMSAB on behalf of shipping line (for the very small company who will not use Port EDI System directly), ii) KAMSAB receives

the application data from shipping lines by email or other alternatives, and import the data into Gate Way System (for the middle class shipping line), and iii) Shipping line inputs the data directly to the Gate Way System (for the advanced company).

The more applying the 2) and 3) method, the better efficiency KAMSAB and relevant organization will achieve.

Regarding the connectivity to NSW, current system interface design of Port EDI System, manifest data file is subject to be obtained from NSW.

The target users of Port EDI System are KAMSAB and shipping lines.
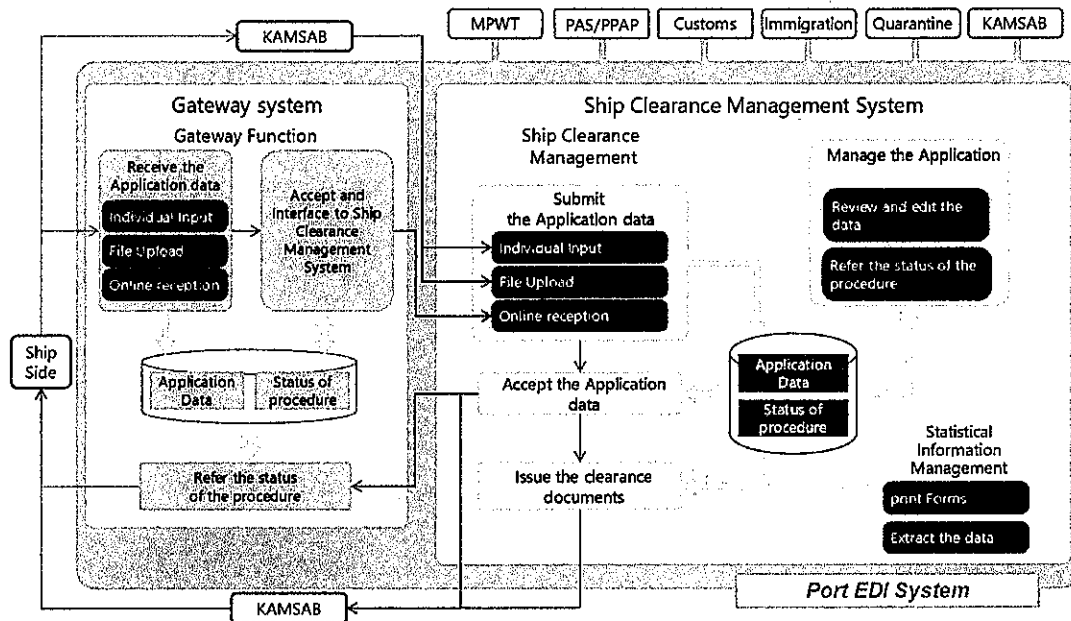
Figure 1 Overview of Port EDI System

1-3-1-2 Ship Clearance Management System

After submitting the application data from Gate Way System by KAMSAB to Ship Clearance Management System, the application data is accepted / checked by Port Authority (PAS and PPAP), MPWT, and the competent authorities (Customs, Immigration, Quarantine) respectively using Ship Clearance Management System. Currently, the application documents and relevant certificates are delivered by KAMSAB, and Port Authority and the competent authorities physically handle the documents and deliver to the shipping line through KAMSAB. This physical document circulation process will be taken over by electronic data inter-exchange using Ship Clearance Management System.

Target business of Port EDI System is ship clearance formality procedure. Thus, businesses will be covered by Port EDI System are shown below.

- Pre-Arrival Notice
- Entry Permit
- Arrival Declaration
- Departure Declaration

And, for avoiding stagnation of berthing, the procedure for submitting Ship Order and submitting Declaration of Security will be included in target business of Port EDI System.

4

Other procedures concerning arrival and departure of vessels shown below will not be targeted for business of Port EDI System.

- Procedure for Passport and / or Seaman's book
- Procedure for Port State Control
- Procedure for Berth Allocation
- Procedure for Billing

The target user of Port EDI System is MPWT, PAS, PPAP, KAMSAB, Customs, Immigration, Quarantine.

1-3-1-3 Statistical Information Management System

To utilize the data registered, the statistical information will be generated by Port EDI System automatically. The forms managed in Statistic Management function are based on the outcomes of "The task force for Establishment of National Port Policy and Administration System. (2011). The Manual of Port Statistics Survey and Analysis".

Those statistical information are 1) Information on Vessel calls, 2) Import Cargo Statistics by Vessel and Commodity, 3) Export Cargo Statistics by Vessel and Commodity, 4) International passengers.

Basically, the items included in the forms will be collected and managed in Ship Clearance Management function. Therefore, the data which is not handled in the Gate Way System and Ship Clearance Management System is not shown in the statistical information.

The target user of Port EDI System is MPWT.

1-3-2 Hardware Equipment

The equipment of Port EDI System is shown in the Table 2.

Table 2   Hardware Equipment

Name	Number	Outline
Equipment for Production Environment (Server)	1 set	Equipment for running Port EDI System for production environment, which consists of servers, storages, and backup devices, etc.
Equipment for Testing/Training Environment (Server)	1 set	Equipment for running Port EDI System for testing/training environment, which consists of servers, storages, and backup devices, etc.
Client PC	1 set per user site	Client PC which handle Port EDI System by the users. As for the user site of MPWT, KAMSAB, PAS, PPAP, Customs, Immigration, Quarantine, PC and multifunctional printer are delivered at least 1. In the case of more PC required at each location, users are expected to shoulder the purchase of it.
Replacement Equipment	1 set	Replacement equipment, which is necessary on the occurrence of system failure, especially in the case of servers and storages, which have the possibility to degrade over time.
Middleware	1 set	Computer software, such as OS, DB management software and system management software or tool, that provides services to software applications.

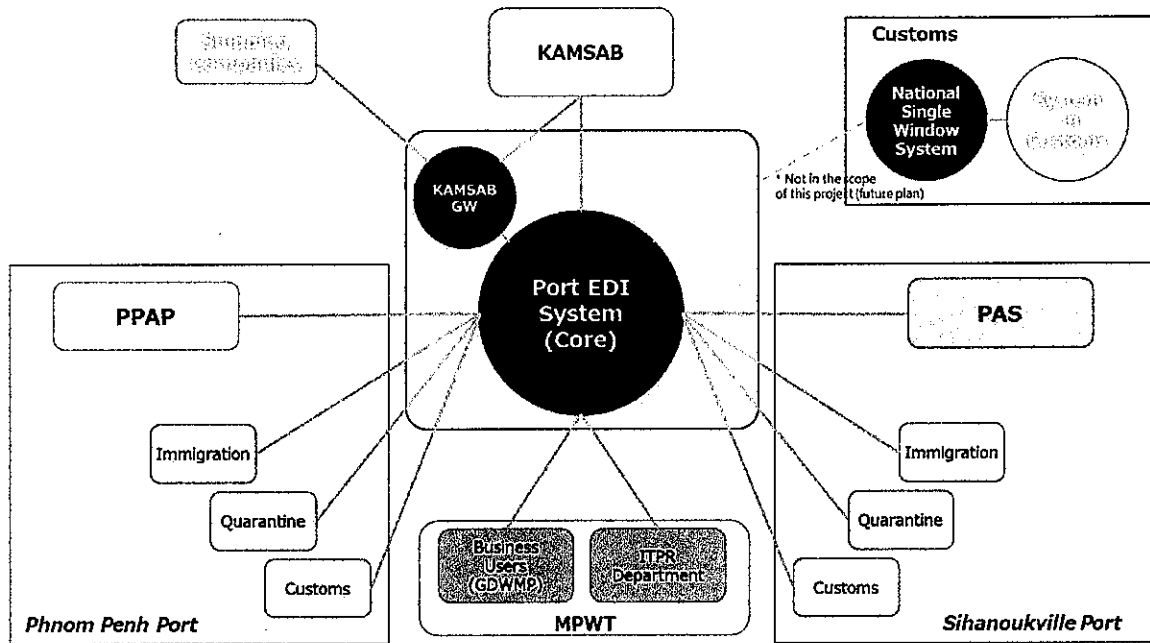The physical configuration for the range of Port EDI System is shown in Figure 2 System Context Diagram

Figure 2 System Context Diagram

Chapter2　Major Policy for Application

2-1　Policy concerning Sign and Stamp

For the sake of efficiency and promptness of practical business, Port EDI System shall adopt electronic application and electronic approval. Thus, signing and stamping to the documents shall be abolished. Toward abolition of signing and stamping, MPWT is expected to prescribe the regulation for operating Port EDI System with relevant organizations.
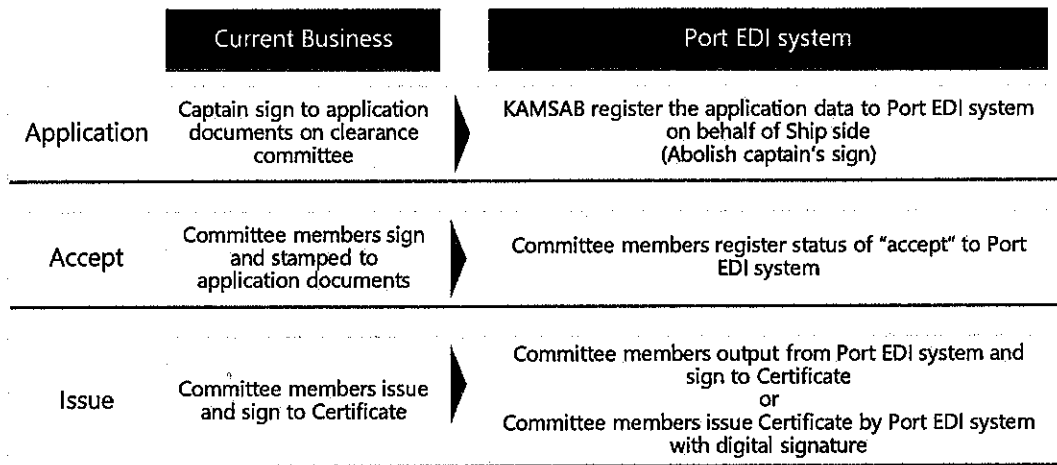
	Current Business	Port EDI system
Application	Captain sign to application documents on clearance committee	KAMSAB register the application data to Port EDI system on behalf of Ship side (Abolish captain's sign)
Accept	Committee members sign and stamped to application documents	Committee members register status of "accept" to Port EDI system
Issue	Committee members issue and sign to Certificate	Committee members output from Port EDI system and sign to Certificate or Committee members issue Certificate by Port EDI system with digital signature

Figure 3 Policy concerning Sign and Stamp

2-2　Policy and Situation about Digital Signature in Cambodia

In Cambodia, the sub-decree of digital signature (No.246 ANKR.BK) was promulgated. The important points of the sub-decree of digital signature (No.246 ANKR.BK) are shown below.

- Any electrical message attached with a digital signature is the same legal effect to the written paper. [Article 10]
- Article 10 is applied to only the digital signature issued by the certificate authorities (CA) licensed by MPTC.
- Any person who intends to apply for a license of digital signature certification shall apply to the General Department of Information and Communication Technology (GDICT). [Article 17]

Basically, government agency must adopt the government CA developed by MPTC for using digital signature. However, before the launch of the government CA, government agency could adopt foreign CA.

And, at this moment, no CAs exist in Cambodia. Also, there is no any foreign CA licensed by MPTC. Although MPTC is now planning to establish the government CA of Cambodia, the time line for developing the government CA is not fixed.

This survey team tried to persuade some Japanese CA to apply to MPTC for getting the CA license of Cambodia. However, at this moment, no Japanese CA plan to apply to MPTC.

Thus, it might be difficult that Port EDI System adapts the digital signature just after Go-live. Following the current situations of digital signature in Cambodia, the plan for adopting digital signature to Port EDI System is shown below.

- The function for utilizing digital signature shall be introduced to Port EDI System.
- However, the functions shall not be activated just after Go-live of Port EDI System.
- It shall be required in the requirement of Port EDI System that the function can be activated easily once the environment for utilizing digital signature is ready.

2-3 Relationship of Pre-Arrival Notice and Arrival Declaration

The forms of Pre-Arrival Notice shall be replaced to FAL standard forms, FAL1 – FAL7. Thus, Ship Clearance Committee members can get the information of Arrival Declaration in advance. Ship side shall submit same information for Pre-Arrival Notice and Arrival Declaration.

- Pre-Arrival Notice is tentative information. If the information is updated, Ship side and KAMSAB must re-submit it.
- Arrival Declaration is Finalized information.
- Some items that can be fixed after arrival, such as actual draft and the time of pilot on board, shall be included in only Arrival Declaration.

Each registered data will be reviewed and updated through each procedure.
The accuracy of registered data will be improved gradually as the procedural progress.
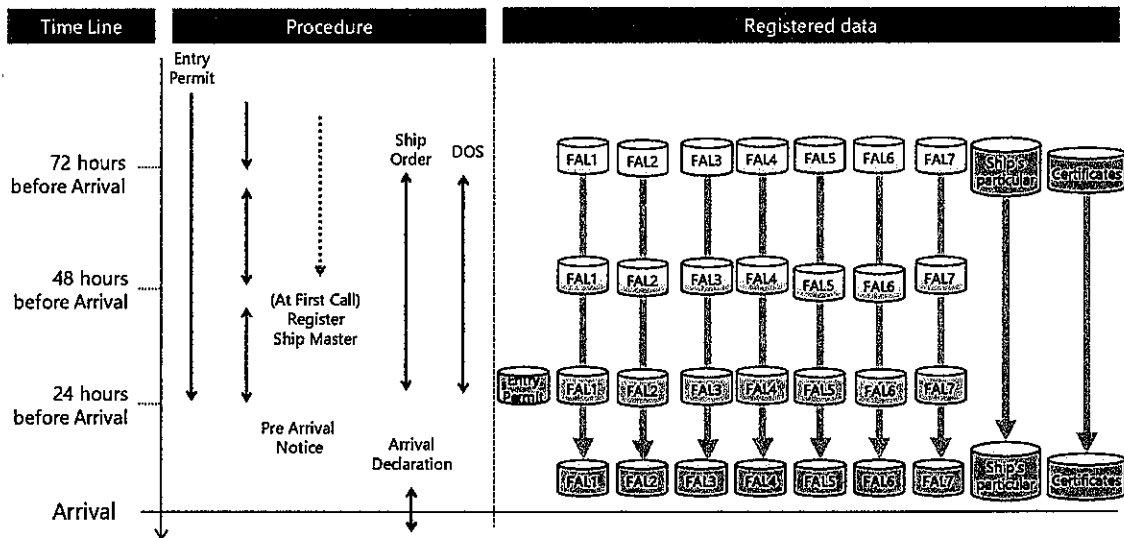

Figure 4   Images of registering the application data

2-4 Policy of Linkage with NSW

The function for downloading manifest data shall be introduced to Port EDI System. KAMSAB shall get manifest data from ship side via Gate Way System for customs clearance procedures so that Port EDI System and NSW could share manifest data.
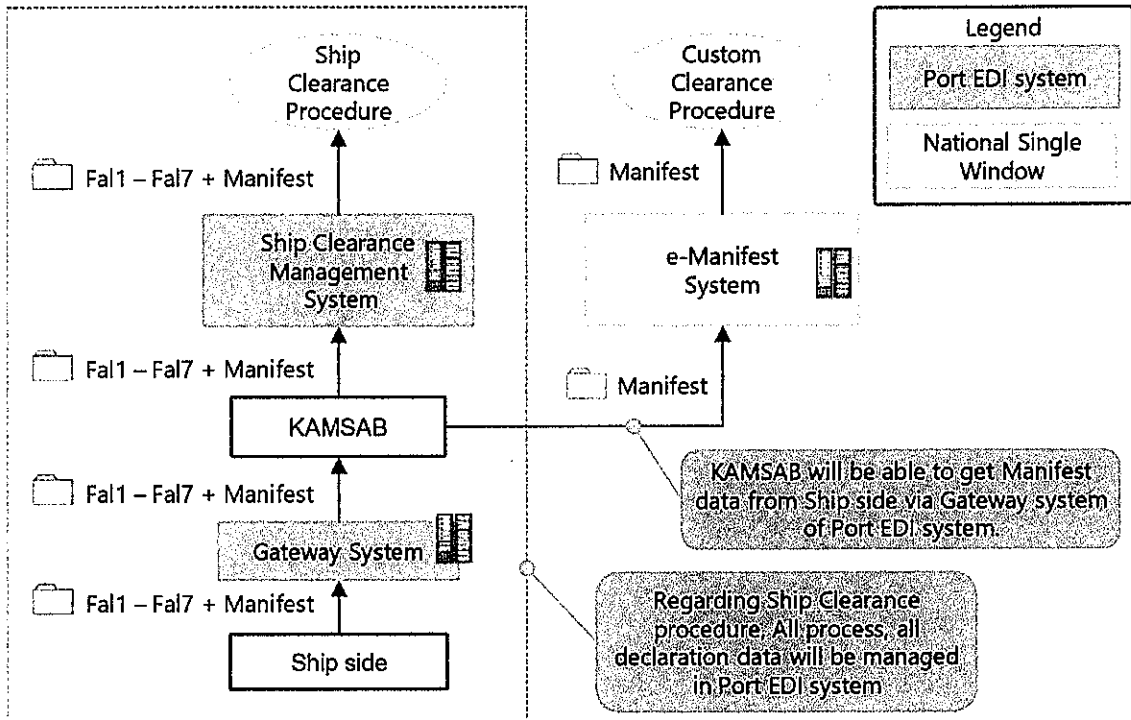

Figure 5 Policy of Linkage with NSW

Chapter3   Soft Component (Technical Assistance) Plan

The outcomes of each task of Soft Component are expected as follows:

i.   Support for preparation of the business manuals

New business flow with Port EDI System will be described in the business manuals. Business users will be able to operate by themselves with the manuals. The business procedure is not completed in the IT system only. All procedures including outside of IT system are described in the business manuals for supporting execution of business procedure correctly.

Outcome: the business manuals with Port EDI System will be prepared and the users will be able to execute their business operations with it.

ii. Support for preparation of the helpdesk

The manuals for the operation of helpdesk will be prepared, and the person in charge of helpdesk will be able to execute their work by themselves with the manuals. Also rules and methods for managing inquiries will be prepared.

Outcome: the manuals for helpdesk will be prepared and the person in charge of helpdesk will be able to execute its operation by themselves with the manuals.

iii. Support for planning of operation and maintenance

The plan for operation and maintenance for proper operation for Port EDI System is prepared. The formation, not only in the MPWT but also is with maintenance vendors, for operation and maintenance and contracts will be clarified. Also, the preparation of the budgeting for operation and maintenance will be done.

Outcome: The plan for operation and maintenance will be prepared and necessary preparation for operation and maintenance is clarified.

iv. Support for preparation of IT service management process

The manuals for IT service management process (inventory management, incident management, problem management) will be prepared. The business workflow related IT service management process for handling inquiries will be also prepared.

Chapter4 Project Operation Plan

4-1 Operation and Maintenance Organization

MPWT is responsible for the operation and maintenance of Port EDI System introduced by the Project. MPWT will maintain Port EDI System in collaborate with the vendors. It is expected that MPWT will establish such structures for operation and maintenance.

ITPR Department of MPWT is expected to shoulder the missions i) maintenance of the server room, electricity, air-conditioning, etc., ii) security service of the server room, iii) maintenance of the equipment (hardware, software, application program), iv) operation of the Port EDI System (monitoring, turn on/off, re-boot, backup, etc.), v) incident management, vi) management of the system venders (providers), and vii) management of future up-grade and/or modification of Port EDI System. In the case of the problem exceeds their capacity, these staff have to analyze the cause of the problem, classify it, decide the responsible vender (hardware problem, network problem, or software problem, etc.), and call to the support vender.

To consider the operation and maintenance organization for the missions are classified into two roles. One is application maintenance (corresponds to "application program" among iii)) and another is infrastructure (corresponds to the other items). Both MPWT staff of application and infrastructure are expected to be assigned two persons respectively at least, and the leader for Port EDI System operation and maintenance shall be assigned. The leader shall be the MPWT official, and rest of the team consists of MPWT officials and IT experts, on the condition of adequate support from the outsourcer.

The required skill or certificate for the mission above is as followings.

The role of the "application maintenance" requires the certificate of "Oracle Certified Java Programmer" or having the experience of Java application development and the similar level of software development skills.

The role of the "infrastructure" requires the IT skills endorsed by the certification such as "CCNA(Cisco Certified Network Associate), RHCSA (Red Hat Certified System Administrator), and VCA (VMware Certified Associate). The person who has the experience of system infrastructure operation and the same level of skills is also eligible for the mission.

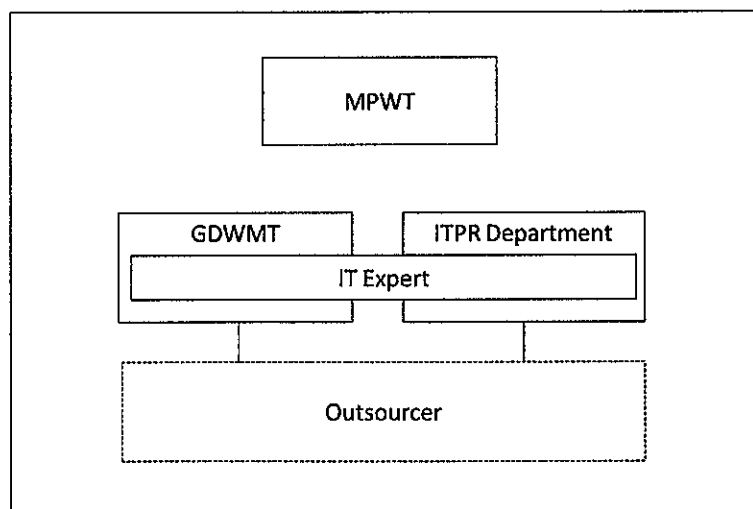The Operation and Maintenance Organization of port EDI System is shown below.

Figure 6 Operation and Maintenance Organization of Port EDI system

IT Expert is a professional to strengthen the MPWT ITPR Department and GDWMP, hired from outside of MPWT. The professionals work with MPWT regularly for the long period.

OUTSOURCER is outsourcing company based on the contract, and it provides the professional services to fulfill the specification of the contract. In general, the professional person may change depending on the condition of the outsourcer.

Grant aid is eligible for public sector only, basically. As for the user training, MPWT, KAMSAB, PAS, PPAP, and the competent authorities will be participants too. The operation and maintenance training are mainly eligible for MPWT and KAMSAB. Therefore, the outsourcer will be trained by the trained officials of MPWT in principal. In this regard, it is better to choose the expert or outsourcer in the early stage of the Project for both MPWT and KAMSAB.

4-2 Business operation organization

The business operation of Port EDI System was newly defined in KAMSAB and consists of three services which are i) user assistance, ii) helpdesk operation and iii) master table maintenance.

User assistance work is supporting the Port EDI System user for use of the system by providing training class or hands-on lesson. This service is mainly provided for the beginner.

Helpdesk is the special team to handle the inquiries from users, fix the troubles reported by the users. This service is daily service.

Master table maintenance work is data registration to the master table of the system in accordance with the business change, like the new user added, two vessel companies merged into one, etc.

The number of the officials are expected to be five at least headed by the leader, and two persons for Phnom Penh Autonomous Port and Sihanouk Ville Autonomous Port respectively. The skills required for these persons are mainly Port EDI System operation which is described in the business operation manuals. In this regard, these staff are not expected to have the advanced IT skills but should be very familiar with Port EDI System in the point view of the end user. Therefore, these persons are expected to be assigned among the staff who were appointed to create the business manuals. For the question for IT infrastructure or IT trouble claims, helpdesk staff can dispatch the inquiry to MPWT ITPR Department. Flowing figure shows the position of the business operation team in the KAMSAB organization,

To build up the skills, operation training is provided by the grant project.
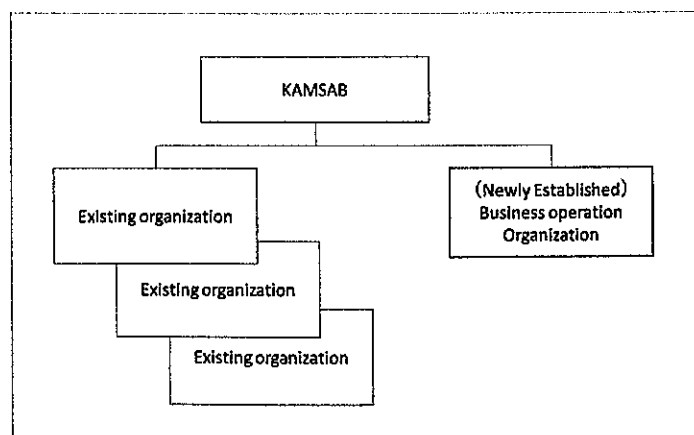
Figure 7 Business Operation Organization of Port EDI system

Chapter5　Obligations of recipient country

In the Table 1　Overview of the Project", the obligations of the recipient country are summarized as column "Undertakings by the Cambodian side.

Chapter6 Project Evaluation

6-1 Quantitative Effects

By introducing Port EDI System to Cambodia, the ship clearance formality procedure will be modernized, standardized, and simplified. In this regard, the period of the ship clearance formality procedure will be shortened, and the burden of the relevant organization will be decreased. These effects shall be measured quantitatively to consider the future action. Following are the measurement for the quantitative effects.

Two quantitative measurements are defined as below.

(1) The required time for the ship clearance formality procedure (hours per vessel).

It is defined as "Duration for arrival of vessel should be counted from the time the vessel arrived at the berth and the time the ship clearance formality procedure is completed".

The effects are evaluated by comparison between current time and the time after three years.

(2) The utilization rate of Port EDI System for ship clearance procedure (%)

$$\frac{\text{number of ships that were treated by Port EDI System}}{\text{actual number of all the arrival ships}}$$

Port EDI System is applied to both Phnom Penh Port and Sihanoukville Port, which have their own characteristics, and measurement should be defined respectively.

Chapter7 Project Cost Estimation

7-1 Initial Cost Estimation

7-2 Operation and Maintenance Cost

The cost for operation and maintenance of the ICT system will be incurred from the time of handing over of Port EDI System to MPWT. Under the current timetable, operation and maintenance cost will be payable from the Go-live.

The operation and maintenance cost consist of four categories.

Table 3 Categories of Operation and Maintenance Cost

	Category	Description
1	Maintenance service for developed software	• Provide service for fixing an issue, consultation for modification on developed software. • Contact point when MPWT or KAMSAB has a trouble on developed software.
2	Maintenance service for hardware product	• Provide parts for replacement when equipment has a trouble. • Contact point when MPWT or KAMSAB has a trouble on hardware
3	Maintenance service for software product	• Provide fix module for fixing an issue when software has a trouble. • Contact point when MPWT or KAMSAB has a trouble on software

Annual operation and maintenance cost, including all the above-mentioned categories, is expected to reach to USD 354,267.

JICA, therefore, requests MPWT to start preparing for securing a budget for the expense of the operation and maintenance cost for Port EDI System.

Table 4 Operation and Maintenance Cost of Port EDI System

	Category	5 years total	Annual average
1	Maintenance service for developed software	$760,422 (¥85,000,000)	$152,084 (¥17,000,000)
2	Maintenance service for hardware product	$608,339 (¥68,000,000)	$121,668 (¥13,600,000)
3	Maintenance service for software product	$402,576 (¥45,000,000)	$80,515 (¥9,000,000)
	Total	$1,771,337 (¥198,000,000)	$354,267 (¥39,600,000)

1USD = 111.78 JPY (14 Aug.2018)

Cost Estimate of the Project

This Page is closed due to the confidentiality.

Project Implementation Schedule

Year		2019												2020											2021							
	Month	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8
Event	Exchange Note	▼																															
	Grant Agreement		▼																														
	Consulting Contract			▼																													
Preparing Tender Document and procurement contract	Reviewing the Specification Document			▬																													
	Preparation and Review the Tender Document				▬																												
	Period for tender announcement					▲ Announcement ▬																											
	Bid Opening							▼																									
	Vender Contract							▼																									
Procurement and construction	Task Force Meeting							▼				▼											▼						▼		▼		
	Progress Meeting							▼	▼	▼	▼	▼	▼		▼		▼			▼	▼	▼	▼										
	Application System Development							▬ Basic Design ▬ ▲Deliver Basic design ▲Approve Basic Design				Detail Design ▬		Programming/ Unit ▬						System Test ▬													
	IT Infrastructure Installation (Servers, Networks, and etc...)								▲Order Equipment	▲Server Room Completion	▲Equipment delivery																						
	Acceptance Test																			Function Confirmation Test →			Comprehensive		Comprehensive Running test 2								
	Manual development / Training																		User manuals ▬		Training ▬												
	Support activities for the shipping line											Explanatory Meeting ▲←	System development (Shipping line)	→ Connection Test ▬																			
	Migration and System Operation												Support Organization ▬			Migration ▬		▲Go-live Judge	▲	▲Go-live	End of Support Work ▲ System Operation ▬ Guarantee period →												

Major Undertakings to be taken by the Government of Cambodia

1. Specific Obligations of the Government of Cambodia which will not be funded with the Grant

(1) Before the Tender

No.	Items	Deadline	In charge	Estimated Cost (Thousand USD)	Ref.
1	To open bank account (B/A)	within 1 month after the signing of the G/A	MEF	----	
2	To issue A/P to a bank in Japan (the Agent Bank) for the payment to the consultant	within 1 month after the signing of the contract(s) to the consultant	MPWT	----	
3	1) To secure installation environment for the server such as data server center or in-house server room (equipped with adequate electricity, air-conditioning, anti-natural-disaster, and pest-control) in MPWT, and disaster recovery site if necessary 2) To report its details to JICA	3 months before notice of the bidding document(s)	MPWT	----	
4	To arrange the institutional matter 1) To conclude the system requirement for the exchange of manifest data from National Single Window (hereinafter referred to as "NSW") system within the grant aid budget	2 months before notice of the bidding document(s)	MPWT	----	
5	To submit Project Monitoring Report (with the result of Detail Design)	before preparation of bidding document(s)	MPWT	----	
6	Necessary organization and human resources for the Project implementation 1) To establish Port EDI system implementation working group (Cambodian side, including MPWT, KAMSAB, PAS, PPAP, Customs, Immigration, Quarantine), and MPWT leads the communication as the executing agency 2) To assign the necessary staffs to the Port EDI system implementation working group	By the signing of the contract(s) to the Supplier(s)	MPWT KAMSAB PAS PPAP	----	
7	Necessary organization and human resources for operation and maintentance 1) To make the operation and maintenance organization which consists of MWPT staffs and outsourcer (system development company) take over the knowledge and skills from Japanese Supplier(s) during the Project implementation 2) To establish business operation organization in KAMSAB, and operation and maintenance organization in MPWT 3) To assign the necessary staffs (including IT skilled engineers who are certified by the way the Team recommends) to the business operation organization in KAMSAB and operation and maintenance organization in MPWT	By the signing of the contract(s) to the Supplier(s)	MPWT KAMSAB	----	

Note: B/A: Banking Arrangement, A/P: Authorization to pay

(2) During the Project Implementation

No.	Items	Deadline	In charge	Estimated Cost (Thousand USD)	Ref.
1	To issue A/P to a bank in Japan (the Agent Bank) for the payment to the Supplier(s)	within 1 month after the signing of the contract(s)	MPWT	---	
2	To bear the following commissions to a bank in Japan for the banking services based upon the B/A		MPWT	---	
	1) Advising commission of A/P	within 1 month after the signing of the contract(s)		---	
	2) Payment commission for A/P	every payment		13	
3	To procure necessary Software, Hardware, Network and Work space 1) Adequate Server room at MPWT headquarters to install Port EDI System 2) LAN/WAN of each user location, Internet connection, SIM, email address for the server notification, and Global IP address 3) PC, printer, and other relevant hardware to use Port EDI System, which excess the number of grant equipment within MPWT, PAS, PPAP, KAMSAB, Customs, Immigration, and Quarantine 4) Work space for the Supplier(s)	1 month before installation of each equipment	MPWT	179	
4	To periodically provide training for the staffs in above (1) 6 2) and (1) 7 3)	during the Project Implementation	MPWT	78	
5	To review and test of Port EDI system, and prepare the manuals and master table data 1) To review the basic design, execute acceptance test and other preparations of Cambodian side in accordance with the project implementation schedule 2) To prepare business operation manuals, helpdesk manuals and operation and maintenance manuals 3) To clarify roles and responsibilities of MPWT and outsourcer(s) for operation and maintenance of Port EDI System 4) To define the user code, organization code, and master table contents of Port EDI system 5) To register the master table data	during the Project Implementation	MPWT KAMSAB PAS PPAP	---	
6	To arrange the institutional matter 1) To install the authorized certification to the Port EDI server(s) as soon as Certification Authority (hereinafter referred to as "CA") service is available. 2) To establish the new laws/rules for the ship clearance formality procedures using Port EDI System as necessary	during the Project Implementation	MPWT	---	
7	To secure necessary budget for undertakings of Cambodia during the Project implementation	during the Project Implementation	MPWT KAMSAB	---	
8	To ensure that customs duties, internal taxes and other fiscal levies which may be imposed in Cambodia with respect to the purchase of the products and/or the services be exempted	during the Project Implementation	MPWT	---	
9	To bear all the expenses other than those covered by the Grant, necessary for the implementation of the Project	during the Project Implementation	MPWT	---	

10	1) To submit Project Monitoring Report after each work under the contract(s) such as Basic Design, Equipment delivery, Manual Preparation, training, Functional Confirmation Test, and Comprehensive Running Test	within 1 month after completion of each work	MPWT	---	
	2) To submit Project Monitoring Report (final)	within 1 month after signing of Certificate of Completion for the works under the contract(s)	MPWT	---	
11	To submit a report concerning completion of the Project	within 6 months after completion of the Project	MPWT	---	

(3) After the Project

No.	Items	Deadline	In charge	Estimated Cost (Thousand USD)	Ref.
1	Necessary organization, human resources and their training 1) To retain the necessary staffs (including IT skilled engineers who are certified by the way the Team recommends) to the business operation organization in KAMSAB and operation and maintenance organization in MPWT 2) To periodically provide training for the above-mentioned	After completion of the equipment installation	MPWT KAMSAB	---	
2	To arrange the institutional matter 1) To install the authorized certification to the Port EDI server(s) as soon as Certification Authority (hereinafter referred to as "CA") service is available. (if necessary) 2) To modify the Port EDI system in compliance with the laws/rules revision(s).	After completion of the equipment installation	MPWT	---	
3	To secure necessary budget for business operation and operation and maintenance of Port EDI System	After completion of the equipment installation	MPWT KAMSAB	354 (per year)	
4	To secure necessary budget for renewal of hardware in the future (in general, renewal is necessary 5 years after installation of the system)	After completion of the equipment installation	MPWT	---	

2. Other Obligations of the Government of Cambodia funded with the Grant

No.	Items	Deadline	Amount (Million Japanese Yen)
1	1) To provide and install equipment 2) To provide equipment with installation and commissioning	---	
2	To implement detailed design, bidding and procurement supervision (supported by Consulting Services)	---	
3	Contingency		
	Total		

*The Amount is provisional. This is subject to the approval of the Government of Japan.

Project Monitoring Report
on
Project Name
Grant Agreement No. XXXXXXX
20XX, Month

Organizational Information

Signer of the G/A (Recipient)	Person in Charge	(Designation)
	Contacts	Address: Phone/FAX: Email:
Executing Agency	Person in Charge	(Designation)
	Contacts	Address: Phone/FAX: Email:
Line Ministry	Person in Charge	(Designation)
	Contacts	Address: Phone/FAX: Email:

General Information:

Project Title	
E/N	Signed date: Duration:
G/A	Signed date: Duration:
Source of Finance	Government of Japan: Not exceeding JPY _____ mil. Government of (_____): _____

1: Project Description	

1-1 Project Objective

1-2 Project Rationale
- Higher-level objectives to which the project contributes (national/regional/sectoral policies and strategies)
- Situation of the target groups to which the project addresses

1-3 Indicators for measurement of "Effectiveness"

Quantitative indicators to measure the attainment of project objectives		
Indicators	Original (Yr)	Target (Yr)
Qualitative indicators to measure the attainment of project objectives		

2: Details of the Project	

2-1 Location

Components	Original (proposed in the outline design)	Actual
1.		

2-2 Scope of the work

Components	Original* (proposed in the outline design)	Actual*
1.		

Reasons for modification of scope (if any).

(PMR)

2-3 Implementation Schedule

Items	Original (proposed in the outline design)	(at the time of signing the Grant Agreement)	Actual

Reasons for any changes of the schedule, and their effects on the project (if any)

2-4 Obligations by the Recipient

2-4-1 Progress of Specific Obligations
See Attachment 2.

2-4-2 Activities
See Attachment 3.

2-4-3 Report on RD
See Attachment 11.

2-5 Project Cost

2-5-1 Cost borne by the Grant(Confidential until the Bidding)

Components		Actual (in case of any modification)	Cost (Million Yen)	
	Original (proposed in the outline design)		Original1)2) (proposed in the outline design)	Actual
	1.			
Total				

Note: 1) Date of estimation:

2) Exchange rate: 1 US Dollar =   Yen

2-5-2 Cost borne by the Recipient

Components		Actual (in case of any modification)	Cost (1,000 Taka)	
	Original (proposed in the outline design)		Original1)2) (proposed in the outline design)	Actual
	1.			

Note: 1) Date of estimation:
        2) Exchange rate: 1 US Dollar =

Reasons for the remarkable gaps between the original and actual cost, and the countermeasures (if any)

> *(PMR)*

2-6 Executing Agency
- Organization's role, financial position, capacity, cost recovery etc,
- Organization Chart including the unit in charge of the implementation and number of employees.

> **Original** *(at the time of outline design)*
> name:
> role:
> financial situation:
> institutional and organizational arrangement (organogram):
> human resources (number and ability of staff):
>
> **Actual** *(PMR)*

2-7 Environmental and Social Impacts
- The results of environmental monitoring based on Attachment 5 (in accordance with Schedule 4 of the Grant Agreement).
- The results of social monitoring based on in Attachment 5 (in accordance with Schedule 4 of the Grant Agreement).
- Disclosed information related to results of environmental and social monitoring to local stakeholders (whenever applicable).

3: Operation and Maintenance (O&M)

3-1 Physical Arrangement
- Plan for O&M (number and skills of the staff in the responsible division or section, availability of manuals and guidelines, availability of spareparts, etc.)

> **Original** *(at the time of outline design)*
>
> **Actual** *(PMR)*

3-2 Budgetary Arrangement
- Required O&M cost and actual budget allocation for O&M

> **Original** *(at the time of outline design)*

Actual *(PMR)*

4: Potential Risks and Mitigation Measures

- Potential risks which may affect the project implementation, attainment of objectives, sustainability
- Mitigation measures corresponding to the potential risks

Assessment of Potential Risks (*at the time of outline design*)

Potential Risks	Assessment
1. (Description of Risk)	Probability: High/Moderate/Low
	Impact: High/Moderate/Low
	Analysis of Probability and Impact:
	Mitigation Measures:
	Action required during the implementation stage:
	Contingency Plan (if applicable):
2. (Description of Risk)	Probability: High/Moderate/Low
	Impact: High/Moderate/Low
	Analysis of Probability and Impact:
	Mitigation Measures:
	Action required during the implementation stage:
	Contingency Plan (if applicable):
3. (Description of Risk)	Probability: High/Moderate/Low
	Impact: High/Moderate/Low
	Analysis of Probability and Impact:
	Mitigation Measures:
	Action required during the implementation stage:

	Contingency Plan (if applicable):
Actual Situation and Countermeasures	
(PMR)	

5: Evaluation and Monitoring Plan (after the work completion)

5-1   Overall evaluation

Please describe your overall evaluation on the project.

5-2   Lessons Learnt and Recommendations

Please raise any lessons learned from the project experience, which might be valuable for the future assistance or similar type of projects, as well as any recommendations, which might be beneficial for better realization of the project effect, impact and assurance of sustainability.

5-3   Monitoring Plan of the Indicators for Post-Evaluation

Please describe monitoring methods, section(s)/department(s) in charge of monitoring, frequency, the term to monitor the indicators stipulated in 1-3.

Attachment

1. Project Location Map
2. Specific obligations of the Recipient which will not be funded with the Grant
3. Monthly Report submitted by the Consultant
   Appendix   - Photocopy of Contractor's Progress Report (if any)
                - Consultant Member List
                - Contractor's Main Staff List
4. Check list for the Contract (including Record of Amendment of the Contract/Agreement and Schedule of Payment)
5. Environmental Monitoring Form / Social Monitoring Form
6. Monitoring sheet on price of specified materials (Quarterly)
7. Report on Proportion of Procurement (Recipient Country, Japan and Third Countries) (PMR (final) only)
8. Pictures (by JPEG style by CD-R) (PMR (final) only)
9. Equipment List (PMR (final) only)
10. Drawing (PMR (final) only)
11. Report on RD (After project)

Monitoring sheet on price of specified materials

1. Initial Conditions (Confirmed)

1	Item 1	●t ●		●	●	●	●
2	Item 2	●t ●		●	●	●	
3	Item 3						
4	Item 4						
5	Item 5						

2. Monitoring of the Unit Price of Specified Materials

(1) Method of Monitoring : ●●

(2) Result of the Monitoring Survey on Unit Price for each specified materials

1	Item 1						
2	Item 2						
3	Item 3						
4	Item 4						
5	Item 5						

(3) Summary of Discussion with Contractor (if necessary)

. . .

Report on Proportion of Procurement (Recipient Country, Japan and Third Countries)

(Actual Expenditure by Construction and Equipment each)

		Domestic Procurement (Recipient Country) A	Foreign Procurement (Japan) B	Foreign Procurement (Third Countries) C	Total D
Construction Cost		(A/D%)	(B/D%)	(C/D%)	
	Direct Construction Cost	(A/D%)	(B/D%)	(C/D%)	
	others	(A/D%)	(B/D%)	(C/D%)	
Equipment Cost		(A/D%)	(B/D%)	(C/D%)	
Design and Supervision Cost		(A/D%)	(B/D%)	(C/D%)	
Total		(A/D%)	(B/D%)	(C/D%)	

Report on Proportion of Procurement (Recipient Country, Japan and Third Countries)
(Actual Expenditure by Construction and Equipment each)

	Domestic Procurement (Recipient Country) A	Foreign Procurement (Japan) B	Foreign Procurement (Third Countries) C	Total D
Construction Cost	(A/D%)	(B/D%)	(C/D%)	
Direct Construction Cost	(A/D%)	(B/D%)	(C/D%)	
others	(A/D%)	(B/D%)	(C/D%)	
Equipment Cost	(A/D%)	(B/D%)	(C/D%)	
Design and Supervision Cost	(A/D%)	(B/D%)	(C/D%)	
Total	(A/D%)	(B/D%)	(C/D%)	

5. Soft Component (Technical Assistance Plan)

Kingdom of Cambodia
Ministry of Public Works and Transport

Kingdom of Cambodia

Soft Component Plan

The Preparatory Survey for the Project for Port EDI for Port Modernization

December 2018

Japan International Cooperation Agency(JICA)

Mitsubishi Research Institute, Inc.
The Overseas Coastal Area Development Institute of Japan

Index

Soft Component (Technical Assistance) Plan

1 Background to Plan Soft Component

1-1 Outline of System Development Project

The Project aims at contributing to the efficiency of the logistics system and modernization of port administration through digitization and simplification of information on port logistics. Specifically, the information system that conducts the procedure for application, notification, etc., related to ship entry and departure through the Port EDI System at the Sihanoukville Port and Phnom Penh Port is introduced and is contributable to actualize the rationalization of the formal procedure.

1-2 Necessity of Soft Component

The current business procedure of the ship clearance formality procedure is operated with papers and face-to-face work. In addition, users are not familiar with business operations with the IT system. It will have a significant impact if the operation of the ship clearance formality procedure would stagnate because of failing of adaptation of the user to the new operation with an IT system. Therefore, it is necessary to support the users of related organizations that use the Port EDI System in order to respond to changes in business operation methods by introducing an IT system. Specifically, it is necessary to support the development of business manuals that describe the business procedures for the ship clearance formality procedure with Port EDI System and manuals that describe the operations of new elements, like the helpdesk etc., related to using the IT system in business.

2 Target of Soft Component

The objective of the Soft Component is the Port EDI System, which is installed in the Project, shall be utilized and operated continuously and sustainably by the Cambodian side for port business operations in Cambodia with expansion, refurbishment, and renewal. The short-term objective is to support the business transition to business operations with an IT system by preparing the necessary manuals.

3 Outcome of Soft Component

The tasks of Soft Component are 1. Support for preparation of the business manuals, 2. Support for preparation of the helpdesk, 3. Support for planning of operation and maintenance, and 4. Support for preparation of IT service management process. The outcomes of each task of Soft Component are expected as follows.

3-1 Support for preparation of the business manuals

New business flow with the Port EDI System will be described in the business manuals. Business users will be able to operate by themselves with the manuals. The business procedure is not completed in the IT system only. All procedures, including outside of the IT system, are described in the business manuals for correctly supporting the execution of business procedures.

Outcome: The business manuals with the Port EDI System will be prepared, and the users will be able to execute their business operations with it.

3-2 Support for preparation of the helpdesk

The manuals for the operation of the helpdesk will be prepared, and the person in charge of the helpdesk will be able to execute their work by themselves with the manuals. Also, rules and methods for managing inquiries will be prepared.

Outcome: The manuals for the helpdesk will be prepared, and the person in charge of the helpdesk will be able to execute operations by themselves with the manuals.

3-3 Support for planning of operation and maintenance

The plan for operation and maintenance for proper operation of the Port EDI System is prepared. The formation, not only in the Ministry of Public Works and Transport (hereinafter referred to as "MPWT") but is also with the maintenance vendors, for operation and maintenance and contracts will be clarified. Also, the preparation of the budgeting for operation and maintenance will be done.

Outcome: The plan for operation and maintenance will be prepared, and the necessary preparation for operation and maintenance is clarified.

3-4 Support for preparation of IT service management process

The manuals for IT service management process (inventory management, incident management, problem management) will be prepared. The business workflow related to IT service management process for handling inquiries will be also prepared.

Outcome: The basic IT service management process will be prepared, and the members of ITPR Department in MPWT will manage inquiries related to the IT system environment with the manuals.

4 Means of Confirmation of Outcome Achievement Level of Soft Component

Achievement level of outcome of Soft Component will be confirmed as follows.

4-1 Support for preparation of the business manuals

Consultants will review the business manuals that describe business operations with the Port EDI System and confirm the readiness to use.

4-2 Support for preparation of the helpdesk

Consultants will review the helpdesk manuals that describe the operation of the helpdesk, and reviews the operation of the helpdesk are done with the manuals.

4-3 Support for planning of operation and maintenance

Consultants will review the plan of operation and maintenance and confirm the necessary process for the preparation of operation and maintenance being clearly understood by the MPWT. In addition, the preparation is executed in accordance with the plan.

4-4 Support for preparation of IT service management process

Consultants will review the prepared IT service management manuals that describe the procedure for the IT service management process (incident management, problem management, inventory management), and consultants will review the operation of the ITPR Department in the MPWT with manuals.

Table 1: Outcome Achievement Level of Soft Component

No.	Task	Outcome	Method for confirmation of achievement
1)	Support for preparation of business manuals	Completion of creating business manuals with Port EDI System	• Reviewing business manuals being ready to use. • Reviewing business operations is done with the manuals (Reviews will be done during the running test.)
2)	Support for preparation of helpdesk	Completion of creating helpdesk manuals	• Reviewing helpdesk manuals being ready to use. • Reviewing helpdesk operations is done with the manuals (Reviews will be done during the running test.)
3)	Support for preparation of the plan for operation and maintenance	Completion of creating the plan for operation and maintenance	• Reviewing the plan of operation and maintenance is created. • Reviewing the formation of operation and maintenance is confirmed. • Reviewing the preparations in the plan is executed.
4)	Support for preparation of IT service management process	Completion of creating IT service management manuals	• Reviewing IT service management manuals as ready to use. • Reviewing IT service management process is done with the manuals (Reviews will be done during the running test.)

5 Activities of Soft Component (Plan of resource assignment)

5-1 Implementation structure

The activities of the Soft Component are executed by the head of the consultant team, he will manage the overall activities of the Soft Component and assign consultants in each task. Assignments for each task are as follows.

(1) Support for preparation of the business manuals

Three members of the consultant company are assigned to the task of support for the preparation of business manuals. The manuals will be prepared for each part of the ship clearance formality procedure, and preparation work will be done in parallel. Therefore, a consultant for each organization, Kampuchea Shipping Agency and Brokers (hereinafter referred to as "KAMSAB"), Sihanoukville Autonomous Port (hereinafter referred to as "PAS"), Phnom Penh Autonomous Port (hereinafter referred to as "PPAP"), is assigned to this task.

(2) Support for preparation of the helpdesk

Two members of the consultant company are assigned to the task of support for preparation of the helpdesk. The helpdesk will be placed in the KAMSAB Sihanoukville branch and the KAMSAB Phnom Penh Head office. A consultant is assigned for each city.

(3) Support for planning of operation and maintenance

Two members of the consultant company are assigned to the task of support for planning the operation and maintenance. Both elements of the developed software and infrastructure are related to the operation and maintenance. A consultant is assigned to each element.

(4) Support for preparation of IT service management process

Two members of the consultant company are assigned to the task of support for the preparation of the IT service management process. The procedure for the IT service management process has connections to the procedure for the helpdesk operation. (The helpdesk works together with the Information Technology and Public Relations Department (hereinafter referred to as "ITPR Department") if inquiries are related to the IT environment.) Therefore, the same consultants for support for the preparation of the helpdesk are assigned to this task.

5-3 Task-definition and Role-definition of the staff in charge

(1) Support for preparation of the business manuals

Implementation period: June 2020 – April 2021

Table 2: Support for Preparation of the Business Manuals

Member	Work volume plan		Member	Work volume plan	
	Japan	Cambodia		Japan	Cambodia
Head of consultant	0.1	-	Member E	-	-
Member B	0.1	0.86	Member F	-	-
Member C	0.1	0.86			
Member D	0.1	0.86			

(unit of the number: Man Month)

Consultants shall support the Cambodian organizations when they prepare the business manuals. The business manuals are effective and practical for executing business operations appropriately and for maintaining the consistent quality of business operations. However, the Cambodian side is not familiar with creating the documentation for the procedure for business operations with an IT system. In this task, consultants shall support business manual creation by the Cambodian side as support for the necessary preparation for starting the business with an IT system. Support work by consultants is the planning of business manuals (type, described level, and contents of manuals) and the reviewing of the business manuals, which are created by the Cambodian side. The manuals shall be described from the view of each organization.

Three members of the consultant company shall be assigned to this task. Each consultant will have a main responsible organization (KAMSAB, PPAP, or PAS). Consultants will visit three times in Cambodia to support the creation of the business manuals in this task, and additionally one more visit after go-live is expected to support the Cambodian side to review and revise the manuals.

The expected volume of manuals is based on the number of business workflows that will be implemented on the Port EDI System. It is assumed that the business manuals consist of the common part for all organizations and the individual parts for each organization. The assumptions of pages in each section are shown in the following table.

Table 3: Assumption of Pages in Each Section

No.	Workflow	Common part (pages)	Individual part (pages)							Total
			KAMSAB	MPWT	PAS	PPAP	Customs	Immigration	Quarantine	
1	WF1-1-1	15	5		5	5				30
2	WF1-1-2	25	5		5	5	5	5	5	55
3	WF1-2	15	5	5						25
4	WF1-3-1	5	5							10
5	WF1-3-2-1	20	5				5	5	5	40
6	WF1-3-2-2	25	5			5	5	5	5	50
7	WF1-3-3	25	5		5		5	5	5	50
8	WF1-3-4	10	5							15
9	WF2-1-1	5	5							10
10	WF2-1-2-1	30	5			5	5	5	5	55
11	WF2-1-2-2	25	5			5	5	5	5	50
12	WF2-1-3	35	5		5		5	5	5	60
13	WF3	15	5							20
	Total	250	65	5	20	25	35	35	35	470
	Assignment for each consultant									pages
In charge of KAMSAB		✓	✓	✓						150
In charge of PAS		✓			✓		✓	✓	✓	155
In charge of PPAP		✓				✓	✓	✓	✓	165

7

Work volume estimation of each consultant is shown in the following table.

Table 4: Work volume Estimation of Each Consultant

Works		In charge of KAMSAB		In charge of PAS		In charge of PPAP	
		Japan	Cambodia	Japan	Cambodia	Japan	Cambodia
1	Pre-study for the structure of business manuals	0.1		0.1		0.1	
2	Agreement/confirmation of schedule of work and structure of business manuals		0.17		0.17		0.17
3	Interim review (read-through)		0.23		0.23		0.23
4	Final review (read-through)		0.23		0.23		0.23
5	Review after go-live and discussion about revising points in the manuals		0.23		0.23		0.23

(unit of the number: Man Month)

In the Table 4, works 1 and 2 are planned for June 2020, work 3 is planned for August 2020, and work 4 is planned for September 2020. The preparation of the business manuals is assumed to be finished before starting the user acceptance test period. A read-through is assumed in the interim and final review. In the plan, around three workflows per day are reviewed. Then, finally, it is assumed to revise the manuals after go-live in April 2021 based on the result of use in the initial operation phase and the running test.

(2) Support for preparation of the helpdesk

Implementation period: September 2020 to April 2021

Table 5 Work volume of Support for Preparation of the Helpdesk

Member	Work volume plan		Member	Work volume plan	
	Japan	Cambodia		Japan	Cambodia
Head of Consultant	0.1	-	Member E	0.1	0.46
Member B	-	-	Member F	0.1	0.46
Member C	-	-			
Member D	-	-			

(unit of the number: Man Month)

KAMSAB will have the role of business operator of the Port EDI System, and it will work as the helpdesk. On the other hand, it does not have enough experience of IT system operation and will have difficulty to start up the helpdesk without any support; therefore, consultants shall support the preparation of the helpdesk. Specifically, the preparation of the helpdesk manuals, including the management rules for inquiries from users (procedure for helpdesk, inquiry form, list of inquiries), will be supported by the consultants. Also, the consultants will give some advice about revising the manuals after go-live based on the result of use of manuals. This task shall be executed by two consultants.

The work in this task is the following.

1) Preparation of the draft procedure for the helpdesk

Basic operation of the helpdesk will be prepared in a workflow for KAMSAB staff doing its work by following the workflow. Consultants will draft it in Japan and update and finalize it with KAMSAB staff in Cambodia.

2) Preparation of draft of inquiry form and list of inquiries

It is assumed that inquiries will be recorded one by one using the inquiry form and managed on the list of inquiries with the status of each inquiry. It aims to understand the status of each inquiry easily, to enhance the FAQ in helpdesk and grasp improvement points. Consultants will draft the inquiry form and list of inquiries in Japan, and update and finalize with KAMSAB personnel in Cambodia.

3) Preparation of FAQ

Responses or answers for common inquiries will be prepared as FAQs (Frequently Asked Questions). It is assumed that around 20 FAQs will be prepared in the process. Consultants will draft the form of FAQs and around 10 FAQs as samples in Japan and bring them to Cambodia. Consultants will explain them to KAMSAB staff and prepare 10 more FAQs with KAMSAB staff.

4) Support to revise/update manuals

Prepared manuals will be reviewed and revised based on the result of use in the initial phase of operation after go-live. Consultants will have a meeting with KAMSAB staff and discuss the result of the use of manuals. If there are any points, consultants support KAMSAB staff to update and revise the manuals.

Work volume estimation of each consultant is shown in the following table.

Table 6: Work volume estimation for support for preparation of the helpdesk

No.	Items	In charge of support for preparation of the helpdesk #1		In charge of support for preparation of the helpdesk #2	
		Japan	Cambodia	Japan	Cambodia
1	Preparation of the draft of procedure for helpdesk	0.1	0.23	0.1	0.23
2	Preparation of draft of inquiry form and list of inquiries	-	-	-	-
3	Preparation of FAQ	-	-	-	-
4	Support to revise/update manuals	-	0.23	-	0.23

(unit of the number: Man Month)

In the work in Cambodia, one consultant will work with KAMSAB in Phnom Penh, another will work with KAMSAB in Sihanoukville.

(3) Support for planning of operation and maintenance

Implementation period: October 2019 – November 2019

Table 7: Work volume estimation of Support for planning
of operation and maintenance

Member	Work volume plan		Member	Work volume plan	
	Japan	Cambodia		Japan	Cambodia
Head of Consultant	-	-	Member E	0.1	0.17
Member B	-	-	Member F	0.1	0.17
Member C	-	-			
Member D	-	-			

(unit of the number: Man Month)

This is the support for the planning of operation and maintenance that shall be created by the MPWT. The target is the General Department of Waterway-Maritime Transport and Ports (GDWMP), which is representing the owner of the Port EDI System. Officials of the GDWMP and ITPR Departments will be core members of IT system management; however, they have only limited experience in managing an IT system. Therefore, consultants shall support the planning of operation and maintenance. Consultants will support the MPWT in

preparing the planning of the formation of operation and maintenance, listing the things that are required to make a contract with vendors for receiving their support and budgeting. Two consultants will support this task.

1) Pre-consideration of planning of operation and maintenance

Consultants will list the things that are required for planning the operation and maintenance based on the result of the preparatory survey report. There are two elements - developed software and infrastructure (hardware/software products); therefore, both should be considered.

- ✓ List the maintenance contracts that are required
- ✓ List the procedure that is required for budgeting in the MPWT
- ✓ List the procedure that is required for procurement of maintenance services

2) Support for planning operation and maintenance

Consultants will discuss the things that are listed in 1 with the MPWT. Consultants will support the MPWT in the planning of operation and maintenance, which includes the schedule for budgeting and procurement of each item. The MPWT will do the preparation work for operation and maintenance based on this planning. The progress of preparation will be checked in the progress meetings of the Project.

- ✓ Agreement of required maintenance contracts
- ✓ Planning of schedule of the budgeting
- ✓ Planning of schedule of procurement of maintenance service
- ✓ etc.

Table 8: Work volume Estimation of Each Consultant for

Support for Planning Operation and Maintenance

No.	Items	In charge of support for planning operation and maintenance #1		In charge of support for planning of operation and maintenance #2	
		Japan	Cambodia	Japan	Cambodia
1	Pre-consideration of planning of operation and maintenance	0.1	-	0.1	-
2	Support for planning operation and maintenance	-	0.17	-	0.17

(unit of the number: Man Month)

(4) Support for preparation of IT service management process

Implementation period: August 2020 – April 2021

Table 9: Work volume Estimation of Support for Preparation of
IT Service Management Process

Member	Work volume plan		Member	Work volume plan	
	Japan	Cambodia		Japan	Cambodia
Head of Consultant	-	-	Member E	0.1	0.46
Member B	-	-	Member F	0.1	0.46
Member C	-	-			
Member D	-	-			

(unit of the number: Man Month)

The ITPR Department requires preparation of the management process in IT system management (inventory management, incident management, problem management). Consultants will support their preparation work. Personnel in the ITPR Department in the MPWT are related to IT system operation in their daily work. However, they do not apply the concept of incident management and problem management, which are coming from the concept of IT service management (ITSM). ITSM is a concept for management items and process in IT system management. The concept of incident management and problem management help to reduce incidents and mature the environment by encouraging resolution of root causes in the process. Consultants will prepare the basic items and process for IT service management with ITPR Department members. This task will be executed by two members of the consultant company.

The work in this task is the following.

1) Drafting IT service management manuals

Personnel who have responsibility for IT system operation in the ITPR Department shall manage inquiries about the IT system and issues of the IT system. In IT service management, incident management is the process of managing inquiries and issues on the IT system, which are called incidents. Each incident will be escalated to the appropriate person and handing over to the problem management process if the incident is confirmed as a problem (an issue that must be fixed, like trouble with hardware or software). In the process of problem management, the problem analysis is done, and the status of the problem analysis is monitored. In the Project, these two processes are the focus, and management forms and lists are prepared. Consultants will prepare a draft of these forms and lists and finalize them after discussions with the ITPR Department.

2) Drafting inventory management form

The ITPR Department shall manage the inventory of hardware and software. Models of the equipment, specifications of the equipment, number of equipment, serial numbers, and the period of maintenance contracts, etc. are included in the information that should be managed. Consultants shall support preparation of the forms for inventory management.

3) Support to revise/update manuals

Prepared manuals will be reviewed and revised based on the result of use in the initial phase of operation after go-live. Consultants will have a meeting with the ITPR Department in the MPWT and discuss the result of use of manuals. If there are any points, consultants support the ITPR Department in the MPWT to update and revise the manuals.

Work volume estimation of each consultant is shown in the following table.

Table 10: Work volume Estimation of Each Consultant for

Support to Revise/Update Manuals

No.	Items	In charge of support for preparation of IT service management 1		In charge of support for preparation of IT service management 2	
		Japan	Cambodia	Japan	Cambodia
1	Drafting IT service management manuals	0.1	0.23	0.1	0.23
2	Drafting inventory management form				
3	Support to revise/update manuals	-	0.23	-	0.23

(unit of the number: Man Month)

6 The means of procurement of implementation human resource

It is assumed that the consultants will support the MPWT and related organizations directly. It is effective and reasonable that the personnel who understand the background to the Project will conduct the outline design for the Port EDI System because this soft component aims to support the work done by the Cambodian side for the installation of the Port EDI System.

7 Implementation Schedule of Soft Component

The services of Soft Component will be provided in accordance with the system development works. The schedule is shown in the attachment.

8 Deliverables of Soft Component

The Deliverables of the Soft Component are follows.

Table 11: Deliverables of Soft Component

No.	Name of Task	Deliverables	Remarks
1)	Support for preparation of the business manuals	Business Manuals	Co-creation by MPWT and other organizations
2)	Support for preparation of the helpdesk	Helpdesk Manuals	Co-creation by KAMSAB
3)	Support for planning of operation and maintenance	The plan of preparation of operation and maintenance	Co-creation by MPWT
4)	Support for preparation of IT service management process	IT service management Manuals	Co-creation by MPWT
-	Overall	Completion report of Soft Component	

9 Arrangement by the Recipient Country

9-1 Information sharing with other relevant organizations

The MPWT shall inform and instruct other relevant organizations that need to join and contribute to the tasks supported by the Soft Component.

9-2 Making consensus with MPWT members and other relevant organizations

The MPWT shall encourage that all relevant organizations, MPWT, KAMSAB, PPAP, PAS, Customs, Immigration, Quarantine, and the ship side understand the purpose of the Project and cooperate and contribute to the Project.

9-3 Preparation of rules

The MPWT shall arrange to prepare the rules or sub-decrees in advance, if necessary to change the business operation of ship formality procedure with the Port EDI System.

9-4 Preparation of organization

The MPWT shall secure the organization and staff for using and operating the Port EDI System.

9-5 Assignment of relevant members for the Project

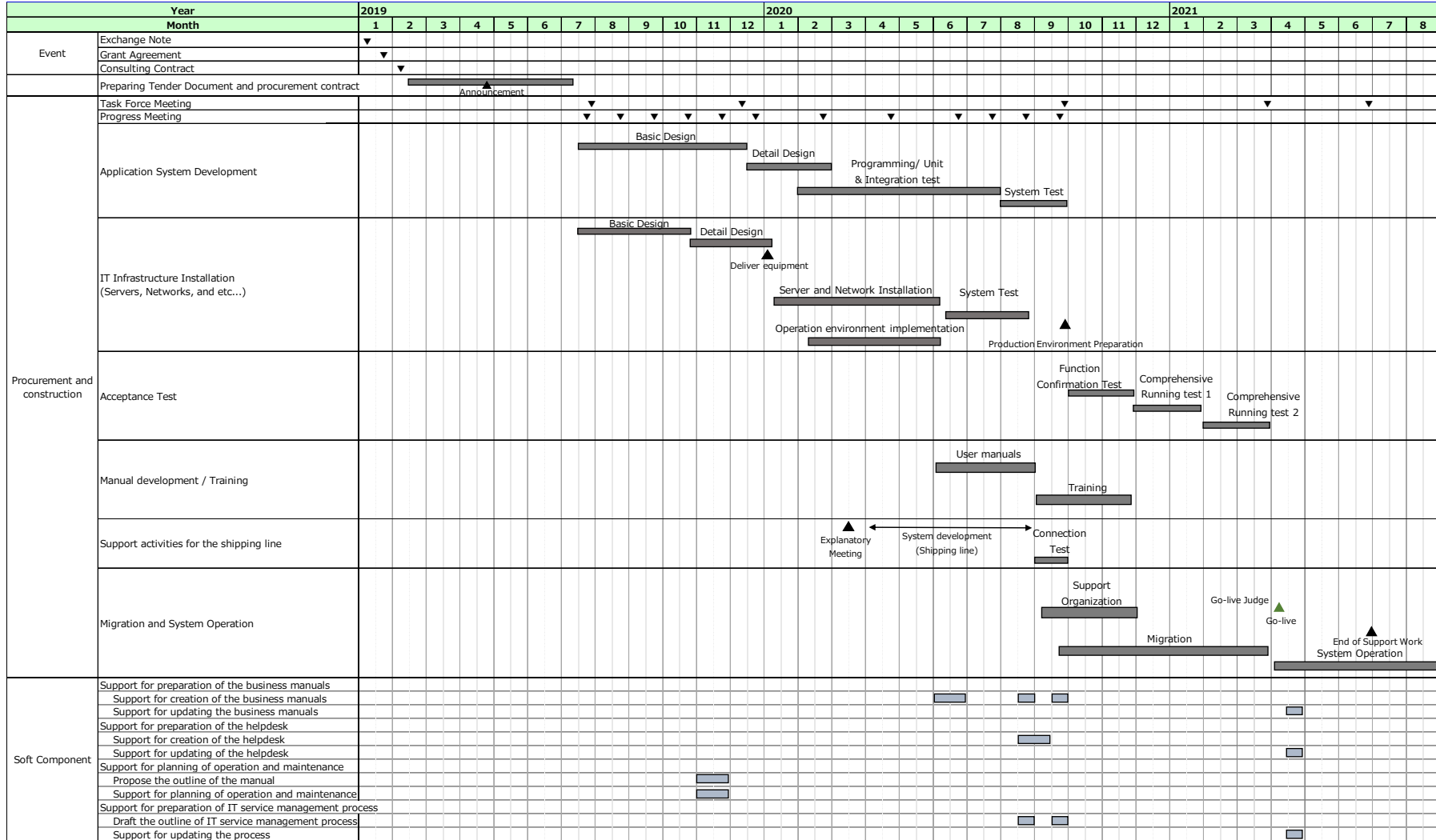The MPWT shall secure the work time of relevant member of tasks and take attendance.

9-6 Preparation of working space

The MPWT shall prepare the space for working for each task.

9-7 Execution of work that is assigned.

The MPWT shall encourage the members in the MPWT and relevant organization to execute work as assigned in a timely manner (writing and reviewing manuals, doing preparation of maintenance contract, etc.).

Attachment

Implementation schedule of Soft Component

Year		2019												2020												2021							
Month		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8
Event	Exchange Note	▼																															
	Grant Agreement		▼																														
	Consulting Contract			▼																													
	Preparing Tender Document and procurement contract																																
Procurement and construction	Task Force Meeting																																
	Progress Meeting																																
	Application System Development																																
	IT Infrastructure Installation (Servers, Networks, and etc...)																																
	Acceptance Test																																
	Manual development / Training																																
	Support activities for the shipping line																																
	Migration and System Operation																																
Soft Component	Support for preparation of the business manuals																																
	Support for creation of the business manuals																																
	Support for updating the business manuals																																
	Support for preparation of the helpdesk																																
	Support for creation of the helpdesk																																
	Support for updating of the helpdesk																																
	Support for planning of operation and maintenance																																
	Propose the outline of the manual																																
	Support for planning of operation and maintenance																																
	Support for preparation of IT service management process																																
	Draft the outline of IT service management process																																
	Support for updating the process																																

Schedule bar labels:
- Preparing Tender Document and procurement contract: Announcement
- Application System Development: Basic Design, Detail Design, Programming/ Unit & Integration test, System Test
- IT Infrastructure Installation: Basic Design, Detail Design, Deliver equipment, Server and Network Installation, System Test, Operation environment implementation, Production Environment Preparation
- Acceptance Test: Function Confirmation Test, Comprehensive Running test 1, Comprehensive Running test 2
- Manual development / Training: User manuals, Training
- Support activities for the shipping line: Explanatory Meeting, System development (Shipping line), Connection Test
- Migration and System Operation: Support Organization, Migration, Go-live Judge, Go-live, End of Support Work, System Operation

16

6. Other Relevant Data

The confirmation memo of on-site survey (No.1 – No.4)

Confirmation memo on the first on-site survey

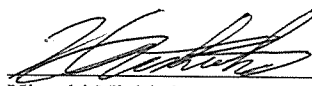## Preparatory Survey for the Project for Port EDI for Port Modernization

JICA preparatory survey team have studied the current business function, related laws, feature of the organizations, and system environment of each organization. And Port EDI Task Force and the survey team had discussed and concluded on the project scope, overall blue print, Operation and maintenance organization structure, and concluded as attached.

Both sides confirmed the result of studies and conclusion of the discussions held during the first on-side survey, from 26th March to 6th April.

Phnom Penh, April 6, 2018

H.E. Chan Dara
Permanent vice-chairman of Port EDI
Task Force
Director General of GDWMP
Ministry of Public Works and Transport
Cambodia

Hiroshi Nishioka
Head of Survey Team for the Project for Port
EDI for Port Modernization

Research Director of Mitsubishi Research
Institute

ATTACHMENT

1. Overall plan and strategy of the project
    The objective, policy, method, and schedule are confirmed by the Inception Report.
    The on-site survey schedule was amended after the Kick-off meeting, as to the 2nd visit is
    from 20th April to 27th April, and the 3rd visit is from 16th May to 25th. (attachment 1)
    (attachment 2)

2. The scope of the business and system analysis.
    The target ports of the Project are two (2) ports as follows:
    1)   Sihanoukville Port,
    2)   Phnom Penh Port
    And the vessels which are examined by port clearance committee at these ports are the
    target vessels. It was amended after the kick-off meeting. (attachment 1)

3. The blue print of the Port-EDI system
    The blue print (the new business flow after the Port EDI system applied) was discussed,
    and concluded that the work of KAMSAB shall remain. Their duty in accordance with
    current sub-decree will exist for the first step. (attachment 3)

4. Operation and Maintenance organization structure.
    Port EDI system will be owned by MPWT (GDWMP), computer system is managed by
    MPWT IT department, and KAMSAB is the operator. MPWT shall discuss with
    KAMSAB to have common understanding of their responsibility. And MPWT will
    prepare O&M organization, secure the budget, make the outsource strategy, and make the
    capacity building plan. (attachment 4)

attachment 1: Inception Report (revised from the original used in Kick-off)
attachment 2: Fact Findings
attachment 3: Blue Print (tentative)
attachment 4: O&M discussion (revised from the discussion on 3rd April)

Confirmation Memo on the second on-site survey

Preparatory Survey for the Project for Port EDI for Port Modernization

JICA preparatory survey team discussed about Port EDI System with Ministry of Public Works and Transportation (MPWT), Kampuchea Shipping Agency and Brokers (KAMSAB), Phnom Penh Autonomous Port (PPAP) with Customs, Immigration, Quarantine (CIQ), and Sihanoukville Autonomous of Port (PAS) with CIQ. And Port EDI Task Force (MPWT, KAMSAB, PPAP, and PAS) discussed, and concluded the several themes facilitated by JICA survey team. In addition, JICA survey team studied IT infrastructure, and operation & maintenance of the system, and reported to Port EDI Task Force and they noted.

Both sides confirmed the result of studies and conclusion of the discussions held during the second on-side survey from 18th April to 26th April. The details are attached to this confirmation memo.

Phnom Penh, April 27, 2018

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ATTACHMENT

1. Business Flow and Function

   (1) The target business area which will be covered by Port EDI System is defined (appendix 1: page 10).

   (2) The data registration scheme is defined that all the data and papers are handled via KAMSAB, and MPWT, PPAP, PAS and CIQ will be able to refer the data after KAMSAB input the data to Port EDI System (appendix 1: pages 11-15).

   (3) While MPWT has suggested that the data items which are treated by Port EDI System should follow FAL convention strictly, relevant organizations have requested several additional data.

   Port EDI Task force member and observers are expected to discuss during the absence of JICA survey team to conclude it by middle of May. (appendix 1: pages 16-21).

   (4) Though digital signature is a crucial technology for Port EDI System and should be applied to Port EDI System, the institutional and technological platforms are not ready for actual use. Therefore, Port EDI System should have two measures to sign, "by the system with digital signature" and "on paper". (appendix 1: page 22).

2. IT infrastructure

   Survey team have presented the result of study such as current system environment, IT staff capacity, etc. (appendix 1: pages 26-27), and the coverage of the grant regarding system equipment. (appendix 1: page 30). MPWT is requested to define the place of server room and to secure the budget for the burden of recipient country (appendix 1: pages 32-33). Port EDI Task Force noted the report.

3. Operation and Maintenance

   In addition to the explanation of the operation and maintenance work in the previous on-site survey, the definition of role and responsibility have been amended as to involve KAMSAB Gateway System. Furthermore, MPWT is requested to start to consider the policy and overall plan for the income to cover the system cost, and Port EDI Task Force noted. (appendix 1: pages 39-41)

appendix 1: Task Force Meeting (26 April 2018)

Confirmation Memo on the third on-site survey

Preparatory Survey for the Project for Port EDI for Port Modernization

JICA preparatory survey team discussed the following items with Ministry of Public Works and Transportation (MPWT), Kampuchea Shipping Agency and Brokers (KAMSAB), Phnom Penh Autonomous Port (PPAP) with Customs, Immigration, Quarantine (CIQ), and Sihanoukville Autonomous of Port (PAS) with CIQ.

1. Scope of the system
2. Point of Port EDI System
   (Principal of digitalization, Major work flow, Access right, handled data)
3. Overview of Functions
4. System Infrastructure
5. Operation and Maintenance
6. Schedule for the Development and Consultant Support
7. Responsibility of recipient country

The document "Task Force Meeting (3rd Visit)" shared on 24th May 2018 describes the preconditions of Port EDI System development plan and cost estimation. Once consultant submits the plan and estimated cost to JICA on July, it will not be allowed to make major changes on it. Both sides confirmed the contents of 3rd on-site survey as of 24th May, and the final confirmation will be completed by middle of June, details are attached to this confirmation memo.

Phnom Penh, 25th May 2018

H.E. Chan Dara
Permanent vice-chairman of Port EDI Task Force
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Cambodia

Hiroshi Nishioka
Head of Survey Team for the Project for Port EDI for Port Modernization

Research Director of Mitsubishi Research Institute

ATTACHMENT

1. Discussion in Cambodia Internal Meeting on 11th May 2018

Cambodia Internal Meeting was held on 11th May (Cambodia side internally) and the discussion items below were concluded.

(1) Server install location
- MPWT secured the space on the ground floor of MPWT HQ.
- MPWT will prepare the adequate room before the system development work starts.

(2) Data items handled by Port EDI System
- Task Force decided to follow the FAL convention strictly.

(3) Budget for O&M
- Task Force defined four sources of income, which involved government expenditure, fee for usages, share the cost with relevant organization (PPAP, PAS, KAMSAB, Customs, Immigration, and Quarantine), sponsor / donation.

(4) Human resource
- Task Force expressed the importance of the training, especially for the IT field.

2. Common understanding between Task Force and JICA Survey Team

The following items are understood commonly by both Task Force Members and JICA Survey Team.

(1) Policy of digitalization of the current procedure
- KAMSAB registers the application data to Port EDI System <u>on behalf of Ship side (Abolish captain's signature).</u>
- Committee members register <u>"accept" (or deny) to the Port EDI System</u> instead of sign and stamp to the documents.
- Committee members <u>issue the certification by Port EDI System</u> with digital signature. It is also possible to <u>print out the certificate documents by Port EDI System</u> so that the responsible person signs the document and hands it to the ship side.

(2) Data handled in Port EDI System

As described in above "1. Discussion in Cambodia Internal Meeting on 11th May", Task Force have decided to follow the FAL convention strictly, and any item which is deemed necessary might be in the remarks in FAL 1 or attached by pdf.

(3) Responsibility of the recipient country

    (i)   MPWT will secure the space in MPWT HQ and build the room for both Port EDI system and KAMSAB Gateway System, and finish the network facility installation before system development starts.

    (ii)   MPWT will assign the adequate staffs for the following task. The consultant will support the work.

- Supervision the system development work provided by the venders.
- Confirm the system design document and other deliverable by the venders.
- Create the business manuals in accordance with the system manual.
- Conduct the user acceptance test.

    (iii)   MPWT will establish the O&M organization and secure the necessary budget for O&M

3. Request to MPWT

JICA preparatory survey team would like to request MPWT to consider and conclude the followings.

(1) Discuss the connectivity of National Single Window (NSW) with General Department of Custom and Excise (GDCE)

- According to the interview by survey team with GDCE, the survey team has found that GDCE has a plan to acquire the manifest data electronically from ship side directly by August 2019, while the system development is not started.
- The data flow will be that ① ship side registers the manifest data to NSW, ② KAMSAB will download the data from NSW screen manually, and ③KAMSAB will upload the data to Port EDI System manually, shown in the appendix 1 P.10.
- The data concerning with Custom clearance is not limited to Manifest data. The data registered into NSW and those required for ship clearance procedure shall be defined, and requested to add as necessity.
- MPWT is expected to discuss about data flow of the manifest data using NSW with GDCE as ministry – ministry communication, in order to conclude the appropriate work flow to acquire the manifest data.

2

(2) Communication with Customs, Immigration, Quarantine (CIQ)

- As JICA official mentioned in the Task Force Meeting on 24 May 2018, it is crucial to involve Customs representative, Immigration representative, Quarantine representative in any meetings to make decision on the design of Port EDI System. In this regard, H.E. Tauch Chan Kosal informed Customs representative, Immigration representative, Quarantine representative will be involved to join in the next task force meetings.

(3) Confirm the design

- JICA Survey Team would like to ask MPWT to review the document "Task Force Meeting (3rd Visit)" with Task Force members including CIQ especially in the point of view below.
  - ➢ Point: As Task Force have decided to follow FAL convention strictly, other than the scope of work shall establish the alternative measure or remains manual handing work.
- We would like to ask MPWT to lead the review work by Task Force Members including CIQ, and share the results with consultant by 11th June.

(4) Double check the number of user and its location.

appendix 1: The third Task Force Meeting (24 May 2018)

EOD

Confirmation Memo of the supplemental visit

Preparatory Survey for the Project for Port EDI for Port Modernization

1. Ministry of Public Works and Transportation (MPWT) concluded that Task Force Member had agreed the document of the 3ʳᵈ Task Force Meeting. The document contains the concept of the Port EDI System, the scope of the system, the policy of the system, the overview of the functions, the data handled by the system, the system infrastructure, the operation and maintenance, the development schedule, and the responsibility of recipient country.

2. The survey team had discussed about Port EDI System with Sihanoukville Autonomous of Port (PAS) with Customs, Immigration, Quarantine (CIQ), and feedback to MPWT. And the survey team and MPWT concluded the measure for each issue raised form PAS as described in attachment.

3. The survey team discussed business rule with Kampuchea Shipping Agency and Brokers (KAMSAB), Phnom Penh Autonomous Port (PPAP) with CIQ , and share the conclusion to MPWT and reached to the common understandings.

4. The survey team explained the operation & maintenance organization, emphasize the necessity of IT expert, and the training for the staff to MPWT. And MPWT noted.

5. The survey team had requested the meeting arrangement as attachment and MPWT noted.

Phnom Penh, 15ᵗʰ June 2018

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ATTACHMENT

1. Confirmation of the Task Force Meeting Document on 24th May

- MPWT had double-checked the contents of the 3rd Task Force Meeting Documents with PPAP (with CIQ), PAS (with CIQ), and KAMSAB. And concluded that the Task Force accept it.

- Using the remarks in FAL form 1 and attaching the document other than FAL convention, Port EDI system will have a flexibility. The contents of the remarks and attachment documents may vary depends on the background of each organization (PPAP and PAS).

2. Findings by the survey team in Sihanoukville

The following items are found by the technical cooperation team (The project for capacity development on container terminal management and operation in Sihanoukville port phase 2), and discussed with MPWT as below.

(1) Security information
- PAS claims SOLAS should be included and reported to Security Officer as a formality procedure.
- MPWT have confirmed that the report which is used currently are provided by MPWT, and decided that it should not be a formality procedure of ship clearance.
- In case, Security information shall be included into the system, the Port EDI system will accept the attachment PDF file of Security information.

(2) Declaration of arrival / departure
- PAS requests to include the all items other than FAL convention into remarks in FAL form 1.
- MPWT and the survey have concluded to accept PAS request.

(3) Manifest
- PAS requests to handle manifest data.
- MPWT and the survey have concluded that manifest data will be attached to FAL form 2 by the PDF or EXCEL file.

(4) NIL LIST
- PAS requests to handle NIL LIST.
- MPWT and the survey have concluded that NIL LIST will be handled by attachment PDF file.

(5) ARTICLE FORBIDDEN LIST
- PAS requests to handle ARTICLE FORBIDDEN LIST.
- Though it is possible to handle ARTICLE FORBIDDEN LIST by attachment PDF file, MPWT will try to negotiate with immigration.

3. Common understandings between MPWT and the survey team

MPWT and JICA preparatory survey team confirmed the followings.

(1) The name of the system (see appendix page 2)
- The name of the system is "Port EDI System".
- "Port EDI System" is consist of "Gateway system" and "Ship Clearance Management System".

(2) Relationship of Pre-Arrival Notice and Arrival Declaration (see appendix 1, page 3)
- The forms of   Pre arrival notice shall be replaced to FAL standard forms, FAL form 1 – FAL form 7.
- Pre-Arrival Notice will be handled with Port EDI System. Thus, clearance committee member can get the information of Arrival Declaration in advance.

(3) Handled data in KAMSAB
- Though KAMSAB agree to the data handled by Port EDI System, they requested to register more than FAL convention to reply to the inquiry from ministries and shipping side. The survey team persuade them to use the attachment file. They accepted, however they still have a vague sense of unease to smooth operaton.

4. Request to MPWT

JICA preparatory survey team would like to request MPWT to arrange and execute the followings.

(1) Negotiate with CIQ HQ
- It is crucial to involve CIQ HQ to operate   Port EDI System smoothly. MPWT is expected to invite executive official of CIQ to 4th Task Force Meeting (4th TFM).
- It is necessary to prepare the certain period to understand and agree with the operation of the Port EDI system for CIQ, therefore MPWT is expected to discuss with each organization before the 4th TFM.

2

(2) Joint meeting with Ports, MPWT, and KAMSAB
- The 4th on site-survey which is planned in August, the detail and technical matter will be discussed, therefore the survey team would like to request MPWT to arrange the joint meetings as follows.
  - i) PPAP (with CIQ) + KAMSAB meeting in Phnom Penh
  - ii) PAS (with CIQ) + KAMSAB meeting in Sihanukville
  - iii) MPWT+KAMSAB meeting in Phnom Penh to discuss "Entry Permit"

(3) National Single Window
- There is a plan to develop the National Sigle Window System (NSW) by GDCE. According to the Plan of GDCE, the Manifest data will be registered to NSW. Therefore, MPWT is expected to negotiate with GDCE to get the manifest data from NSW to KAMDAB smoothly.

appendix 1: Business Rule of Port EDI system
appendix 2: Discussion for equipment procurement and O&M

EOD

Confirmation Memo on the fourth on-site survey

Preparatory Survey for the Project for Port EDI for Port Modernization

JICA preparatory survey team discussed the following items with Ministry of Public Works and Transportation (MPWT), Kampuchea Shipping Agency and Brokers (KAMSAB), Phnom Penh Autonomous Port (PPAP) with Customs, Immigration, Quarantine (CIQ), and Sihanoukville Autonomous of Port (PAS) with CIQ.

1. Requirement of   Port EDI System
2. Work Flow of Port EDI System
3. Function List of Port EDI System
4. Interface List of EDI System
5. Report List of Port EDI System
6. Infrastructure Design
7. Quantitative Effects (Project Evaluation Criteria)
8. Undertakings of Recipient Country
9. Overall Schedule of Development Phase
10. Contract and Procurement of the Development Phase

The document "Task Force Meeting (4th Visit)" shared on 17th August 2018 concluded the final application design, the final infrastructure design, and Policy for the project management as a summary of the 4th on site survey activities above.

Both sides confirmed the contents of 4th on-site survey as of 17th August. Detail discussions are attached to this confirmation memo.

Phnom Penh, 17th August 2018

H.E. Chan Dara
Permanent vice-chairman of Port EDI Task Force
Director General of GDWMP
Ministry of Public Works and Transport Cambodia

Hiroshi Nishioka
Head of Survey Team for the Project for Port EDI for Port Modernization

Research Director of Mitsubishi Research Institute

ATTACHMENT

1. System design

The survey team, PAS, KAMSAB, Customs, Immigration, and Quarantine had hold the meeting from 8th to 10th August at PAS. And the survey team hold the meeting with PPAP, KAMSAB, Customs, Immigration, and Quarantine from 13th to 15th August at PPAP as well. And all the relevant organization agreed to the final design of Port EDI System.

Regarding Cambodia National Single Window, design concluded through this survey included no linkage function. Further discussion between MPWT and Customs may affect the design in future. MPWT and Customs are expected to inform the detail of specification of the linkage functions to the survey team as soon as possible.

Adopting the digital signature are remains to wait for establishing Certification Authority in Cambodia, while the functions for utilizing digital signature is planned to be installed.

2. Meeting of MPWT, Customs, Immigration, and Quarantine within Cambodia side

On the day of 10th August, MPWT had invited high executives of the other ministry headquarters (Customs, Immigration and Quarantine). And MPWT concluded that Customs, Immigration, and Quarantine will adopt the Port EDI System to Ship Clearance Formality Procedure.

As for the Customs, MPWT and Customs confirmed that they have the intention to exchange the data of Port EDI System and Cambodia National Single Window. The detail of the data exchange method will be discussed in future.

3. Undertakings of Recipient Country

Undertakings of the recipient country are proposed by the survey team. MPWT expressed their concern for procurement IT professionals. Through the detail discussion, the survey team suggested it is also regarded as license fee for the maintenance fee of application, software, and hardware. MPWT understand the necessity of the support work of the application software.

As for the operation and maintenance fee, it is expected to be about USD411,522 annually, as requested by MPWT / Task Force Meeting, the team will re-calculate the fee so that it can be lower. And after 5 years from installation of the equipment, MPWT must shoulder the replacement cost. MPWT accepted those burden.

4. Quantitative Effects (Project Evaluation Criteria)

Task Force agreed to measure the performance of ship clearance formality procedure using the criteria which the survey team proposed. MPWT will ask PPAP, PAS, and KAMSAB to check and complete the current performance as specified in appendix 3, and give feedback one week later to GDWMP.

5. Project management theme

MPWT noted the overall project schedule of the development phase. And MPWT confirmed the process and method of procuring vender of the development phase.

appendix 1: The fourth Task Force Meeting (17 August 2018)

appendix 2: Undertakings of Recipient Country

appendix 3: Quantitative Effects

appendix 4: Contract and Procurement

EOD

7. References

The material of 3rd Taskforce Meeting.

The third Task Force Meeting

The Project for the Development of Port EDI system
in The Kingdom of Cambodia

24 May 2018

THE PREPARATORY SURVEY FOR THE PROJECT
FOR PORT EDI FOR PORT MODERNIZATION

Contents of report

Objective

✓ Survey team proposes the overview of system design for Port EDI System based on our survey and discussion with Cambodia side.

✓ Survey team is going to develop the procurement plan and estimate the cost based on the requirement presented today's taskforce.

Topics

1. Scope of the system

Target business of Port EDI system

✓ Target Business of Port EDI system is "Ship clearance formality procedure".

◆ Pre Arrival Notice

◆ Entry Permit

◆ Arrival Declaration

◆ Departure Declaration

✓ For avoiding stagnation of berthing, procedure for issuing Pilot Order is included in Target Business of Port EDI system .

✓ Other procedures shown in below are not Target Business of Port EDI system .

◆ Procedure for Passport and Seaman's book

◆ Procedure for Port State Control

◆ Procedure for Berth Allocation

◆ Procedure for Billing

2. Point of Port EDI System

Policy concerning Sign and Stamp

✓ For the sake of efficiency and promptness of practical business, Port EDI system shall adopt electronic application and electronic approval.

  ✓ Thus, singing and stamping to the paper document shall be abolished.

✓ Toward abolition of singing and stamping, MPWT is expected to prescribe the regulation for operating Port EDI System with relevant organization

	Current Business	Port EDI system
Application	Captain sign to application documents on clearance committee	KAMSAB register the application data to Port EDI system on behalf of Ship side (Abolish captain's sign)
Accept	Committee members sign and stamped to application documents	Committee members register status of "accept" to Port EDI system
Issue	Committee members issue and sign to Certificate	Committee members output from Port EDI system and sign to Certificate or Committee members issue Certificate by Port EDI system with digital signature

Basic Workflow for Application and Accept
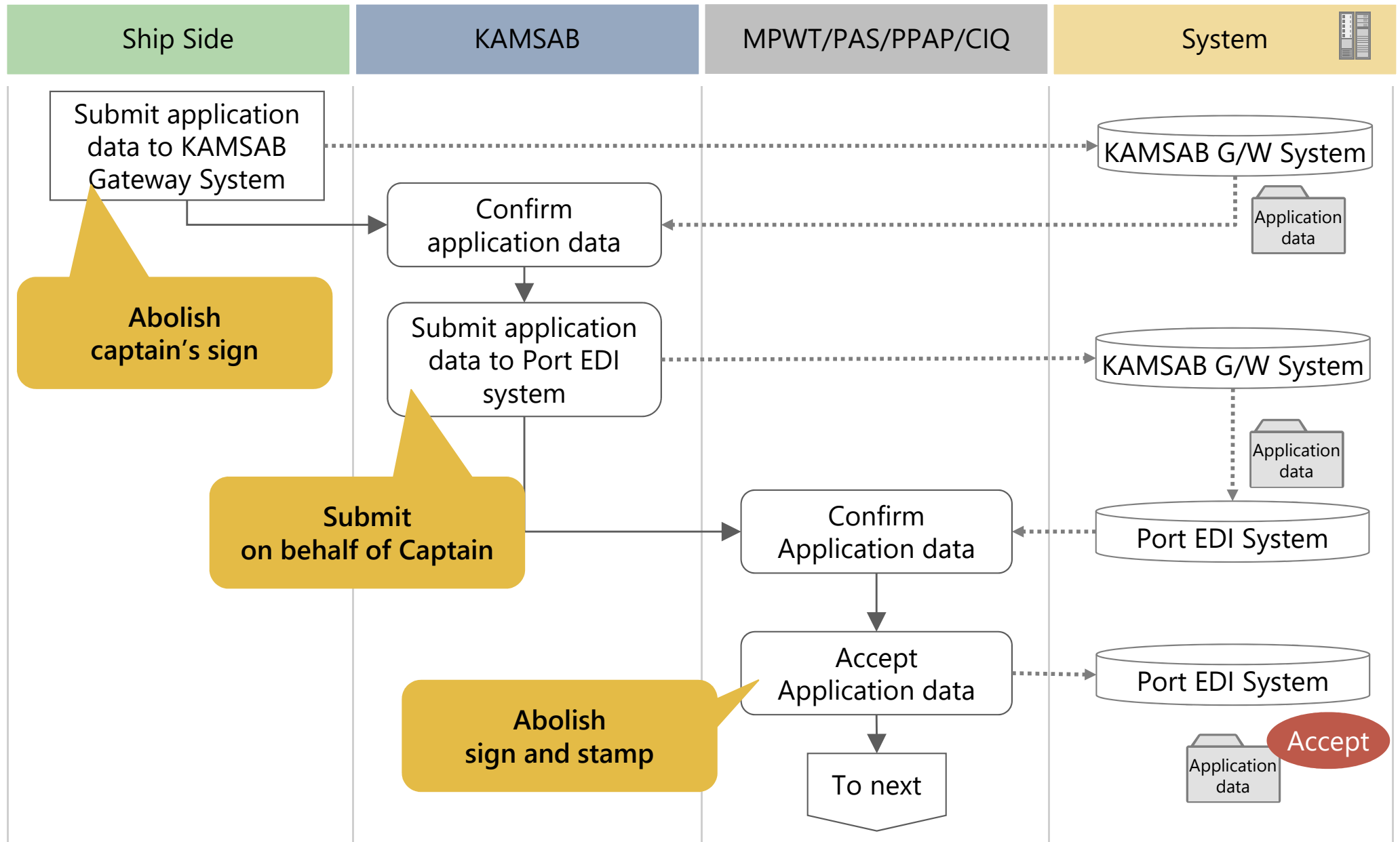
Basic Workflow for Issue [with Digital signature]

Ship Side	KAMSAB	MPWT/PAS/PPAP/CIQ	System

MPWT/PAS/PPAP/CIQ:
From previous

Issue the certificate by Port EDI

System:
Port EDI System

Certificate
Digital Signature

KAMSAB:
Receive the certificate from Port EDI system

Deliver the certificate by e-mail.

Can deliver electrically

Ship Side:
Keep the certificate electrically.

Certificate
Digital Signature
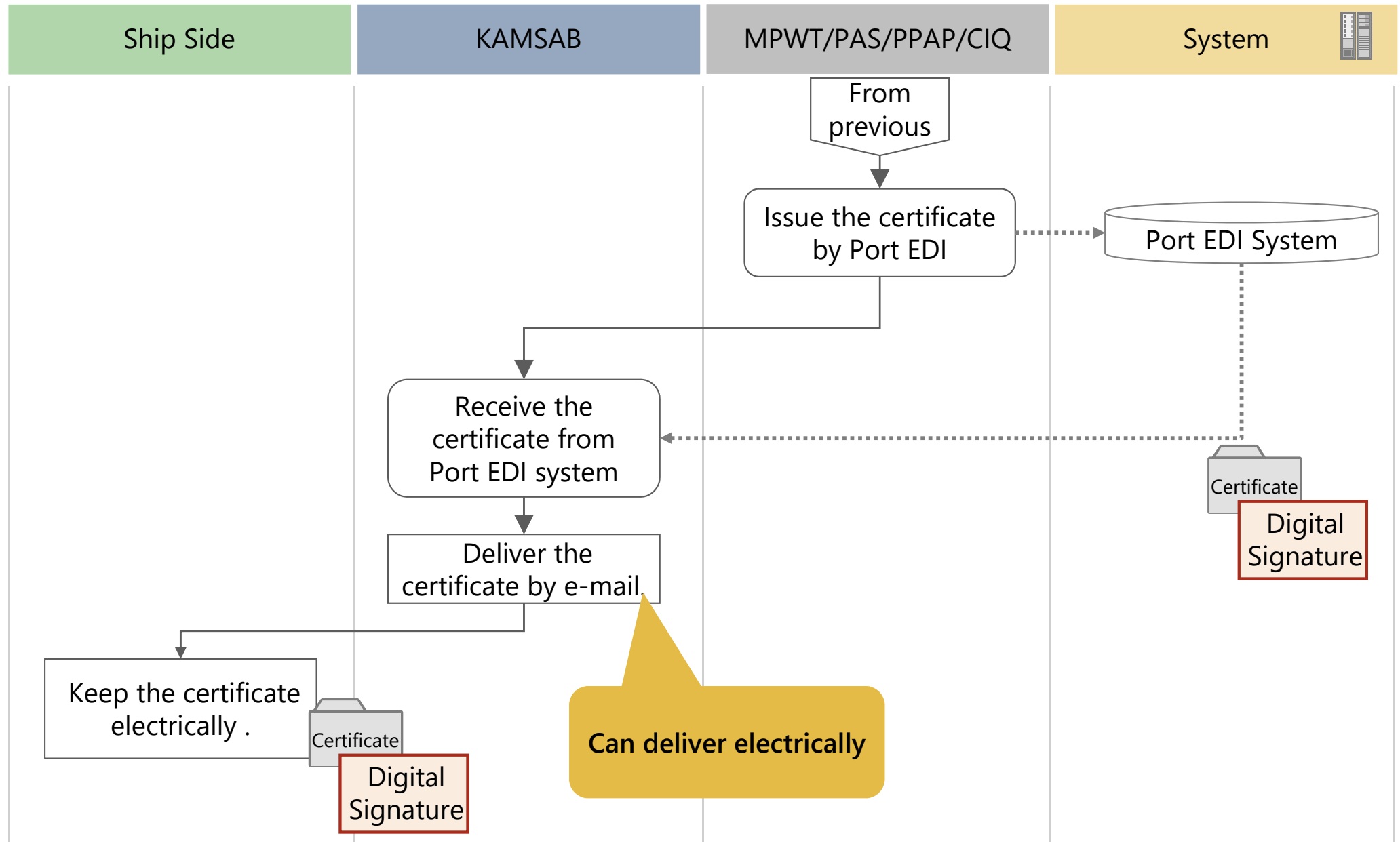
Basic Workflow for Issue [without Digital signature]
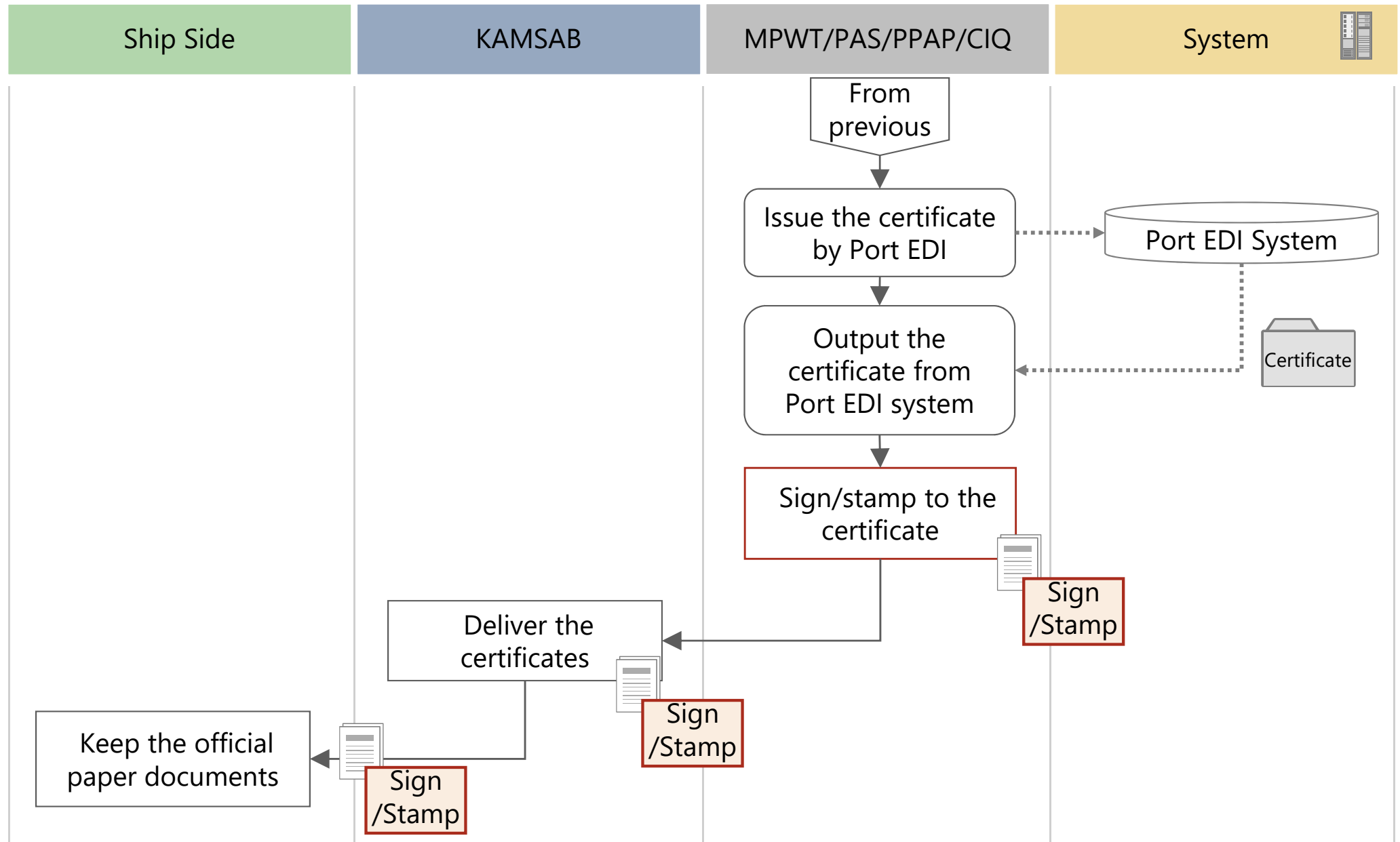
Access Right

✓ In Port EDI system and KAMSAB Gateway system, access right shall be defined properly.

Users		Access right			
		Port EDI system		KAMSAB Gateway system	
		Data Concerning Sihanoukville Port	Data Concerning Phnom Penh Port	Data Concerning Sihanoukville Port	Data Concerning Phnom Penh Port
MPWT		All data	All data	N/A	N/A
PAS		All data	N/A	N/A	N/A
PPAP		N/A	All data	N/A	N/A
Customs	Sihanoukville	Data concerning Customs procedure	N/A	N/A	N/A
	Phnom Penh	N/A	Data concerning Customs procedure	N/A	N/A
Immigration	Sihanoukville	Data concerning Immigration procedure	N/A	N/A	N/A
	Phnom Penh	N/A	Data concerning Immigration procedure	N/A	N/A
Quarantine	Sihanoukville	Data concerning Quarantine procedure	N/A	N/A	N/A
	Phnom Penh	N/A	Data concerning Quarantine procedure	N/A	N/A
KAMSAB	HQ [as operator of Port EDI system]	All data	All data	All data	All data
	Sihanoukville	All data	N/A	All data	N/A
	Phnom Penh	N/A	All data	N/A	All data
Ship Side		N/A	N/A	Data concerning own vessels	

Data flow of Manifest data
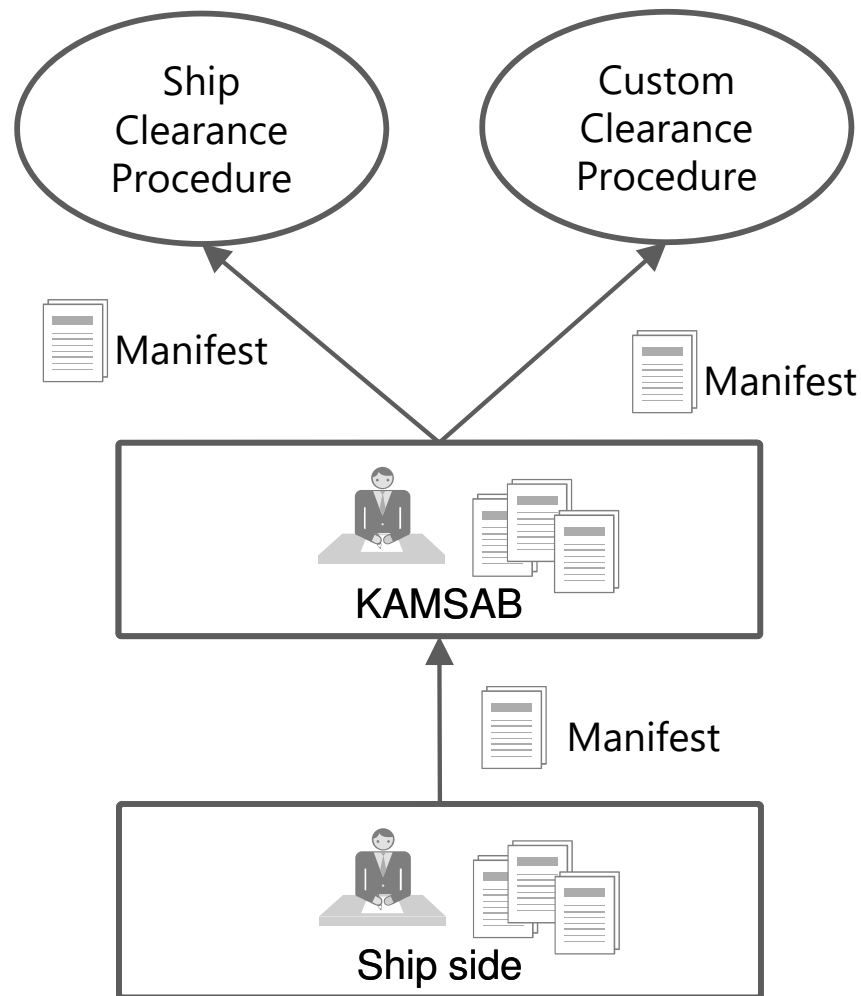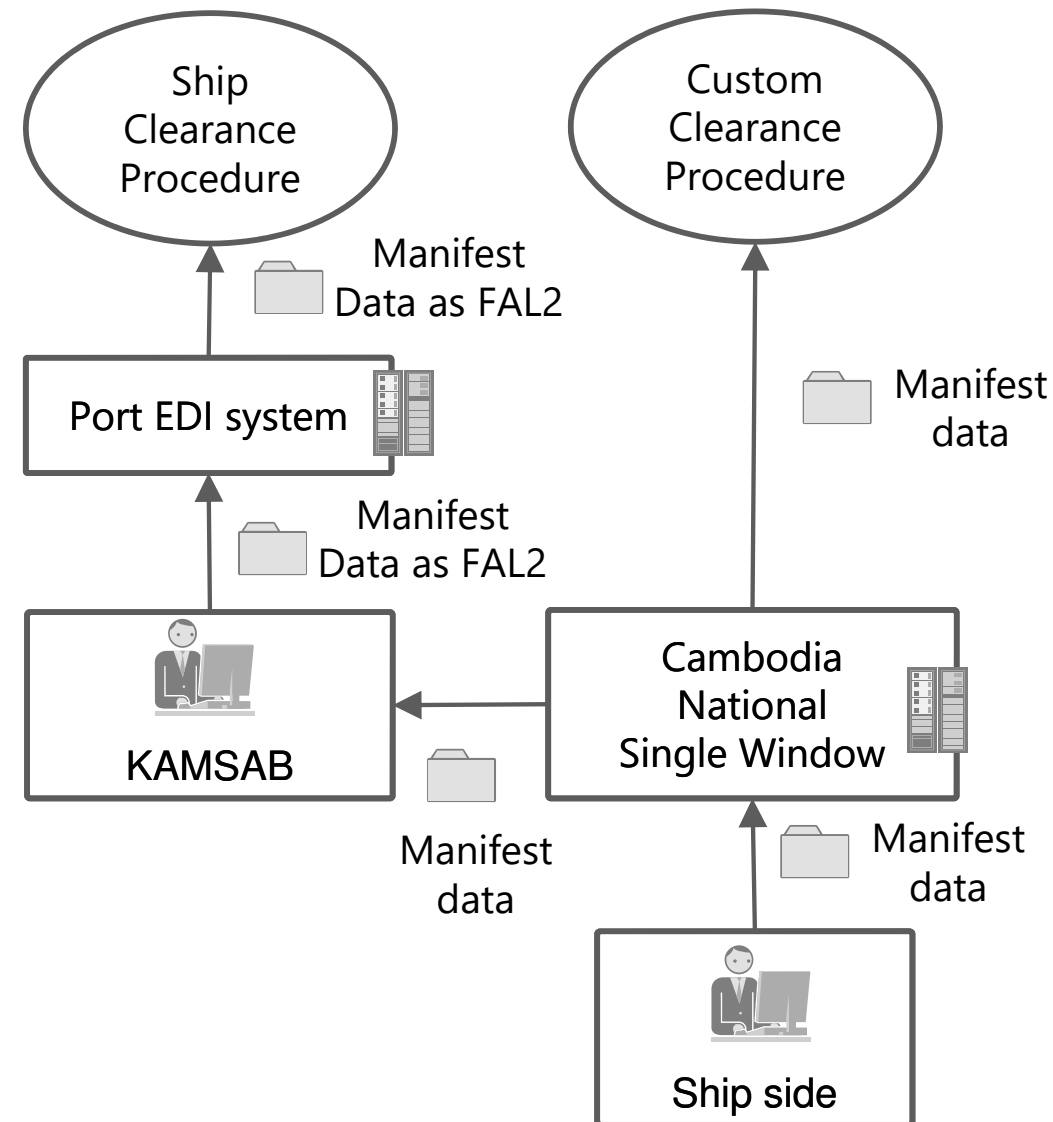
Policy of managing the data in Port EDI system [1/2]

The data submitted from ship side for each declaration shall be based on FAL convention.

✓ The data submitted from Ship side for each declaration shall be brought together to FAL forms.

- ◆ General Declaration (FAL Form 1)
- ◆ Cargo Declaration (FAL Form 2)
- ◆ Ship's Stores Declaration (FAL Form 3)
- ◆ Crew's Effects Declaration (FAL Form 4)

- ◆ Crew List (FAL Form 5)
- ◆ Passenger List (FAL Form 6)
- ◆ Dangerous Goods (FAL Form 7)

✓ These documents shown below shall be required to register to the system in accordance with FAL convention.

- ◆ Maritime declaration of Health
- ◆ Security-related information as required under SOLAS
- ◆ Advance notification form for waste delivery to port reception facilities

Policy of managing the data in Port EDI system [2/2]

✓ The Ship's particular shall be required to register to the system besides items stipulated in FAL convention.

✓ Certificate shown below shall be required to register to the system as pdf format besides items stipulated in FAL convention..

- ◆ Registration Certificate
- ◆ International Tonnage Certificate
- ◆ International Load Line Certificate
- ◆ International Oil Pollution Prevention Certificate
- ◆ Sanitation Exemption Certificate
- ◆ Classification Certificate
- ◆ Safety Construction Certificate

- ◆ Ship Radio License Certificate
- ◆ Tender boat or Life boat Certificate
- ◆ Document of Compliance
- ◆ Minimum safe manning Certificate
- ◆ Safety Management Certificate
- ◆ Safety Equipment Certificate
- ◆ International Ship Security Certificate

✓ Some essential Cambodian original items will be registered to "remarks" of FAL1.

3. Overview of Functions

Overview
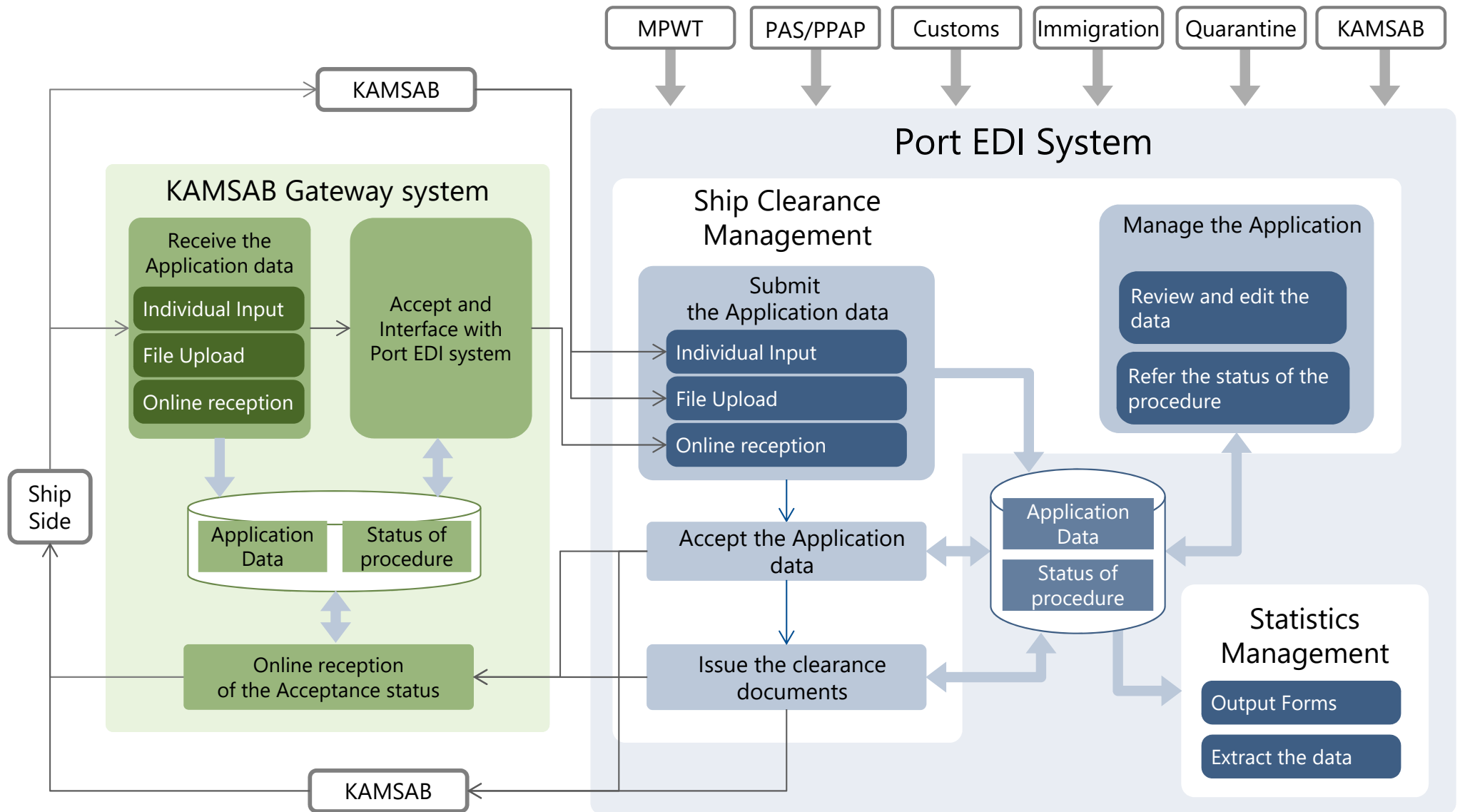
Function List of Port EDI system [1/5]

| Business | Function Name | Data Items | | User* | | | | | |
		Input	Output data	M	P	C	I	Q	K
At first call And Once a year	Submit the certificates [Individual Input]	• Metadata of the Certificates [expire date] • Registration Certificate, International Tonnage Certificate and so on[PDF]							○
	Refer and output the certificates		• Metadata of the Certificates [expire date] • Registration Certificate, International Tonnage Certificate and so on[PDF]	○	○				○
	Register Ship's particular [Individual Input]	• Ship's particular							○
	Refer and output Ship's particular		• Ship's particular	○	○				○
Pre Arrival Notice	Submit Pre Arrival Notice [Individual Input/ File Upload/ Online reception]	• FAL1,5-6 • Security-related information as required under SOLAS							○
	Refer and output Pre Arrival Notice		• FAL1,5-6 • Security-related information as required under SOLAS	○	○	○	○	○	○
	Accept Pre Arrival Notice			○	○	○	○	○	

<User*>M : MPWT, P : PPAP and PAS, C : Customs, I : Immigration, Q : Quarantine, K : KAMSAB

Function List of Port EDI system [2/5]

| Business | Function Name | Data Items | | User | | | | | |
		Input	Output data	M	P	C	I	Q	K
Entry Permit	Issue Entry Permit [Paper/ data with digital signature]		• Entry Permit[Paper/ PDF with digital signature]	○					
	Refer and output the certificates		• Entry Permit[Paper/ PDF with digital signature]	○	○				○
Arrival Declaration	Submit Arrival Declaration <For Port/ For Border> [Individual Input/ File Upload/ Online reception]	• FAL1-7 • Maritime declaration of Health • Security-related information as required under SOLAS • Advance notification form for waste delivery to port reception facilities							○
	Refer and output Arrival Declaration		• FAL1-7 • Maritime declaration of Health • Security-related information as required under SOLAS • Advance notification form for waste delivery to port reception facilities	○	○	○	○	○	○
	Accept Arrival Declaration <For Port/ For Border>			○	○	○	○	○	
	Issue Free Pratique [Paper/ data with digital signature]		• Free Pratique					○	

Function List of Port EDI system [3/5]

Business	Function Name	Data Items		User					
		Input	Output data	M	P	C	I	Q	K
Arrival Declaration	Refer and output Free Pratique		• Free Pratique					○	
	Issue Ship Sanitation Certificate [Paper/ data with digital signature]		• Ship Sanitation Certificate					○	
	Refer and output Ship Sanitation Certificate		• Ship Sanitation Certificate	○	○			○	○
Departure Declaration	Submit Departure Declaration <For Port/ For Border> [Individual Input/ File Upload/ Online reception]	• FAL1-7							○
	Refer and output Departure Declaration		• FAL1-7	○	○	○	○	○	○
	Accept Departure Declaration <For Port/ For Border>			○	○	○	○	○	
	Issue Port Clearance [Paper/ data with digital signature]		• Port Clearance		○				
	Refer and output Port Clearance		• Port Clearance	○	○				○

Function List of Port EDI system [4/5]

| Business | Function Name | Data Items | | User | | | | | |
		Input	Output data	M	P	C	I	Q	K
Departure Declaration	Issue Quarantine Certificate of Departure [Paper/ data with digital signature]		• Quarantine Certificate of Departure					○	
	Refer and output Quarantine Certificate of Departure		• Quarantine Certificate of Departure	○	○			○	○
	Accept Departure Declaration			○	○	○	○	○	
Pilot Order	Submit Pilot Order <For Port/ For Border> [Individual Input/ Online reception]	• Pilot Order							○
	Refer and output Pilot Order		• Pilot Order	○	○				○
	Accept Pilot Order <For Port/ For Border>				○				
Manage Application	Refer the status of the procedure			○	○	○	○	○	○
	Interface the status of the procedure with KAMSAB Gateway System								

Function List of Port EDI system [5/5]

Business	Function Name	Data Items		User					
		Input	Output data	M	P	C	I	Q	K
Statistical Management	Refer and output statistics Forms		• Information on Vessel calls • Import Cargo Statistics by Vessel and Commodity • Export Cargo Statistics by Vessel and Commodity • Import Containers by Vessel and Commodity • Export Containers by Vessel and Commodity • International passengers • Domestic Cargos and Passengers	○	○	○	○	○	○
	Extract the data		Data managed in Port EDI system	○	○	○	○	○	○

Function List of KAMSAB Gateway system [1/3]

Business	Function Name	Data Items		User	
		Input	Output data	KAMSAB	Ship Side
At first call And Once a year	Submit the certificates [Individual Input]	• Metadata of the Certificates [expire date] • Registration Certificate, International Tonnage Certificate and so on[PDF]		○	○
	Refer and output the certificates		• Metadata of the Certificates [expire date] • Registration Certificate, International Tonnage Certificate and so on[PDF]	○	○
	Register Ship's particular [Individual Input]	• Ship's particular		○	○
	Refer and output Ship's particular		• Ship's particular	○	○
Pre Arrival Notice	Submit Pre Arrival Notice [Individual Input/ File Upload/ Online reception]	• FAL1,5-6 • Security-related information as required under SOLAS		○	○
	Refer and output Pre Arrival Notice		• FAL1,5-6 • Security-related information as required under SOLAS	○	○

Function List of KAMSAB Gateway system [2/3]

Business	Function Name	Data Items		User	
		Input	Output data	KAMSAB	Ship Side
Arrival Declaration	Submit Arrival Declaration <For Port/ For Border> [Individual Input/ File Upload/ Online reception]	• FAL1-7 • Maritime declaration of Health • Security-related information as required under SOLAS • Advance notification form for waste delivery to port reception facilities		○	○
	Refer and output Arrival Declaration		• FAL1-7 • Maritime declaration of Health • Security-related information as required under SOLAS • Advance notification form for waste delivery to port reception facilities	○	○
	Accept and Interface Arrival Declaration with Port EDI system <For Port/ For Border>			○	

Function List of KAMSAB Gateway system [3/3]

Business	Function Name	Data Items		User	
		Input	Output data	KAMSAB	Ship Side
Departure Declaration	Submit Departure Declaration <For Port/ For Border> [Individual Input/ File Upload/ Online reception]	• FAL1-7		○	○
	Refer and output Departure Declaration		• FAL1-7	○	○
	Accept and Interface Departure Declaration with Port EDI system <For Port/ For Border>			○	
Pilot Order	Submit Pilot Order <For Port/ For Border> [Individual Input/ Online reception]	• Pilot Order		○	○
	Refer and output Pilot Order		• Pilot Order	○	○
	Accept and Interface Pilot Order with Port EDI system <For Port/ For Border>			○	
Manage Application	Online reception of the application status				
	Refer the application status			○	○

Registered Forms for Arrival [1/2]

Registered Forms		Current documents brought together to FAL forms	
forms	Additional Items	Current documents	Omitted Items
General Declaration (FAL Form 1)	These Item below are managed in "Remarks" • Draft at Arrival • Air Draft • Pilot On Board	Pre Arrival Notice	N/A
		Declaration of Arrival	N/A
Cargo Declaration (FAL Form 2)	N/A	Declaration of Arrival	N/A
		Inward Manifest	• Shipper • Consignee • Notify Party • Place of Receipt • Place of Delivery • Rate of Freight USD
		General Cargo Declaration	N/A
Ship's Stores Declaration (FAL Form 3)	N/A	Ship's Stores Declaration	N/A
		DECK STORE	N/A
		Provision Store List	N/A
		BONDED STORES LIST	N/A
Crew's Effects Declaration (FAL Form 4)	N/A	Crew's Effects Declaration	N/A
Crew List (FAL Form 5)	N/A	Crew List	N/A

Registered Forms for Arrival [2/2]

Registered Forms		Current documents brought together to FAL forms	
forms	Additional Items	Current documents	Omitted Items
Passenger List (FAL Form 6)	N/A	Passenger List	• Cabin No. • Visa(Type, Offered Place) • Place of Staying in Cambodia
		Embark/Disembark Passenger list	N/A
Dangerous Goods (FAL Form 7)	N/A	Declaration of Arrival	N/A
Maritime declaration of Health	N/A	Maritime Health Declaration	N/A
		List of Narcotic Drugs	N/A
		Crew Vaccination List	N/A
		Report of Water Taken Onboard	N/A
		International Vaccination Certificate (Yellow Book)	N/A
Security-related information as required under SOLAS	N/A	International Ship Security Certificate	N/A
		Port of Call List	N/A

✓ These documents shown below are registered to Port EDI system and KAMSAB Gateway system as PDF format.
   ◆ Last Port's Clearance Certificate
   ◆ Passport
   ◆ Seaman's book

Registered Forms for Departure [1/2]

Registered Forms		Current documents brought together to FAL forms	
forms	Additional Items	Current documents	Omitted Items
General Declaration (FAL Form 1)	These Item below are managed in "Remarks" • Exact draft on departure • Pilot On Board • Air Draft	Declaration of Departure	N/A
Cargo Declaration (FAL Form 2)	N/A	Outward Manifest	• Shipper • Consignee • Notify Party • Place of Receipt • Place of Delivery • Rate of Freight USD
		General Cargo Declaration	N/A
Ship's Stores Declaration (FAL Form 3)	N/A	Ship's Stores Declaration	N/A
		DECK STORE	N/A
		Provision Store List	N/A
		BONDED STORES LIST	N/A
Crew's Effects Declaration (FAL Form 4)	N/A	Crew's Effects Declaration	N/A
Crew List (FAL Form 5)	N/A	Crew List	N/A

Registered Forms for Departure [2/2]

Registered Forms		Current documents brought together to FAL forms	
forms	Additional Items	Current documents	Omitted Items
Passenger List (FAL Form 6)	N/A	Passenger List	• Cabin No. • Visa(Type, Offered Place) • Place of Staying in Cambodia
		Embark/Disembark Passenger list	N/A
Maritime declaration of Health	N/A	Declaration of Health for Outbound Vessel	N/A

✓ These documents shown below are registered to Port EDI system and KAMSAB Gateway system as PDF format.

- ◆ Passport
- ◆ Seaman's book

Omitted Current Forms

✓ These current documents for arrival shown below are not registered to Port EDI system and KAMSAB Gateway system.

- ◆ B/L
- ◆ Articles Forbidden List
- ◆ NIL List
- ◆ Custom Application
- ◆ Arrival/Departure Condition
- ◆ Unloading Container List

✓ These current documents for departure documents shown below are not registered to Port EDI system and KAMSAB Gateway system.

- ◆ REPORT ON RECEIPT OF CARGO
- ◆ Arrival/Departure Condition
- ◆ B/L

Issued Forms in Ship Clearance Management function

✓ These documents shown below are issued from Port EDI system.

| Business	Issued Documents
Pre Arrival Notice	N/A
Entry Permit	• Entry Permit
Arrival Declaration	• Free Pratique • Ship Sanitation Control Exemption Certificate
Departure Declaration	• Port Clearance • Quarantine Certificate of Departure
Pilot Order	• Pilot Order

Outputted Forms in Statistic Management function

✓ The forms managed in Statistic Management function are based on "The task force for Establishment of National Port Policy and Administration System. (2011). Manual of Port Statistics Survey and Analysis".

✓ Basically, The items included the forms will be collected and managed in Ship Clearance Management function.

✓ Outputted forms are shown below.
   ◆ Information on Vessel calls
   ◆ Import Cargo Statistics by Vessel and Commodity
   ◆ Export Cargo Statistics by Vessel and Commodity
   ◆ International passengers

4. System Infrastructure

System Context Diagram of Port EDI System

This diagram shows the relation of Port EDI system with relevant entities.
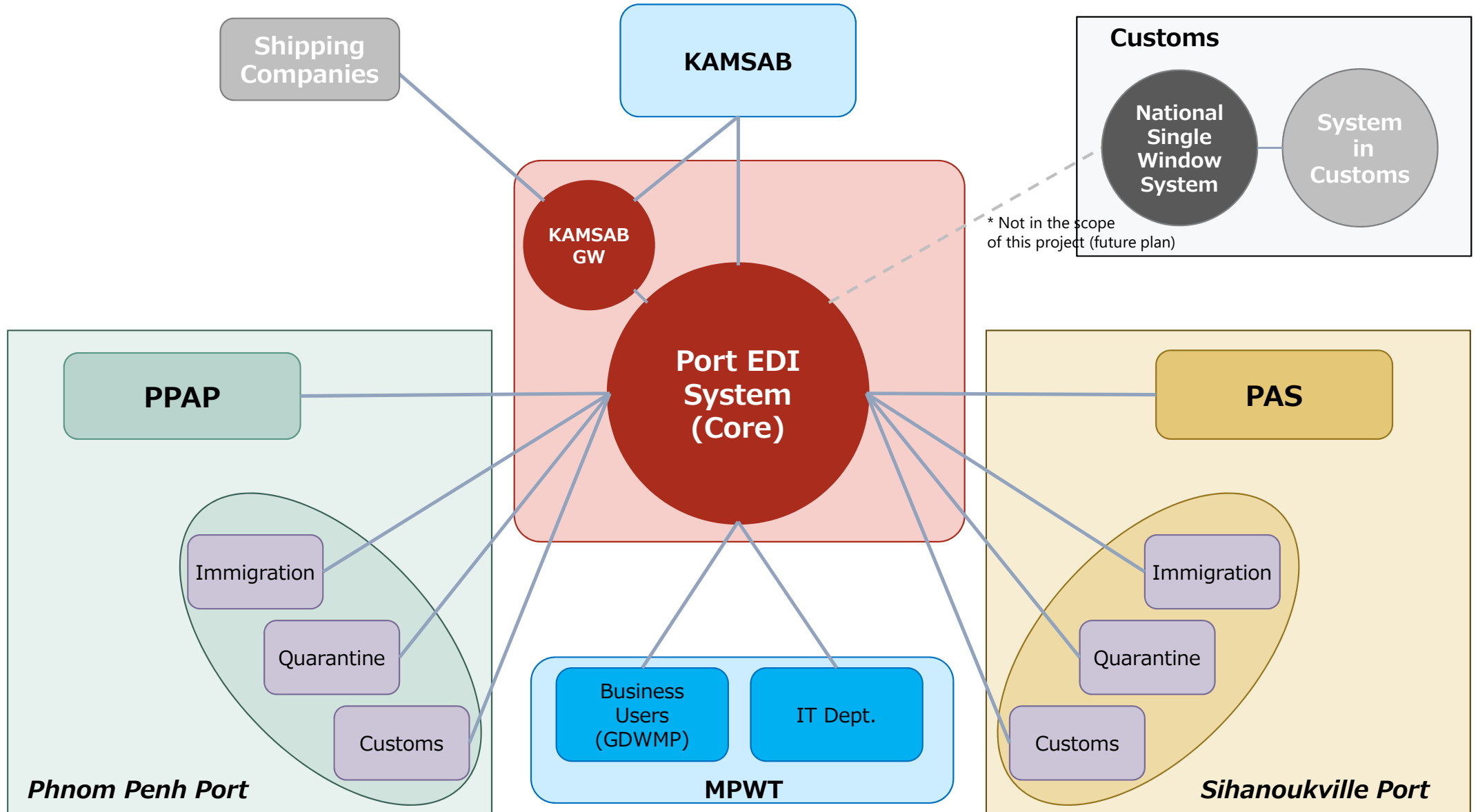
List of connected locations with the Port EDI System and type of NW (1/2)

|	Location	Users in location	Type of NW (DPLC or Internet)	Bandwidth	Remarks
1	**MPWT HQ**	General Department of Waterway-Maritime Transport and Ports (GDWMP)	LAN	N/A	
2	**MPWT HQ**	Information Technology and Public Relations (ITPR) Department	LAN	N/A	For IT Management
3	**KAMSAB HQ**	KAMSAB in Phnom Penh	Internet / DPLC	TBD	KAMSAB prefer to use DPLC for stable connection
4	**KAMSAB Sihanoukville Office**	KAMSAB in Sihanoukville	Internet / DPLC	TBD	KAMSAB prefer to use DPLC for stable connection
5	**PAS HQ**	PAS	Internet / DPLC	TBD	
		Customs in Sihanoukville	Internet / DPLC	TBD	
		Immigration in Sihanoukville	Internet / DPLC	TBD	
		Quarantine in Sihanoukville	Internet / DPLC	TBD	

List of connected locations with the Port EDI System and type of NW (2/2)

|	Location	Users in location	Type of NW (DPLC or Internet)	Bandwidth	Remarks
6	**PPAP HQ**	PPAP in PPAP HQ	Internet / DPLC	TBD	
		Customs in PPAP HQ	N/A (LAN)		Using PAS HQ NW
		Immigration in PPAP HQ	N/A (LAN)		Using PAS HQ NW
		Quarantine in PPAP HQ	N/A (LAN)		Using PAS HQ NW
7	**PPAP LM17**	PPAP in LM17	Internet / DPLC	TBD	
		Customs in LM17	N/A (LAN)		Using LM17 NW
		Immigration in LM17	N/A (LAN)		Using LM17 NW
		Quarantine in LM17	N/A (LAN)		Using LM17 NW
		KAMSAB in LM17	N/A (LAN)		Using LM17 NW
8	Others	If there are any necessary organization to access Port EDI	Internet	N/A	
-	*Ministry of Economy and Finance General Department of Customs and Excise of Cambodia (GDCE)*	*National Single Window System (NSW)*	*DPLC*	*TBD*	*Not in the scope of this project*

- **Five locations** are expected as the user location of the system except MPWT office.
- It is expected that the users will **utilize LAN in the location** for accessing the system.
- Each location **should choose either method** for access to the system, **internet or DPLC**.
- Preparation of network is a **responsible matter of MPWT**. (* please refer to "Responsibility of recipient country")

Physical Location of the System
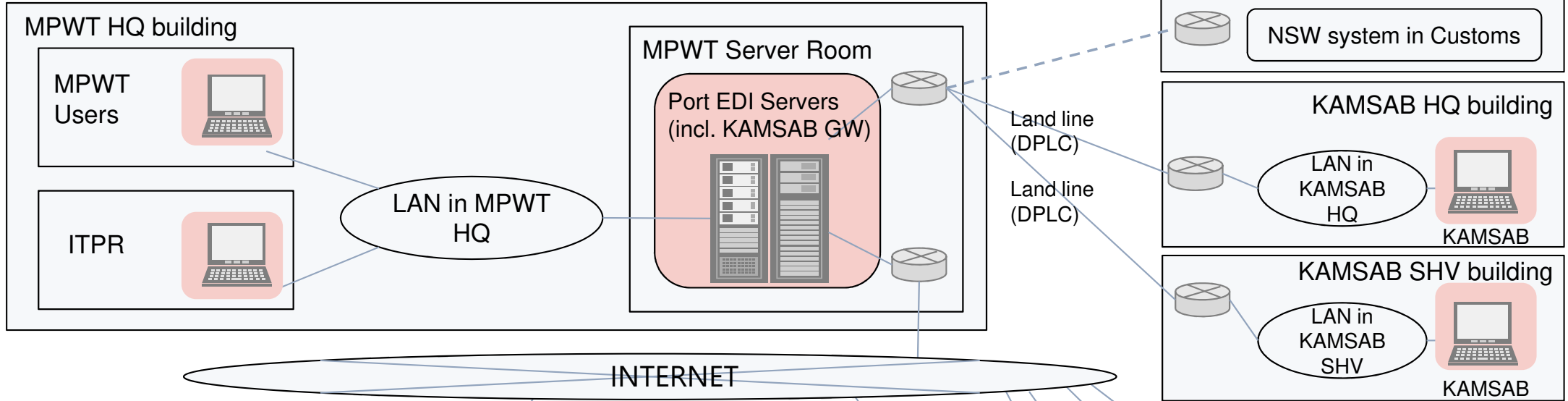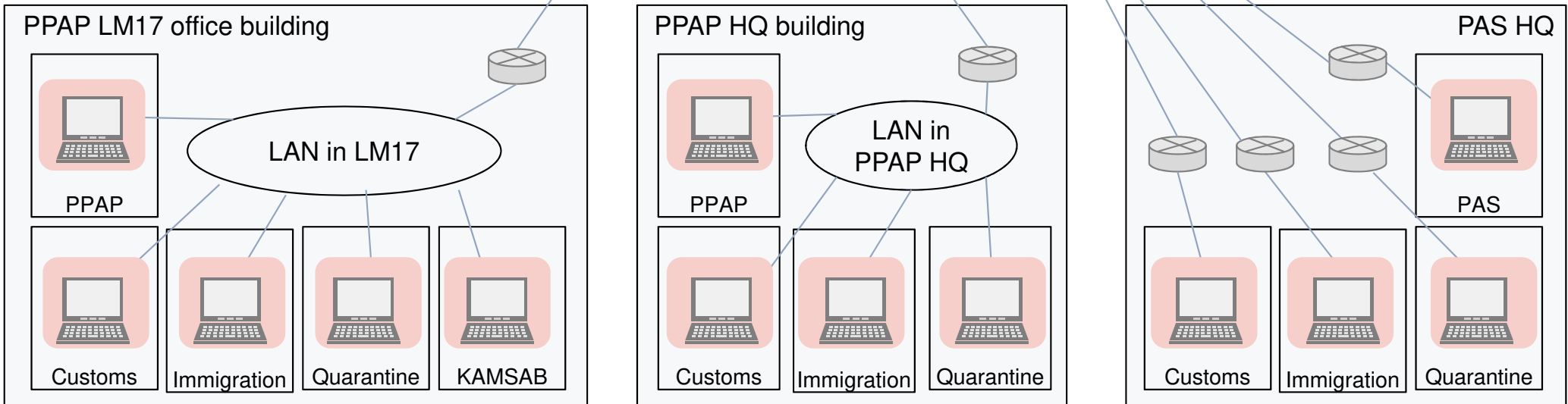
The list of users of Port EDI System (draft) (1/2)

	Users	Roles	Num. of Users	Remarks
1	General Department of Waterway-Maritime Transport and Ports (GDWMP)	Business User	TBD	
2	Information Technology and Public Relations (ITPR) Department	IT Administrator	20	
3	Executives in MPWT	Business User	TBD	
4	KAMSAB in Phnom Penh	Business User	TBD	
5	-	Business Operator	TBD	
6	KAMSAB in Sihanoukville	Business User	TBD	
7	-	Business Operator	TBD	
8	PAS	Business User	4	
9	Customs in Sihanoukville	Business User	4	
10	Immigration in Sihanoukville	Business User	2	
11	Quarantine in Sihanoukville	Business User	3	

The list of users of Port EDI System (draft) (2/2)

	Users	Roles	Num. of Users	Remarks
12	PPAP in PPAP HQ	Business User	TBD	
13	Customs in PPAP HQ	Business User	TBD	
14	Immigration in PPAP HQ	Business User	TBD	
15	Quarantine in PPAP HQ	Business User	TBD	
16	PPAP in LM17	Business User	TBD	
17	Customs in LM17	Business User	TBD	
18	Immigration in LM17	Business User	TBD	
19	Quarantine in LM17	Business User	TBD	
20	KAMSAB in LM17	Business User	TBD	

Basic policy of IT system for Port EDI System (1/4)

Basic policy of the service level of the Port EDI System is as follow,

- Basically, the system is always running and available.

- Stops of the service for planned or non-planned maintenance work are acceptable. (it means non-stop system operation in 24/7 is not expected.)

- 24/7 resident of operating staffs for system management is not expected.

- In basic business hours, the system is generally providing the service except an emergency case.

- In the case of single failure, the system can provide the service continuously, because the system has redundancy.

- However, if the case double failures or more occurs at the same time, it might be a cause of the stop of service and system.

- The data is also secured in the case of single failure of hard disk. (the storage should be considered redundancy, RAID etc.)

- If two or more hard disks has failure at the same time, the data is not guaranteed. (the lost of data is occurred.) At least, recovery to the data before one day is expected by the recovery from the data backup.

- Disaster recovery site (secondary site for the production) is not prepared in this project. In the case the site all has trouble, the system stops and takes long time for the recovery. (fire, earth quake, etc.)

Basic policy of IT system for Port EDI System (2/4)

Basic policy for the system configuration is as follows,

- Logically, 3 set of the system will be provided in the project.

   - Production environment: it is used for the production service.

   - Development/test environment: it is used for trouble shooting and tests.

   - Training environment: it is used for user training of the Port EDI System.

- Production environment is provided as an individual environment physically also. On the other hand, it is acceptable to share physical environment between development/test environment and training environment.

- Production environment should be considered to have redundant configuration.

- Single point of failure of hardware should not be a cause of the system stop basically. (multi server configuration will be expected)

- Single hard disk failure should not be a cause of data lost. (RAID configuration, etc. should be considered.)

- Detail of redundant configuration will depend on the proposal of selected vendor in the tender.

- Both Architecture for the Port EDI System and for the KAMSAB GW should be applied this basic concept.

- Business records will be kept for 10 years, basically.

Basic policy of IT system for Port EDI System (3/4)

As functions for the system operation, the following functions will be installed in the Port EDI System.

- System monitoring function

 Error events of hardware/software etc. from the system environment can be monitored in one place.

- Data backup function

 Function for backing up and restoring data will be installed.

 Two kind of data should be considered for the target of backup.

   - The business data and operational data : the business data is basically in the database, and operational data includes access log and operational log etc.

   - System image data : It is used when re-installation of a server is required.

 Backup to removable media (tape) is also available.

- Job scheduling function

 Job scheduling functions for operational work can be done automatically and periodically based on the schedule without manual operation is installed.

Basic policy of IT system for Port EDI System (4/4)

The Port EDI System should have the proper security level, because,

 - the important data related with the vessels and ships.

 - the public service of ship clearance formality procedure for Cambodia is running.

Especially, the consideration for the network security is one of the important topic in the environment that access via internet is allowed.

The following policy and method will apply to the Port EDI System as the basic policy of the network security.

 - DMZ (DeMilitarized Zone) is configured using FW (FireWall) on the border between the Port EDI System and internet or WAN.

 - Access filtering on FW will be applied to the access from internet.

 - Communication between user and system, also between system and system is encrypted.

 - Monitoring function, like a dashboard, for security events also should be considered.

In addition, other security measures also will be considered to applied to the system.

 - User Authentication and user management

 - Anti-Virus method

 - Access log management

 - etc.

System configuration overview for Port EDI System
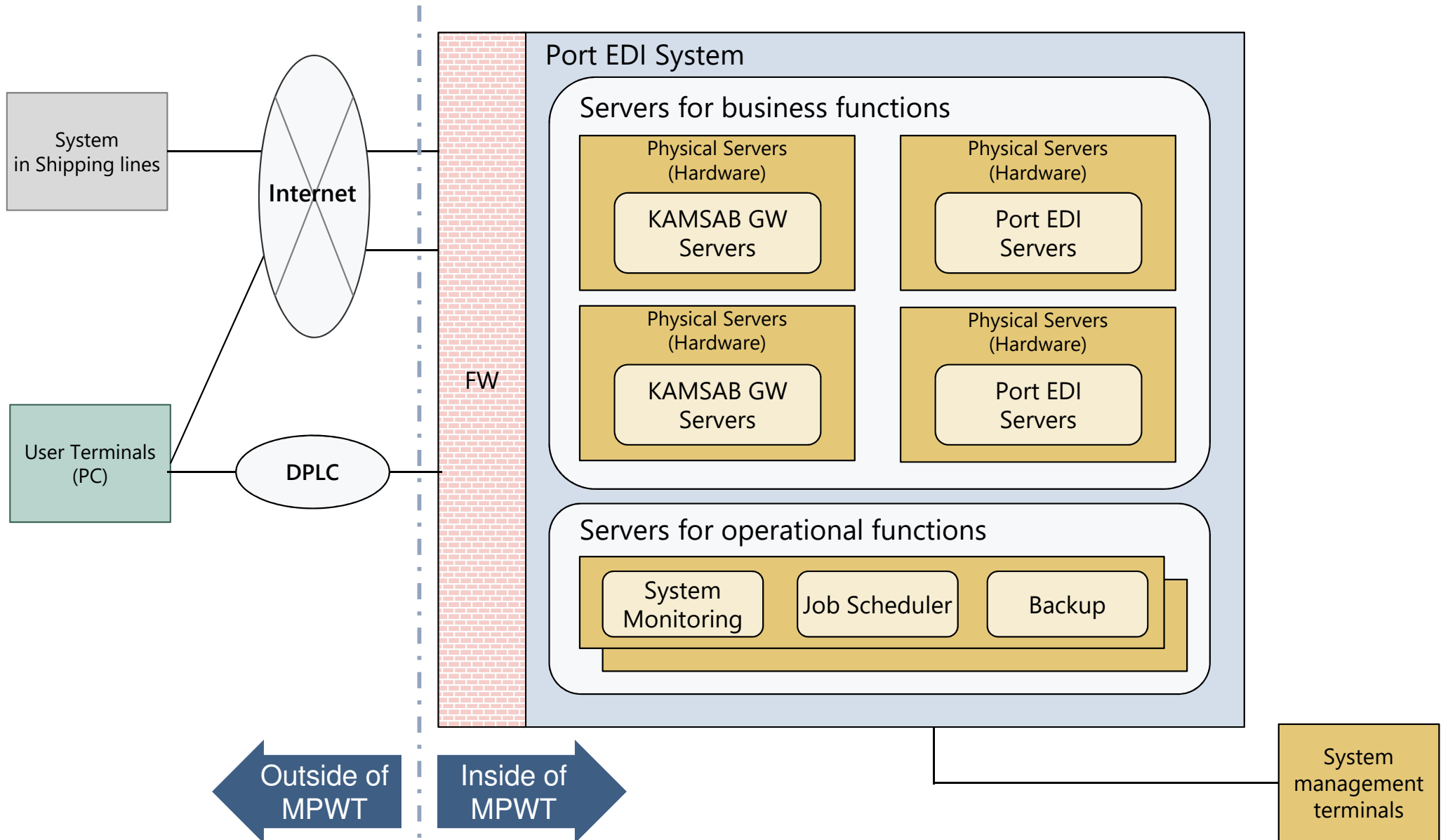
5. Operation and Maintenance (O&M)

Role and Responsibility in the operation phase

Role and Responsibility	Port EDI system	G/W system
System owner - Secure the budget to operate the system sustainably - Control the relevant organization for the system	MPWT (GDWMP)	MPWT (GDWMP)
System management - *IT Management & control* of the system	MPWT (IT Dept.)	MPWT (IT Dept.)
Operator - *Operation & Maintenance* of the system	KAMSAB	KAMSAB
User - Operate the system in accordance with their business process	PPAP PAS CIQ KAMSAB MPWT	Shipping line KAMSAB

Items of IT Management and Operation & Maintenance

1. IT Management & control
    i.   Maintain the room, electricity, air-conditioning, and etc. properly
    ii.   Security service for the server room.
    iii.   Maintain the equipment properly (Hardware, software^{*1}, application program)
    iv.   Operate the system (monitoring, turn on/off, re-boot, backup, and etc.)
    v.   Incident and issue management
    vi.   Manage the system venders (providers)
    vii.   Consider and lead the the future plan for the system

2. Operation & Maintenance
    i.   User assistance (operation support, provide training,)
    ii.   Help desk (answer for inquiries, fix the user trouble^{*2}, etc.)
    iii.   Maintain master table^{*3} in accordance with the business rule / condition change

Data entry service, data check service, handle the application data are the regular service for the KAMSAB as a "user".

*1: Software to monitor the system, OS such as windows, Database, and etc.
*2: By cooperating with MPWT & third party service provider if necessary.
*3: User master, Vessel master, and etc.

Consideration on the incomes

- In general, it takes 10 - 20% of its development cost annually as system maintenance cost, except internal labor cost and modification.

- In accordance with the idea confirmed in TFM (26 April), MPWT defined four type of income as below.

- It is necessary that the amount or portion of each revenue and the charge policy be determined after O&M cost are proposed by the survey team.

1	Government expenditure
2	Service charge (Shipping line)
3	Share the burden with relevant organization (PPAP, PAS, KAMSAB, CIQ)
4	Sponsor / Donation

Replacement of the equipment

The equipment of the system has its life-cycle. Generally, it is *about five years*.

This is because the possibility of the failure of the equipment will be increased as time passed, and production makers may not provide the spare parts.

For example,

- More than five years; Server Rack, network
- About five years; Server machines,
- Less than five years; UPS (depends on the condition)

Therefore, MPWT have to make the replacement plan and secure the budget for for the equipment including the PC terminal which delivered to users.

6. Schedule for the Development and Consultant Support

Development Schedule (preliminary idea)
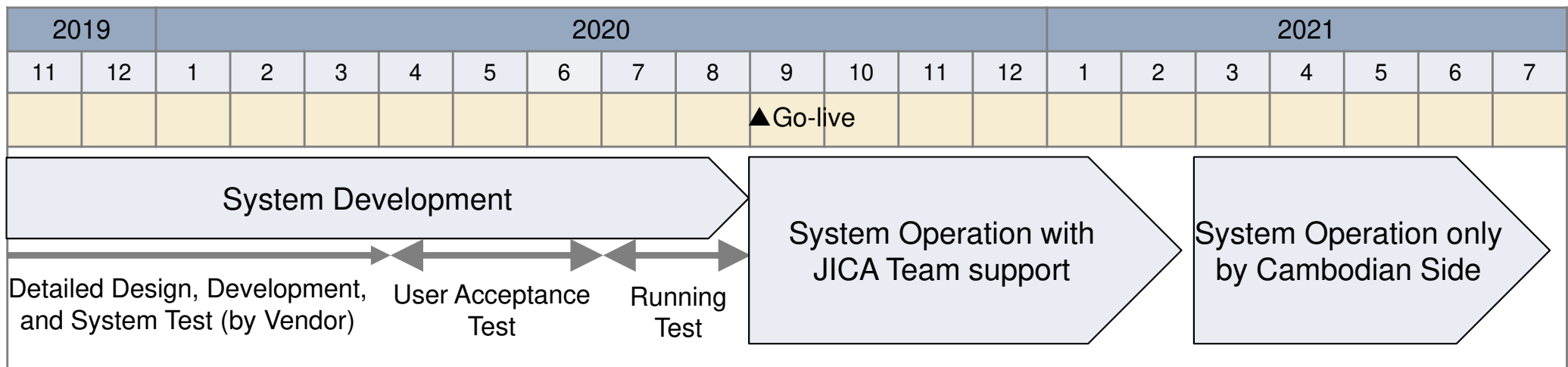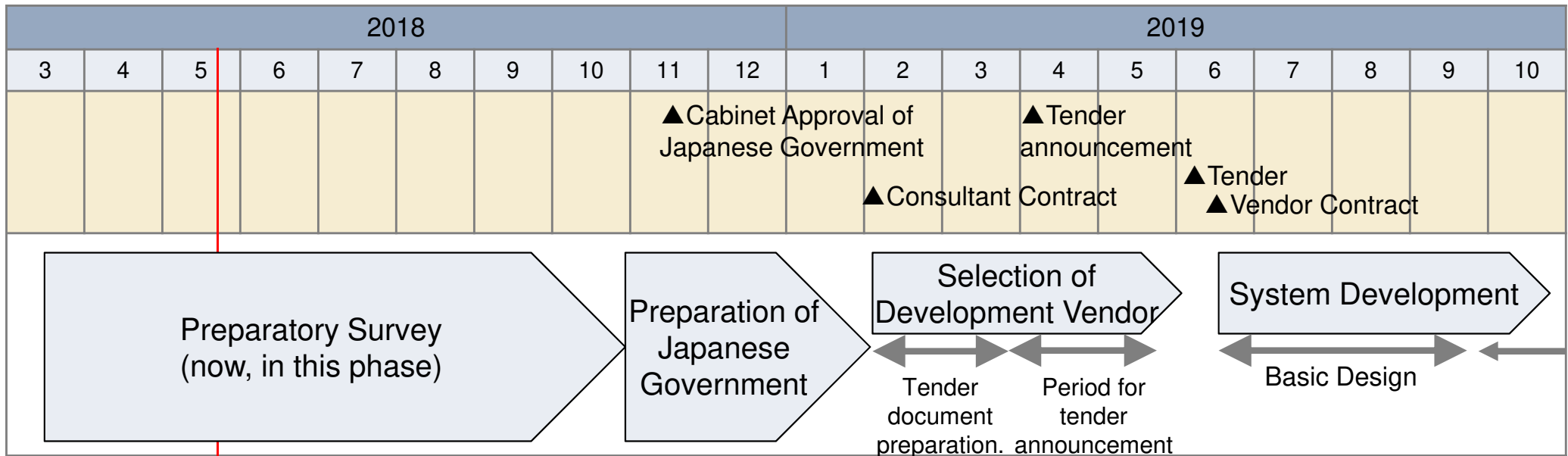
Consultant Support regarding system implementation

During the system development, it is necessary to check whether the system is developed as specified and within the time period.

Although following tasks (shown blow) are obligations of the recipient country essentially, the consultant team from JICA will support Cambodia side to implement the tasks.

Task	Contents	Period
Supervision of the development	Check the status of the development work by the vender.	Entire the development (regular basis)
System design check	Check and approve the basic design documents.	Basic design
Develop the business manual	Develop the business manual in accordance with the system operation manual.	Before UAT
User Acceptance Test	Conduct User Acceptance Test (UAT) of the system.	User Acceptance Test
Running Test	Conduct Running Test with relevant organizations	Running Test
Go-live	Deal with issues so that the operation proceeds steadily after operating the system.	System Operation

Training

To use Port EDI System and KAMSAB Gateway System smoothly, training for the relevant staff, administrator, and users are important. The survey team proposes the training course like below.

Category	Item	Trainee	Provider
Business	Port EDI concept	MPWT, Ports, CIQ, KAMSAB, Shipping line	Consultant
	New Business procedure with Port EDI	Ports, CIQ, KAMSAB	Consultant
	Manage the data of Port EDI (Statistics)	MPWT, KAMSAB, Ports	Consultant
System operation	Basic computer training	Ports, CIQ, KAMSAB	Third vendor
	Port EDI System operation (Port EDI)	Ports, CIQ, KAMSAB	Vendor
	Port EDI System operation (G/W)	KAMSAB, Shipping Line	Vendor
IT management	Policy and strategy of Port EDI operation and maintenance	KAMSAB MPWT IT)	Consultant
	Detail system handling of Port EDI system (operation and maintenance)	KAMSAB MPWT (IT)	Vendor
	Overall maintenance policy for IT Infrastructure	MPWT (IT)	Consultant
	Basic knowledge of IT Infrastructure	MPWT (IT)	Third vendor
	Detail explanation of hardware, network, and middle ware	MPWT (IT)	Vender
	Detail explanation of Port EDI KAMSAB G/W software	MPWT (IT)	Vender
	Detail explanation of equipment (UPS, electronics, others)	MPWT (IT)	Vender
	Helpdesk handling	KAMSAB	Consultant

7. Responsibility of recipient country

Responsibility of recipient country

For the development and system operation of Port EDI System, recipient country (MPWT) shall have the responsibility shown below.
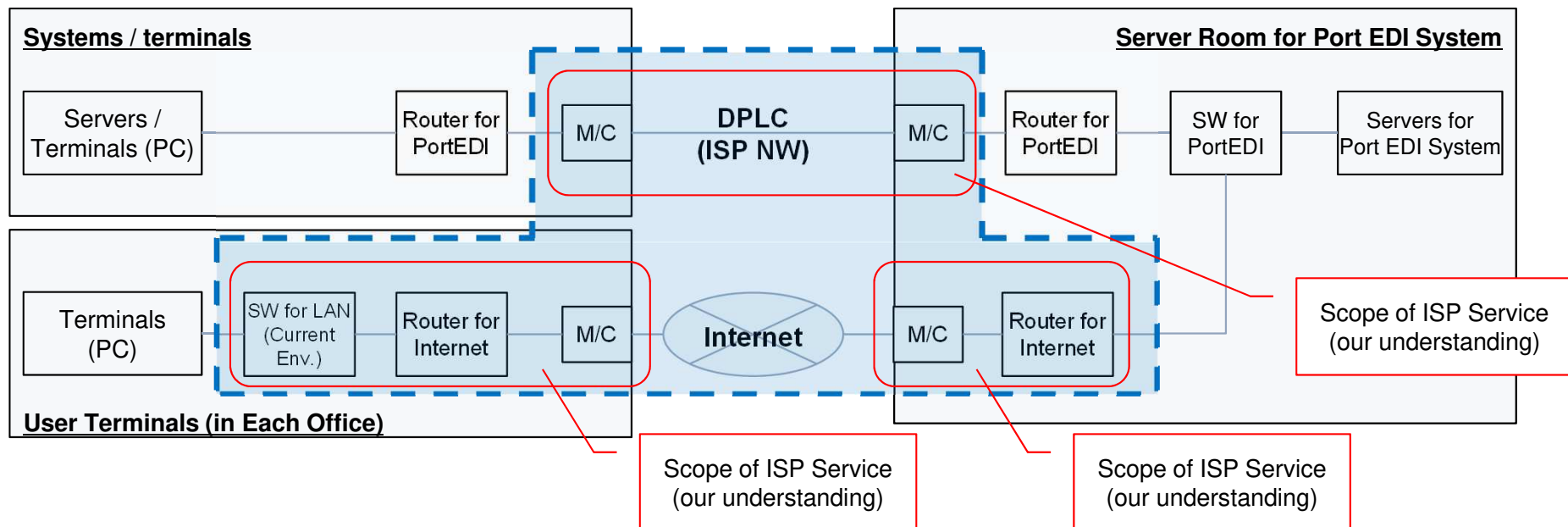
Phase	Category	Item	Remarks
Development	System review and preparation of operation	Secure the personnel structure for supervision of the development.	*please refer to "Consultant Support regarding system implementation", "Training"
		Assign the relevant members appropriately during each process (e.g., design review, manual creation, UAT, training, and go-live)	
	System Infrastructure	Secure and prepare a space for servers	*Secure physical location for the server installation
		Prepare the network	*please refer to "responsibility of the network preparation"
Operation (At the latest before Go-live)	Operation & Maintenance	Secure the human resources from the viewpoint of both skill and number of people.	Please refer the "Items of IT Management and Operation & Maintenance"
		Secure the budget for system maintenance.	

Responsibility of the network preparation

The preparation of network between the system and user locations is a responsible matter of MPWT.

To be ready for accessing the Port EDI System via networks from each location where user will access to the Port EDI System is requested to MPWT before starting the system development.

The Scope of "Preparation of network" is

MPWT should prepare the network is ready to connect with "Router for Port EDI" and "SW for Port EDI" for the development by the selected Japanese vendor.

Systems / terminals

| Servers / Terminals (PC) | Router for PortEDI | M/C | **DPLC (ISP NW)** | M/C | Router for PortEDI | SW for PortEDI | Servers for Port EDI System |

Server Room for Port EDI System

User Terminals (in Each Office)

| Terminals (PC) | SW for LAN (Current Env.) | Router for Internet | M/C | **Internet** | M/C | Router for Internet |

Scope of ISP Service (our understanding)

Scope of ISP Service (our understanding)

Scope of ISP Service (our understanding)

Secure physical location for the server installation

As mentioned in the Task Force on 26 April, the preparation of space for the installation of equipment (servers, network equipment, etc.) is the responsibility of MPWT and Cambodian side.

The preparation includes,

- To confirm the location for installation of servers. (We understand MPWT secure the space on the ground floor in the HQ of MPWT currently. However building construction is required.)

- To secure the space for 2 – 4 racks and operating space for IT staffs. (the number of racks will be confirmed based on the proposal of vendor)

- To secure the power supply and air conditioning properly for the servers. (Redundancy of power supply should be considered.)

- To be ready to install the servers in this space. (if required, construction or renovation of the room should be done by own budget, before starting the work of vendor.)

Thank you very much

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