

GENERAL DEPARTMENT OF VIET NAM CUSTOMS  
THE SOCIALIST REPUBLIC OF VIET NAM

PREPARATORY SURVEY REPORT  
ON  
THE PROJECT FOR E-CUSTOMS AND  
NATIONAL SINGLE WINDOW  
FOR CUSTOMS MODERNIZATION  
IN  
THE SOCIALIST REPUBLIC OF VIET NAM

MARCH 2012

JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)

NIPPON AUTOMATED CARGO AND PORT CONSOLIDATED  
SYSTEM, INC.

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## PREFACE

Japan International Cooperation Agency (JICA) decided to conduct the preparatory survey and entrust the survey to Nippon Automated Cargo and Port Consolidated System, Inc.

The survey team held a series of discussions with the officials concerned of the Government of the Socialist Republic of Viet Nam, and conducted field research. 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 Viet Nam for their close cooperation extended to the survey team.

March, 2012

Kyoko Kuwajima  
Director General,  
Industrial Development and  
Public Policy Department  
Japan International Cooperation Agency



## **SUMMARY**





# SUMMARY

## 1. Country Overview

The Socialist Republic of Viet Nam (hereinafter referred to as “Viet Nam”) is located in Southeast Asia with a total area of about 330,000 km<sup>2</sup>, including land area of about 310,000 km<sup>2</sup>, making it the fourth largest among 10 ASEAN countries. Viet Nam has about 4,600 km of land border, of which about 1,200 km with Cambodia, 1,300 km with China and 2,100 km with Laos respectively. Its coastline, excluding islands, is about 3,400 km. Viet Nam has a long north-south distance, and its climate is tropical in the south and monsoonal in the north with a hot rainy season (May to September) and a warm dry season (October to March).

Viet Nam comprises Kinh (Viet), about 86% of the population, and 53 minority ethnic groups. The official language in Viet Nam is Vietnamese. With regard to religion, while about 80% of population is assumed to be Buddhist, a 1999 census showed that Buddhists only comprised about 9% of the population and about 80% of the population had no religious faith.

Viet Nam has a population of about 90 million (July 2011 est.), making it the third largest among 10 ASEAN countries. With regard to age structure, those from 0 to 14 years comprise about 25%, 15 to 64 years about 69% and those 65 years and over about 6%. The most populous city is Ho Chi Minh City (about 6 million), followed by Ha Noi - the capital of Viet Nam - (about 2.7 million), Haiphong (about 1.9 million) and Da Nang (about 0.81 million) (2009). Life expectancy at birth is 72.18 years for the overall population, 69.72 years for males and 74.92 years for females (2011 est.).

In 2010, the GDP of Viet Nam was VND 1,981 trillion (about US\$ 101.5 billion) and its GDP per capita was US\$ 1,169, which are the sixth- and seventh-largest among 10 ASEAN countries, respectively. Its main industries are agriculture/forest/fisheries, mining and light industries. With regard to the composition of GDP by sector, agriculture, industry and services sectors account for about 21, 41, and 38%, respectively (2010 est.). Concerning labor force by occupation, agriculture, industry and service sectors account for about 54, 20 and 26%, respectively (2009). In 2010, the real GDP growth rate was 6.78%, inflation was 11.75% and the unemployment rate was 2.88% (4.43 and 2.27% for urban and rural areas respectively).

Viet Nam joined the World Trade Organization (WTO) in January 2007 and its trade volume in 2010 was US\$ 72.2 billion for exports and US\$ 84.8 billion for imports. The main

items traded are sewing goods, shoes, aquatic products, crude oil, etc. for export, and machinery and parts, steel, oil, cloth, etc. for import. Its main trading partners are the United States, Japan, China, Korea and Germany for exports and China, Korea, Japan, Taiwan and Thailand for imports. With regard to bilateral trade relations between Viet Nam and Japan, the ASEAN-Japan Comprehensive Economic Partnership Agreement (EPA) came into effect for Viet Nam in December 2008. Also, the Japan-Viet Nam EPA took effect in October 2009, as the first bilateral EPA for Viet Nam. Recently, Viet Nam has been participating in negotiations on the Trans-Pacific Partnership (TPP).

## 2. Background of the Project

Viet Nam has been achieving continuous economic growth since the introduction of the “Doi Moi” policy in 1986. While affected by the global economic crisis of 2008/2009, Viet Nam recorded relatively higher real GDP growth rate among South East Asian countries, 5.3 and 6.8% for 2009 and 2010 respectively. Such economic growth is partly attributable to the surge in inbound foreign direct investment (FDI) in Viet Nam since its accession to the WTO in January 2007. In proportion to the growth of inbound FDI, Vietnamese trade volume in both imports and exports has been increasing significantly, recording annual growth rates exceeding 10%. Also, South East Asian countries have been continuously striving to realize an ASEAN Community by 2015, adopting a “Master Plan on ASEAN Connectivity”, intended to enhance the physical, institutional and people-to-people linkages within the ASEAN region, on the occasion of the 17<sup>th</sup> ASEAN Summit held in Ha Noi on October 28, 2010.

Under these circumstances, Viet Nam has been robustly promoting the modernization of Customs administration to properly respond to the significant growth and advancement of the international flow of goods, and improve its investment/business environment. The Customs modernization effort includes the implementation of a national single window<sup>1</sup> by 2012, and simplification and international harmonization of Customs clearance procedures. While there have been various plans for Customs modernization to date, the Customs Development Strategy up to 2020 (No. 448/QD-TTg), which was decided by the Prime Minister on March 25, 2011, based on a proposal from the Minister of Finance, sets out the overall goal of establishing a modern Customs administration equivalent to that of advanced countries within ASEAN, which, by utilizing IT technologies, broadly applies risk assessment methods and realizes transparent and simple Customs procedures compatible with international practices.

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<sup>1</sup> The national single window means a system that enables some procedures required for export/import in a country, such as Customs clearance and quarantine, to be carried out by inputting and transmitting the necessary data just once.

Under this Strategy, the General Department of Viet Nam Customs (hereinafter referred to as “GDVC”) has been striving to modernize the Customs administration through a review of the legal/institutional system and the introduction of an IT system which corresponds to the legal/institutional system after review. While the Customs Modernization project sponsored by the World Bank started in 2005 to establish an IT system, it ended before its original project period expired, without achieving its expected goal, due to significantly delayed activities. Currently, the GDVC has been utilizing a self-developed IT system for Customs clearance procedures. Accordingly, there is an urgent need for the GDVC to establish a comprehensive IT system for Customs clearance procedures, which is equipped with a national single window function.

Against this background, the GDVC has appreciated the technical advantages of the Nippon Automated Cargo and Port Consolidated System (hereinafter referred to as “NACCS”) and the Customs Intelligence Database System (hereinafter referred to as “CIS”), which have been used in Japan, and has requested Japan’s Grant Aid to establish an IT system for Customs clearance procedures, with NACCS/CIS technology, in Viet Nam (hereinafter referred to as “VNACCS/VCIS” ).

This is a project which will help realize the concept of an “Asia Cargo Highway” by facilitating trade, which is strongly supported by the Government of Japan (hereinafter referred to as “GOJ”). The Project is considered eligible for financing from Japan’s Grant Aid budget for “Support for the Improvement of Foundation for the Overseas Deployment of Infrastructure”, which, under the New Growth Strategy promoted by the GOJ, is intended to implement projects jointly proposed by Japan’s government and private sectors in developing countries and aims to contribute to the development of recipient countries as well as Japan’s growth strategy.

### 3. Outline of the Results of the Preparatory Survey and the Contents of the Project

In October 2011, the Japan International Cooperation Agency (hereinafter referred to as “JICA”) sent a survey team for the Project for E-Customs and National Single Window for Customs Modernization in Viet Nam. The team conducted a preparatory survey, including consultations with government officials in Viet Nam and confirmed the main contents of request for Japan’s Grant Aid as below:

(1) VNACCS/VCIS Software Development
1) e-Declaration: This module will help a customs administration and stakeholders related to cross-border transactions (e.g., import, export and transit) to conduct and fulfill relevant laws, regulations and procedures for customs clearance and release. This module is also helpful to connect Viet Nam's NSW with ASEAN Single Window.
2) e-Manifest: This module will help a customs administration and stakeholders related to international transport to conduct and fulfill relevant laws, regulations and procedures for customs clearance and release.
3) e-Invoice: This module will help stakeholders related to cross-border transactions to utilize electronic commercial invoice for customs clearance and release.
4) Selectivity: This module will help a customs administration to make decisions on customs examination (e.g., immediate release/ document check and physical examination) based on risk profile/risk criteria.
5) e-Payment: This module will help a customs administration and stakeholders related to cross-border transactions to utilize electronic payment of relevant taxes and duties. It also helps a customs administration to manage and control the payment of customs taxes and duties.
6) e-C/O: This module will help a customs administration and stakeholders related to cross-border transactions to utilize electronic Certificate of Origin.
7) Importer/exporter management: This module will help a customs administration to manage importers/exporters/customs brokers and users of the systems nationwide.
8) Customs Clearance and Release: This module will help a customs administration to make decisions on customs clearance and release.
9) Supervision and Control: This module will help system administrators and authorized persons to supervise and control the utilization and accession in the system.
10) Operation of system tests/acceptance tests, content of training courses for system users in the customs administration, and content of technical support and system maintenance.
(2) VNACCS/VCIS Hardware Development
Procurement of hardware, operating system, middleware and other related equipment, which are necessary for properly operating software mentioned above.

In this Project, the GDVC has prepared a Brief Design of the Project on E-Customs and National Single Window for Customs Modernization in Viet Nam (hereinafter referred to as “B/D”) with cooperative assistance from the Customs and Tariff Bureau of Ministry of Finance, Japan (hereinafter referred to as “CTB”), which is in charge of Customs administration in Japan, including research, planning and coordination on electronic data processing of Customs matters. In preparing the B/D, the GDVC has received detailed guidance/advice from the CTB, which reflects the features and design structures of NACCS/CIS in Japan as well as the current state of Vietnamese Customs administration. As a result, the B/D clearly states that the introduction of VNACCS/VCIS aims at modernizing the Customs administration in Viet Nam by adopting not only a Japanese IT system for Customs clearance procedures, comprising NACCS/CIS, but also the bases of such IT system, including a legal system in Japan where appropriate. The B/D also defines the system development requirements, clarifying the functions to be incorporated in software, and shows the system design, including the design of services with their lists and flow, design of the online and batch processing methods, reliability design and performance design, based on the definition of requirements. As such, the B/D covers the basic design of VNACCS/VCIS, which is considered appropriate.

Therefore, as part of work to prepare the following designs for VNACCS/VCIS to be introduced by this Project, the contents of the B/D are to be utilized to the applicable extent.

Design of Services	Reliability Design	Operation Design
Design of the Online Processing Method	Performance Design	Maintenance Design
Design of the Batch Processing Method	Network Design	Safety Design
Design of External Interface	Security Design	Terminal Design

Software for VNACCS/VCIS is developed on the basis of NACCS/CIS software in Japan. Accordingly, in principle, the equipment for VNACCS/VCIS, including hardware, OS and middleware, required to operate such software must be at least equivalent to the products used in NACCS/CIS, i.e. those proved as operating normally with NACCS/CIS software, to ensure the system quality, including performance, security and safety.

With regard to software development for this Project, procurement by direct contracting with the vendor who has developed the current version of NACCS/CIS in Japan, i.e. a single-source method to select a contractor, is considered reasonable based on technical considerations regarding the following: peculiarity of output of this Project, VNACCS/VCIS, which is a new IT system for Customs clearance procedures in Viet Nam to be developed with Japanese NACCS/CIS technology; the limited time frame for its completion; and economic

rationality from the perspective of the total cost of implementing this Project. Based on the above considerations, a request from Viet Nam for direct contracting, i.e. a single-source method to select a contractor, and the fact that only one vendor having developed NACCS/CIS in Japan exists, were also taken into account. It is considered that the relevant provisions of the Procurement Guidelines of the Japanese Grant Aid (Type I-G), which allow direct contracting, are applicable to this case.

#### 4. Schedule and Cost Estimation of the Project

##### (1) Schedule

When this Project is implemented under the Japan's Grant Aid scheme, the procurement of equipment for VNACCS/VCIS is carried out by a supplier after work on the implementation design, which includes finalization of the specifications and services relating to tender, by a consultant. Also, partly alongside such implementation design work, a software development vendor develops VNACCS/VCIS software after concluding a direct contract.

For the work on the implementation design and the equipment procurement, including their installation and test run, 5 and 19 months will be respectively required. Also, for the software development, where this is done by the current development vendor of NACCS/CIS by direct contracting, it will take 2 months to define the requirements / external design, 4 months for the internal design, 5 months for production, 6 months for tests (integration and program tests), and just under 5 months for running tests. In total, the software development will take 22 months. Since part of the work on the implementation design, equipment procurement, and software development will be performed simultaneously, the total duration for the Project will be 24 months.

##### (2) Cost Estimation

The estimated initial cost of this Project to be borne by the Vietnamese side is about VND 126 billion (about JPY 479 million).

The annual cost of operating/maintaining VNACCS/VCIS, which shall be borne by the Vietnamese side, is estimated at about VND 105 billion (about JPY 399 million). In view of the estimated GDVC budget for Customs IT expenses in future and GDVC's commitment to secure the required budget, such cost can be financed by the GDVC.

## 5. Project Evaluation

### (1) Relevance

Viet Nam, which joined the WTO in January 2007, is implementing an open economic policy and targeting economic growth through the expansion of international trade. As for economic relations between Viet Nam and Japan, the Japan-ASEAN Comprehensive Economic Partnership Agreement (EPA) entered into force for Viet Nam in December 2008 and the bilateral EPA also became effective in October 2009. Also, South East Asian countries, including Viet Nam have been continuously striving to realize an ASEAN Community by 2015, adopting a “Master Plan on ASEAN Connectivity”, intended to enhance the physical, institutional and people-to-people linkages within the ASEAN region, on the occasion of the 17<sup>th</sup> ASEAN Summit held in Ha Noi on October 28, 2010. Furthermore, ASEAN countries share the concept of the “Asia Cargo Highway” with Japan as a common goal to facilitate trade. Under these circumstances, to avoid Customs clearance procedures becoming a hindrance to economic growth, the modernization of Customs administration has been implemented by reviewing the legal system relating to Customs clearance and the business process of Customs as well as the introduction of an IT system on the basis of the Customs Development Strategy up to 2020 (Prime Minister’s Decision on March 25, 2011).

This Project shall establish VNACCS/VCIS, which is a convenient and efficient IT system for Customs clearance procedures based on Japanese NACCS/CIS technology. It is considered a central part of efforts to modernize Vietnamese Customs and is expected to play a relatively important role in expanding trade and growing the economy through more expeditious Customs procedures. Accordingly, the Project is beneficial, not only to Customs and private companies directly engaged in international trade, but also to the general public as a whole, including the poor.

### (2) Effectiveness

The implementation of this Project means that VNACCS/VCIS, which is a convenient and efficient IT system for Customs clearance procedures based on NACCS/CIS technology, will be introduced in Viet Nam. Accordingly, the use of automated Customs clearance procedures shall be promoted and Customs clearance procedures expedited in Viet Nam. Also, together with a decrease in the scope for arbitrary treatment by individual Customs officials, the efficiency of Customs clearance procedures in general shall be improved in Viet Nam.

Among these benefits, the effect of expediting Customs clearance procedures can be quantitatively measured by surveying the time normally required for the same.

As for the improving the efficiency of Customs clearance procedures, it is basically to be measured qualitatively since it largely depends on subjective evaluation by private users. However, the Logistics Performance Index (LPI), biennially released by the World Bank, shows an index regarding the efficiency of the clearance process (i.e. speed, simplicity and predictability of formalities) by border control agencies, including Customs. Accordingly, improvements in Customs clearance efficiency can be quantitatively measured by using such index for reference.



# CONTENTS

Preface	
Summary	
Contents	
Location Map / Perspective	
List of Figures & Tables	
Abbreviations	

## **Chapter 1 Background of the Project**

1-1 Background of Japan's Grant Aid	1-1
1-2 Natural Conditions	1-2
1-3 Environmental and Social Considerations	1-3

## **Chapter 2 Contents of the Project**

2-1 Basic Concept of the Project	2-1
2-2 Outline Design of the Japanese Assistance	2-2
2-2-1 Design Policy	2-2
2-2-2 Basic Plan	2-8
2-2-3 Outline Design Drawing	2-62
2-2-4 Implementation Plan	2-74
2-2-4-1 Implementation Policy	2-74
2-2-4-2 Implementation Conditions	2-75
2-2-4-3 Scope of Works	2-75
2-2-4-4 Consultant Supervision	2-78
2-2-4-5 Quality Control Plan	2-79
2-2-4-6 Procurement Plan	2-79
2-2-4-7 Operational Guidance Plan	2-80
2-2-4-8 Soft Component Plan	2-80
2-2-4-9 Implementation Schedule	2-82
2-3 Obligations of Recipient Country	2-84
2-4 Project Operation Plan	2-86
2-5 Project Cost Estimation	2-91
2-5-1 Initial Cost Estimation	2-91
2-5-2 Operation and Maintenance Cost Estimation	2-91

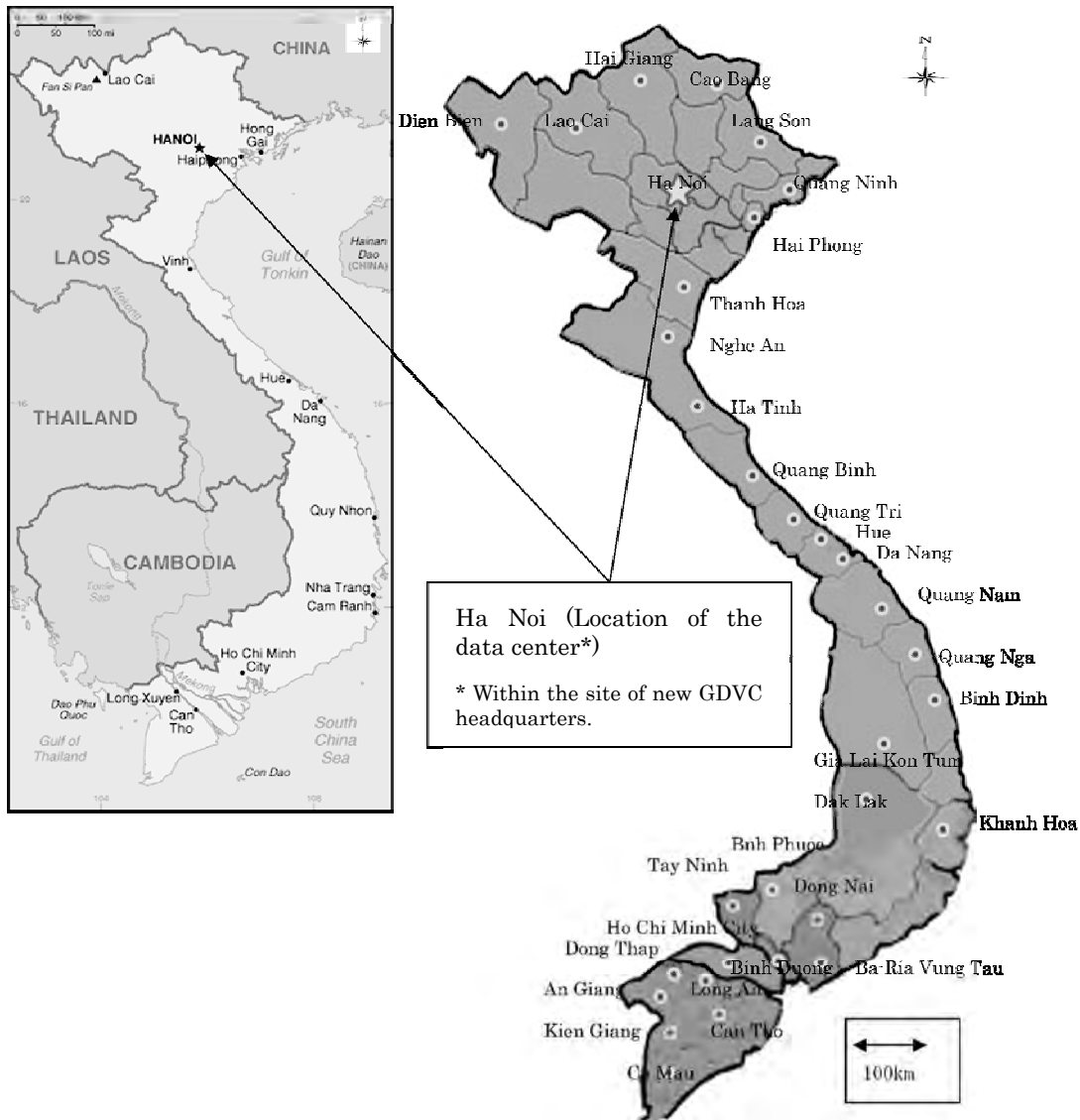
### **Chapter 3 Project Evaluation**

3-1 Preconditions	3-1
3-2 Necessary Inputs by Recipient Country	3-1
3-3 Important Assumptions	3-1
3-4 Project Evaluation	3-2
3-4-1 Relevance	3-2
3-4-2 Effectiveness	3-3
3-4-3 Conclusion	3-5

### **[Appendices]**

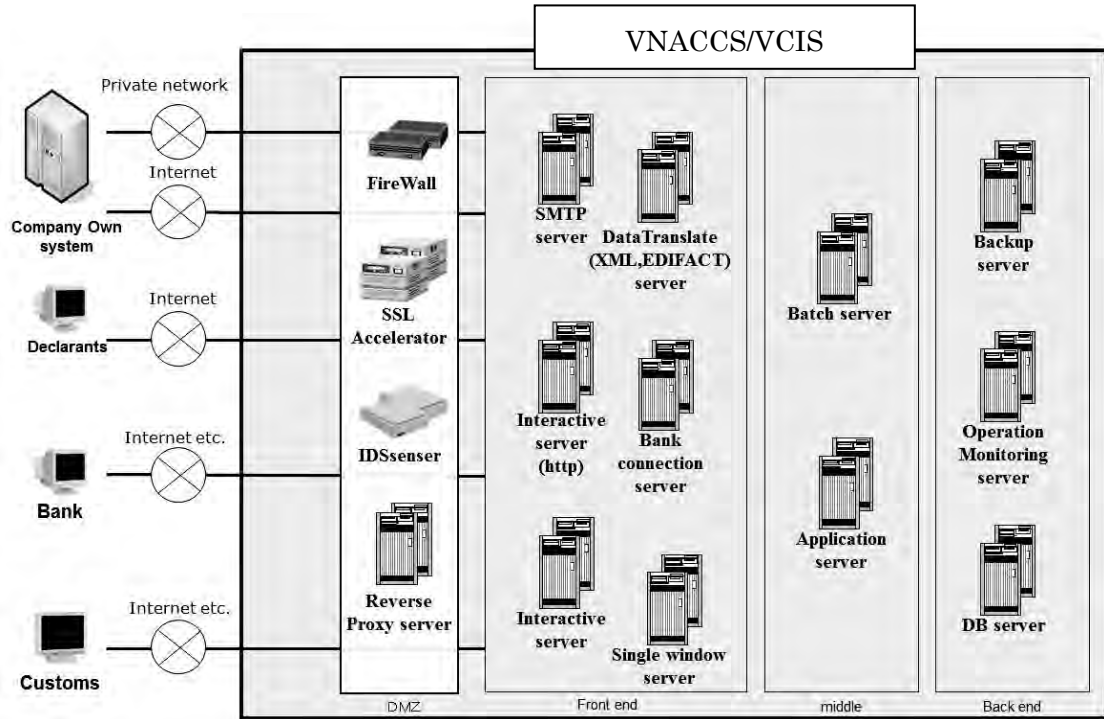
1. Member List of the Survey Team	A1-1
2. Survey Schedule	A2-1
3. List of Parties Concerned in the Recipient Country	A3-1
4. Minutes of Discussions	A4-1
5. References	A5-1

## LOCATION MAP



Note: VNACCS/VCIS is to be introduced to GDVC headquarters in Ha Noi, Provincial/Inter-Provincial/City Customs Departments and Customs Branches. (The above figure only shows locations of GDVC headquarters and Provincial/Inter-Provincial/City Customs Departments.)

# PERSPECTIVE



System Layout (Logical Layout)

# LIST OF FIGURES & TABLES

<u>No.</u>	<u>Title</u>	<u>Page</u>
Chapter 1		
Chapter 2		
Table 2-1	Main Features of the Project	2-1
Table 2-2	Real GDP Growth Rates and International Trade in Viet Nam	2-4
Figure 2-1	Design Concept of the Service Function	2-9
Figure 2-2	Image of Interface with Other Systems	2-10
Table 2-3	List of VNACCS Online Services	2-11
Table 2-4	List of VNACCS Batch Services	2-25
Table 2-5	List of VCIS Online Services	2-25
Table 2-6	List of VCIS Batch Services	2-25
Table 2-7	List of System Processing Methods	2-27
Table 2-8	Compatibility with Message Formats by the Connection Method	2-28
Table 2-9	Reliability Requirements to be Ensured for the System Level	2-32
Table 2-10	Redundant Configurations of Each Server	2-33
Table 2-11	Performance Requirements to be Ensured	2-35
Table 2-12	Assumed Annual Traffic	2-36
Table 2-13	Assumed Peak Traffic	2-36
Table 2-14	Assumed Peak Traffic (by Protocol Conversion Node)	2-37
Table 2-15	Data Size	2-37
Table 2-16	Main Features Implemented for the Data Center Network	2-39
Table 2-17	List of the Major Communication Protocols to be Used	2-40
Table 2-18	Policies against Threats	2-41
Table 2-19	Information Asset Analysis and Policies	2-42
Table 2-20	Basic Security Policies	2-43
Table 2-21	List of the Major Control Functions of the Backup Server	2-48
Table 2-22	List of Hardware, OS and Middleware	2-50
Figure 2-3	System Layout	2-62
Figure 2-4	System Overview	2-63
Figure 2-5	Front End Servers (1/3)	2-64
Figure 2-6	Front End Servers (2/3)	2-65
Figure 2-7	Front End Servers (3/3)	2-66
Figure 2-8	Application Servers	2-67
Figure 2-9	Database Servers	2-68
Figure 2-10	System Operation Servers	2-69
Figure 2-11	Assistant Servers	2-70

<u>No.</u>	<u>Title</u>	<u>Page</u>
Figure 2-12	System Operation Monitoring Terminal	2-71
Figure 2-13	Client Software and B2B/G2G Messaging	2-72
Figure 2-14	Overview of the Network Layout	2-73
Table 2-23	Work to be Conducted by Viet Nam Customs and Deadlines	2-76
Table 2-24	Implementation Schedule for Works to be borne by Japan's Grant Aid	2-83
Figure 2-15	Envisaged Operation Structure	2-87
Table 2-25	Envisaged Roles and Responsibilities for Operation	2-88
Figure 2-16	Envisaged Maintenance Structure	2-90
 Chapter 3		
Table 3-1	Quantitative Indicators of Effects	3-3
Table 3-2	Qualitative Indicator of Effects (Reference Indicator)	3-4

## ABBREVIATIONS

ADB	Asian Development Bank
APEC	Asia Pacific Economic Cooperation
ASEAN	Association of Southeast Asian Nations
B/D	Brief Design of the Project on E-Customs and National Single Window for Customs Modernization in Viet Nam
CIS	Customs Intelligence Database System
CPU	Central Processing Unit
C/S	Client/Server
CSF	Center Setup File
CTB	Customs and Tariff Bureau, Ministry of Finance, Japan
DAT	Digital Audio Tape
DMZ	DeMilitarized Zone
EDI	Electronic Data Interchange
EDIFACT	Electronic Data Interchange For Administration, Commerce and Transport
E/N	Exchange of Notes
EPA	Economic Partnership Agreement
EU	European Union
EVM	Earned Value Management
FDI	Foreign Direct Investment
GDP	Gross Domestic Product
GDVC	General Department of Viet Nam Customs
GOJ	Government of Japan
HS	Harmonized Commodity Description and Coding System
HTTP	HyperText Transfer Protocol
ICMP	Internet Control Message Protocol
IDS	Intrusion Detection System
IMF	International Monetary Fund
IT	Information Technology
JICA	Japan International Cooperation Agency
JPY	Japanese Yen
LAN	Local Area Network
LPI	Logistics Performance Index
MIME	Multipurpose Internet Mail Extension
NACCS	Nippon Automated Cargo and Port Consolidated System

NAS	Network Attached Storage
NTP	Network Time Protocol
OS	Operating System
PKI	Public Key Infrastructure
POP3	Post Office Protocol version 3
P.P.	Program Product
RAID	Redundant Array of Inexpensive Disks
SMTP	Simple Mail Transfer Protocol
SNMP	Simple Network Management Protocol
SQL	Structured Query Language
SSL	Secure Socket Layer
TCP/IP	Transmission Control Protocol / Internet Protocol
TPP	Trans-Pacific Partnership
UPS	Uninterruptible Power Supply
US\$	US dollar
VCIS	Vietnamese CIS
VNACCS	Vietnamese NACCS
VND	Vietnamese Dong
VPN	Virtual Private Network
WAN	Wide Area Network
WCO	World Customs Organization
WTO	World Trade Organization
XML	eXtensible Markup Language



# **Chapter 1 Background of the Project**



## Chapter 1 Background of the Project

### 1-1 Background of Japan's Grant Aid

The Socialist Republic of Viet Nam (hereinafter referred as “Viet Nam”) has been achieving continuous economic growth since the introduction of the “Doi Moi” policy in 1986. While affected by the global economic crisis of 2008/2009, Viet Nam recorded relatively higher real GDP growth rate among South East Asian countries, 5.3 and 6.8% for 2009 and 2010 respectively. Such economic growth is partly attributable to a surge of inbound foreign direct investment (FDI) in Viet Nam since its accession to the WTO in January 2007. In proportion to the growth of inbound FDI, Vietnamese trade volume for both imports and exports has been increasing significantly, recording annual growth rates exceeding 10%. Also, South East Asian countries have been continuously striving to realize an ASEAN Community by 2015, adopting a “Master Plan on ASEAN Connectivity”, intended to enhance the physical, institutional and people-to-people linkages within the ASEAN region, on the occasion of the 17<sup>th</sup> ASEAN Summit held in Ha Noi on October 28, 2010.

With regard to the promotion of regional cooperation and integration by facilitating and expediting the cross-border movement of goods, the Government of Japan (hereinafter referred to as “GOJ”) shares its concept of the “Asia Cargo Highway” with Asian countries, which targets a seamless flow of goods between Asia and Japan, as a common goal to facilitate trade. The GOJ has been implementing various measures with a view to realizing such concept. In 2010 Japan expressed a measure to facilitate trade within the region, which shall be implemented through the Asian Development Bank (ADB) and worth about US\$ 25 million, on the occasions of the Japan-ASEAN Summit Meeting and APEC Finance Ministers’ Meeting. Also, the Customs and Tariff Bureau of the Ministry of Finance of Japan (hereinafter referred to as “CTB”), the ADB, the World Customs Organization (WCO) and the Japan International Cooperation Agency (hereinafter referred to as “JICA”), as a team, have been preparing cooperation matrices by recipient countries and promoting cooperative support, depending on challenges, to achieve improved connectivity through further trade facilitation in Asia.

Under these circumstances, Viet Nam has been robustly promoting the modernization of Customs administration to properly respond to the significant growth and advancement of the international flow of goods, and improve its investment/business environment. The Customs

modernization effort includes the implementation of a national single window<sup>1</sup> by 2012, and simplification and international harmonization of Customs clearance procedures.

With a view to solving the above-mentioned issues, the General Department of Viet Nam Customs (hereinafter referred to as “GDVC”) has been implementing an improved legal/institutional system and developing human resources on the basis of the “Customs Modernization Strategy”. The establishment of a comprehensive IT system for Customs clearance procedures has been set as an important strategy. While the Customs Modernization project sponsored by the World Bank started in 2005 for the establishment of an IT system, it ended prematurely, without achieving its expected goal, due to a significant delay of activities. Currently, the GDVC has been utilizing an in-house Customs clearance system. The GDVC urgently needs to establish a comprehensive IT system for Customs clearance, equipped with a national single window function.

Against this background, the GDVC has appreciated the technical advantages of the Nippon Automated Cargo and Port Consolidated System (hereinafter referred to as “NACCS”) and the Customs Intelligence Database System (hereinafter referred to as “CIS”), which have been used in Japan, and has requested Japan’s Grant Aid to establish an IT system for Customs clearance procedures, with NACCS/CIS technology, in Viet Nam (hereinafter referred to as “VNACCS/VCIS”).

This is a project which will help realize the concept of the “Asia Cargo Highway” by facilitating trade, which is strongly supported by the GOJ. The Project is also considered eligible for financing from Japan’s Grant Aid budget for “Support for the Improvement of Foundation for the Overseas Deployment of Infrastructure”, which, under the New Growth Strategy promoted by the GOJ, is intended to implement projects jointly proposed by Japan’s government and private sectors in developing countries and to help develop recipient countries as well as Japan’s own growth strategy.

## **1-2 Natural Conditions**

This Project is for the development and introduction of an IT system. As such, no natural conditions, which may affect the design and implementation of the Project, are envisaged.

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<sup>1</sup> The national single window means a system that enables some procedures required for export/import in a country, such as Customs clearance and quarantine, to be carried out by inputting and transmitting the necessary data just once.

With regard to a data center, which shall be established by the recipient country, it is being constructed under the approval of the Government of Viet Nam and its construction site is not expected to be affected by natural conditions. The data center has been constructed in the same site as a new headquarters building of the GDVC, which is located in a newly developed area of Ha Noi (Yen Hoa Quarter, Cau Giay District). According to the GDVC, the site has not suffered from any natural disasters, such as earthquakes and flooding, previously. Also, the data center will be a five-story building and the server rooms will be on the third to fifth floors. While control of temperature and humidity in the data center is important in Ha Noi, which is hot and humid, there will be an air-conditioning system operating 24 hours / 365 days, which can keep the temperature and humidity to about 22°C and 50% respectively.

### **1-3 Environmental and Social Considerations**

This Project is to develop and introduce an IT system, which has minimal adverse impact on the environment and society. It is classified as Category C under JICA's Guidelines for Environmental and Social Considerations (April 2010).



## **Chapter 2 Contents of the Project**





## Chapter 2 Contents of the Project

### 2-1 Basic Concept of the Project

#### (1) Overall Goal of and Purpose of the Project

The overall goal of this Project shall realize faster Customs clearance procedures and proper enforcement by Customs in Viet Nam. The purpose of this Project shall achieve Customs modernization, including the introduction of a national single window, by establishing VNACCS/VCIS, which is an IT system for Customs clearance procedures with NACCS/CIS technology, in Viet Nam.

#### (2) Outline of the Project

This Project is intended to develop software for electronic Customs clearance procedures and a national single window with NACCS technology, and software for Customs intelligence system, with basic functions supporting the Customs clearance purpose of CIS technology to achieve the above-mentioned goal and purpose. Through this Project it is expected that VNACCS/VCIS, which is an IT system for Customs clearance procedures using NACCS/CIS technology, will be established and an equipment environment for the operation of VNACCS/VCIS prepared in Viet Nam. The main features of this Project are summarized in Table 2-1.

Table 2-1 Main Features of the Project

(1) VNACCS/VCIS Software Development
1) e-Declaration: This module will help a customs administration and stakeholders related to cross-border transactions (e.g., import, export and transit) to conduct and fulfill relevant laws, regulations and procedures for customs clearance and release. This module is also helpful to connect Viet Nam's NSW with ASEAN Single Window.
2) e-Manifest: This module will help a customs administration and stakeholders related to international transport to conduct and fulfill relevant laws, regulations and procedures for customs clearance and release.
3) e-Invoice: This module will help stakeholders related to cross-border transactions to utilize electronic commercial invoice for customs clearance and release.
4) Selectivity: This module will help a customs administration to make decisions on customs examination (e.g., immediate release/ document check and physical examination) based on risk profile/risk criteria.

5) e-Payment: This module will help a customs administration and stakeholders related to cross-border transactions to utilize electronic payment of relevant taxes and duties. It also helps a customs administration to manage and control the payment of customs taxes and duties.
6) e-C/O: This module will help a customs administration and stakeholders related to cross-border transactions to utilize electronic Certificate of Origin.
7) Importer/exporter management: This module will help a customs administration to manage importers/exporters/customs brokers and users of the systems nationwide.
8) Customs Clearance and Release: This module will help a customs administration to make decisions on customs clearance and release.
9) Supervision and Control: This module will help system administrators and authorized persons to supervise and control the utilization and accession in the system.
10) Operation of system tests/acceptance tests, content of training courses for system users in the customs administration, and content of technical support and system maintenance.
(2) VNACCS/VCIS Hardware Development
Procurement of hardware, operating system, middleware and other related equipment, which are necessary for properly operating software mentioned above.

With a view to ensuring the sustainability of VNACCS/VCIS, its copyright, where appropriate, will be transferred based on further consideration among the parties concerned.

## **2-2 Outline Design of the Japanese Assistance**

### **2-2-1 Design Policy**

#### **(1) Basic Policy**

In this Project, the GDVC has prepared a Brief Design of the Project on E-Customs and National Single Window for Customs Modernization in Viet Nam (hereinafter referred to as “B/D”) with cooperative assistance from the CTB, which is in charge of Customs administration in Japan, including research, planning and coordination on electronic data processing of Customs matters. In preparing the B/D, the GDVC has received detailed guidance/advice from the CTB, which reflects the features and design structures of NACCS/CIS in Japan as well as the current state of Vietnamese Customs administration. As a result, the B/D clearly states that the introduction of VNACCS/VCIS aims to modernize the Customs administration in Viet Nam by adopting not only a Japanese IT system for Customs clearance procedures comprising

NACCS/CIS but also the bases of such IT system, including a legal system in Japan where appropriate. The B/D also defines system development requirements, clarifying the functions to be incorporated in software, and shows a system design, including the design of services with their lists and flow, design of online and batch processing methods, reliability design and performance design, based on the definition of requirements. As such, the B/D covers a basic design of VNACCS/VCIS, which is considered appropriate.

Therefore, in view of its appropriateness, as a policy of designing this Project, the contents of the B/D are to be utilized to the applicable extent.

## **(2) Policy on Natural and Environmental Conditions**

This Project is to develop and introduce an IT system, which has minimal adverse impact on the environment and society.

With regard to the data center to be established by the recipient country, it has been reported that its construction site has not suffered from any natural disasters, such as earthquakes and flooding, previously. Also, the data center will be a five-story building and the server rooms will be on the third to fifth floors. While control of temperature and humidity in the data center is important in Ha Noi, which is hot and humid, there will be an air-conditioning system operating 24 hours / 365 days, which can keep the temperature and humidity at about 22°C and 50% respectively.

## **(3) Policy on Socioeconomic Conditions**

As shown in Table 2-2, while the Vietnamese economy has been growing continuously, the number of Customs declarations has been increasing significantly for both exports and imports in recent years and is expected to increase at a pace exceeding GDP growth rate in future. Accordingly, it should be ensured that the requirements and specifications for VNACCS/VCIS are determined to be capable of dealing with a future increase in the number of Customs declarations for both export and import.

Table 2-2 Real GDP Growth Rates and International Trade in Viet Nam

Year	Real GDP Growth Rate (%)	Export				Import			
		Value (million US\$)	Growth Rate (%)	Number of Customs Declarations (thousands)	Growth Rate (%)	Value (million US\$)	Growth Rate (%)	Number of Customs Declarations (thousands)	Growth Rate (%)
2006	8.2	39,826	-	1,124	19.8	45,015	-	1,195	19.3
2007	8.5	48,561	21.9	1,385	23.2	62,682	39.2	1,356	13.5
2008	6.3	62,685	29.1	1,560	12.6	80,714	28.8	1,723	27.1
2009	5.3	57,096	-8.9	1,620	3.8	69,949	-13.3	1,892	9.8
2010	6.8	72,192	26.4	2,007	23.9	84,801	21.2	2,157	14.0
2011	5.8	-	-	2,159	7.6	-	-	2,356	9.2
2012	6.3	-	-	2,353	9.0	-	-	2,574	9.3
2013	6.8	-	-	2,607	10.8	-	-	2,806	9.0
2014	7.2	-	-	2,780	6.6	-	-	3,014	7.4

Note: Numbers in *Italic* are estimates.

Sources: IMF (Real GDP Growth Rates), WTO (Trade in values), GDVC (Number of Customs Declarations)

#### (4) Policy on Procurement

With regard to software development, procurement from a vendor who has developed the current version of NACCS/CIS is reasonable based on technical considerations regarding the following: peculiarity of output of this Project, VNACCS/VCIS, which is a new IT system for Customs clearance procedures in Viet Nam to be developed with Japanese NACCS/CIS technology; the limited time frame for the completion of the output; and economic rationality from the perspective of the total cost of implementing this Project. In the above considerations, a request from Viet Nam for direct contracting, i.e. a single-source method to select a contractor to conduct software development, and a fact that only one vendor having developed NACCS/CIS in Japan exists, were also taken into account.

Also, since the following provisions of the Procurement Guidelines of the Japanese Grant Aid (Type I-G) (hereinafter referred to as “Procurement Guidelines”) are considered applicable to this case, direct contracting with such vendor is an appropriate method of procurement.

*The Procurement Guidelines of the Japanese Grant Aid (Type I-G) [excerpt]*

\*\*\* \*\*

*PART III Guidelines for Procurement of the Products and Services*

\*\*\* \*\*

*III-2 Procurement Procedures*

*III-2-1 Procurement*

\*\*\* \*\*

*(2) Procurement Procedures other than Competitive Tendering*

*Alternative procedures can be used with the prior consent of JICA, when particular circumstances render competitive tendering inappropriate. These alternatives can be used under the following circumstances:*

\*\*\* \*\*

*3) where the number of qualified suppliers or contractors is extremely limited;*

\*\*\* \*\*

*In the above-mentioned cases, the following procurement procedures may, as appropriate, be used provided that such use is in a manner that complies with the Competitive Tendering procedures to the fullest possible extent:*

\*\*\* \*\*

*2) Direct Contracting*

With regard to the time to develop the software, it will generally take about 30 months at least until the operation of VNACCS/VCIS, considering the number of services set out in the B/D and the required man-months estimated from the number of steps envisaged. However, as mentioned above, where the vendor who has developed the current NACCS/CIS shall develop the software through direct contracting, VNACCS/VCIS can start its operation within 22 months of concluding the contract since such vendor can shorten the time required for each process of development, benefitting from its experience and expertise. While the GDVC has requested the system operational launch by March 2014, such request can be satisfied if the software development is contracted with the vendor of the current NACCS/CIS directly, omitting the time necessary for open competitive tendering procedures.

With regard to hardware, OS and middleware, they have been procured together with software for the development of NACCS in Japan, since it is fundamentally desirable for IT systems, particularly mission critical systems, to design and develop both software and hardware, OS and middleware as one, to ensure stability/reliability, expeditious recovery from failure, and processing performance. However, as explained above, the software vendor shall be procured by direct contracting in this case. Since procurement through competitive tendering is

required in principle for Japan's Grant Aid projects from the perspectives of economy, efficiency and fairness, it is inappropriate to procure both software and hardware, OS and middleware together through direct contracting. Accordingly, hardware, OS and middleware are to be procured, separately from software, through open competitive tendering.

In such cases, however, the hardware, OS and middleware may be procured from a vendor other than the software development vendor. To facilitate this Project, it is appropriate to minimize the risk of mismatch between the software and OS/middleware by appropriately preparing tender documents, including concrete information on OS/middleware as server specifications and clarifying the scope of responsibilities of each vendor. Also, the specifications of the software are to be included in the tender documents for hardware, OS and middleware for reference.

As for the tendering, it shall be held in accordance with the Procurement Guidelines, which require that the contractor to be decided through tendering shall be Japanese nationals.

The hardware, OS and middleware for this Project can basically be purchased in Viet Nam. However, they are not produced in Viet Nam and their country of origin may be either Japan or third countries. Due to the business practice of global pricing, price variation of such hardware, OS and middleware is not significant among the countries of procurement. In this Project, it is quite important to ensure timely and proper maintenance services from official vendors, including their local agents, in Viet Nam after VNACCS/VCIS has started operations. However, official vendors in Viet Nam may not provide maintenance services for their products which are not purchased in Viet Nam due to its business policy. Accordingly, as a policy on the procurement of hardware, OS and middleware, timely and proper maintenance services from official vendors must be ensured.

As for the Japan's Grant Aid project, the Recipient must enter into a contract with a Japanese consultant for consulting services with regard to the designing, tendering, cost estimating and supervising of the procurement works for the project. The contract with the consultant shall be made by single-source method, on the basis of a recommendation letter issued from JICA in accordance with the Procurement Guidelines.

## **(5) Policy on the Use of Local Vendors**

With regard to software development, as explained in the above section (4), it is reasonable to procure from the vendor who has developed the current version of NACCS/CIS in Japan. When performing actual software development work, such Japanese vendor is recommended to use local IT vendors, including local system engineers, in Viet Nam as much as possible with a view to improving local IT vendors' organizational structures and their capability to maintain and renew VNACCS/VCIS after its introduction.

## **(6) Policy on Operation and Maintenance**

GDVC has been utilizing some IT systems for its business and the Customs IT and Statistics Department is responsible for their operation and maintenance. VNACCS/VCIS to be introduced under this Project is also part of the IT system for Customs; hence its operation and maintenance are performed by such Department to exploit its experiences and know-how acquired to date, and in collaboration with relevant vendors. In this regard, the operation and maintenance structures for VNACCS/VCIS are to be established as envisaged in the B/D, which reflects such structures for NACCS/CIS in Japan and is thus appropriate (see section 2-4.).

## **(7) Policy on Grades of Facilities, Equipments, etc.**

In this Project, as mentioned in the above section (1), the GDVC has prepared the B/D in cooperation with the CTB. The B/D proposes a development concept of VNACCS/VCIS as well as the functions and flows of services with the following features:

- (i) Similar to NACCS/CIS in Japan, the functions and flows of services are set on the basis of a development concept that is intended to interlock the processing of Customs declarations with inspection selection and duty payment functions, and automate the process from acceptance of Customs declarations to notice of permission by establishing an online connection between Customs and the parties concerned with international flow of goods; and
- (ii) Similar to NACCS/CIS in Japan, while taking account of the current situation in Viet Nam, functions of services, such as registration, calling up, reference and correction, and service flows are set on the basis of a development concept that intends that the relevant information be shared with and re-used by the parties concerned with the international flow of goods.

These functions and flows of services performed by VNACCS/VCIS, as proposed in the B/D, are generally based on NACCS/CIS which have a systematized institution and working process of Customs clearance procedures in Japan while some are specific to Viet Nam. However, the relevant officials from both the Ministry of Finance of Viet Nam and the GDVC, including executives, have shared the development concept presented in the B/D and are ready to revise the Vietnamese institution and working process corresponding to the functions and flows of services performed by VNACCS/VCIS proposed in the B/D. Therefore, the B/D prepared by the GDVC is considered appropriate and shall be used as the basis of the outline design of functions and specifications of software for VNACCS/VCIS to be developed with Japanese NACCS/CIS technology under this Project.

The performance requirements of VNACCS/VCIS as proposed in the B/D ensure a performance level equivalent to NACCS/CIS in Japan, including the throughput time<sup>1</sup> of the online service process, which does not exceed 1 second on average. Also, the annual traffic<sup>2</sup> and peak traffic, which are reasonably estimated taking account of the number of Customs declarations for both exports and imports expected in future in Viet Nam, must be ensured. Therefore, the B/D is considered appropriate and shall be used as the basis of the outline design of performance of the VNACCS/VCIS software.

Also, it is considered that the design policies of VNACCS/VCIS proposed in the B/D, such as those for online/batch processing methods and reliability, intend to realize an IT system for Customs clearance procedures, incorporating elements of NACCS/CIS to the extent possible while taking account of the current situation in Viet Nam. Therefore, in this Project the outline design shall be performed on the basis of the B/D as a whole given its appropriateness.

## **2-2-2 Basic Plan**

### **(1) Outline of the System**

#### **(i) Design Concept**

Figure 2-1 shows the design concept of the service function of VNACCS/VCIS.

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<sup>1</sup> Throughput time is defined as the whole time required for the front server to receive a message, process service, send it, and complete the transaction.

<sup>2</sup> Traffic volume is equal to the product of the number of declarations multiplied by the number of conducted services per declaration.



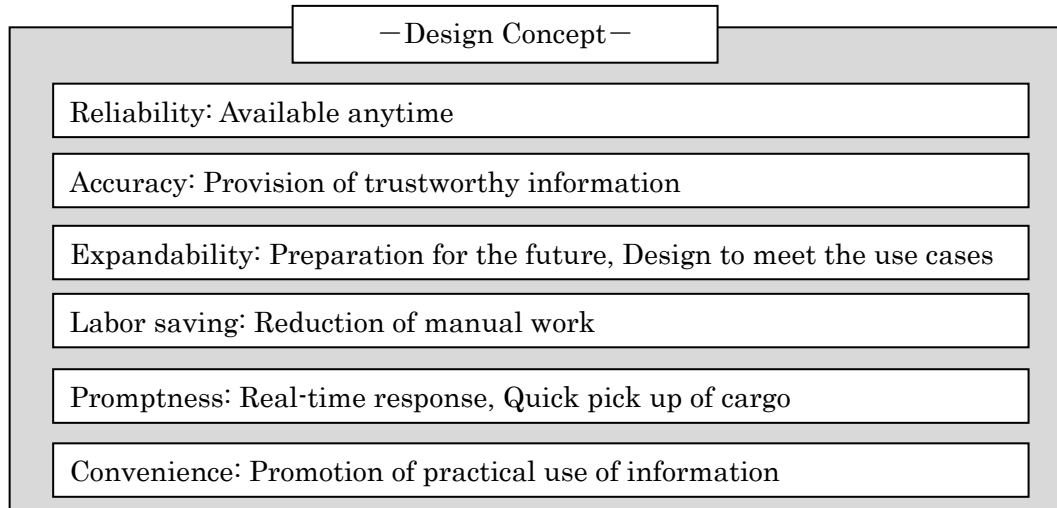


Figure 2-1 Design Concept of the Service Function

(ii) Preconditions

- The data processing by VNACCS/VCIS covers such Customs procedures regarding international cargo ranging from arrival of means of transport through to submission of cargo manifests, import declarations, permission, and release of cargo in case of imports, and export declarations, permission and departure in case of exports.
- VNACCS/VCIS covers Viet Nam (nationwide).
- Users of VNACCS/VCIS are deemed to be carriers, logistics companies, banks, exporters/importers, Customs, and other governmental agencies.
- An interface with other systems would enable the provision of information to the Viet Nam Customs system (statistics function), the exchange of account balance information with banks, and the exchange of invoice information with NACCS in Japan, which will promote the effective utilization of the information. The image of an interface with other systems is shown in Figure 2-2.

(A) Online Interface

- NACCS (International Collaboration Server) (Invoice Information Send/Receive Function)
- Viet Nam Customs System (Statistics Function)
- KTT559/e-Payment<sup>3</sup>
- e-Customs<sup>4</sup>
- GTT01<sup>5</sup>

<sup>3</sup> Accounting (receipt management) system in Viet Nam.

<sup>4</sup> Current electronic Customs clearance system in Viet Nam.

<sup>5</sup> Price data management system in Viet Nam.

(B) File Collaboration

- Banking System

(C) Data Exchange by Media (CD-ROM, etc.)

- N/A

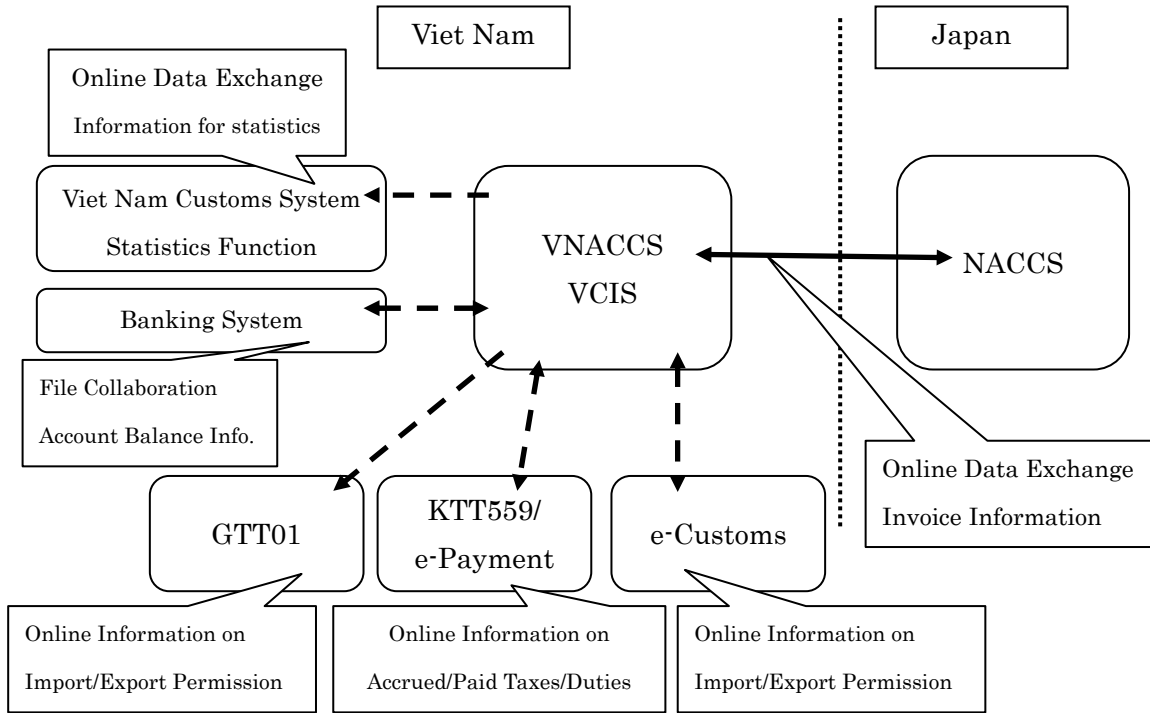


Figure 2-2 Image of Interface with Other Systems

- Data transition from the current Viet Nam Customs system (Remote system, e-Customs) to VNACCS/VCIS is not to be done.

**(2) Design of Services**

Online/batch services described in Chapter 2 of the B/D are based on the services performed by Japanese NACCS/CIS (Import Declarations, Export Declarations, Declarations of Transportation subject to Withholding Tax, etc.). They also deal with land cargo, taking account of the circumstances specific to Viet Nam. Accordingly, such design of services is generally appropriate, since it satisfies the purpose of VNACCS/VCIS, which shall correspond to the Customs clearance process in Viet Nam on the basis of Japanese NACCS/CIS technology and functions. Therefore, online/batch services of VNACCS/VCIS are basically to be as set out in Chapter 2 of the B/D. These services are listed in Tables 2-3 to 2-6.

Table 2-3 List of VNACCS Online Services

No.	Service code	Name of service	Function	Outline of service	Sea	Air	Rail	Truck	Upper: Input by .. Lower: Output to ..				Upper: Input Lower: Output		
									Customs	Carrier	Importer/Exporter	Logistics and its related companies	Bank	EDIFACT	XML
<b>[e-Manifest]</b>															
1	MFR	Manifest registration A	Registration	This service (MFR) is provided to register manifest information and transshipment information by each of all the shipping companies of operating a vessel. (In case of joint operation, each of all the shipping companies is responsible for registering information of manifest of the cargos it undertakes. MFR is available before the execution of "Manifest submission A (DMF)" service. The data registered in this service allows for screening.	○										
2	CMF	Manifest correction A	Alteration Correction Cancellation Addition	This service (CMF) provides following functions; (1) Before the execution of "Manifest submission A (DMF)" service It is available for alteration and cancellation of the information. (2)After the execution of DMF It is available for addition, correction and cancellation of the information.	○										
3	CMF11	Manifest correction A (Call up)	Calling up	This service (CMF11) provides a function to call up information registered by "Manifest registration A (MFR)" service from retrieval before execution of "Manifest correction A (CMF)" service.	○										
4	DMF	Manifest submission A	Registration	This service (DMF) provides a function to submit the manifest information (advance report) and the transshipment notification (advance report) registered by "Manifest registration A (MFR)" service.	○										
5	IMI	Manifest reference A	Reference	This service (IMI) is available for the reference of the manifest information per vessel registered by "Manifest registration A (MFR)" service. (Note: The manifest information per vessel includes vessel code, port of discharging or the sorting number of the port of discharging)	○										
6	NVC	House manifest registration A	Registration Alteration Cancellation	This service (NVC) registers, alters and cancels the house manifest and transshipment data on the basis of each master B/L. The data produced in this service allows for screening.	○										
7	NVC11	House manifest alteration A (Call up)	Calling up	This service (NVC11) provides a function to call up information registered by "House manifest registration A (NVC)" service from retrieval before altering the information by NVC.	○										
8	INV	House manifest reference A	Reference	This service (INV) is available for reference of the house manifest information registered by "House manifest registration A (NVC)" service on the basis of each master B/L.	○										
9	CLR	Cargo Loaded registration A	Registration	This service (CLR) provides a function to register the information on cargoes loaded on a vessel when notice of transshipment of those cargoes has been submitted.	○										
10	ACH	Manifest registration B	Registration	This service (ACH) is provided to register manifest information and transshipment information regarding the foreign cargo unloaded from a foreign trading aircraft. ACH is available before the execution of "Manifest submission B (EAW)" service. The data registered in this service allows for screening.		○									

No.	Service code	Name of service	Function	Outline of service	Sea	Air	Rail	Truck	Upper: Input by .. Lower: Output to ..				Upper: Input Lower: Output				
									Customs	Carrier	Importer/Exporter	Logistics and its related companies	Bank	EDIFACT	XML	WCO Customs Model	
11	CAW	Manifest correction B	Alteration Correction Cancellation Addition	This service (CAW) provides following functions; (1) Before the execution of "Manifest submission B (EAW)" service It is available for alteration and cancellation of the information. (2)After the execution of EAW It is available for addition, correction and cancellation of the information.		<input type="radio"/>				<input type="radio"/>	<input type="radio"/>						
12	CAW11	Manifest correction B (Call up)	Calling up	This service (CAW11) provides a function to call up information registered by "Manifest registration B (ACH)" service from retrieval before execution of "Manifest correction B (CAW)" service.		<input type="radio"/>				<input type="radio"/>	<input type="radio"/>						
13	EAW	Manifest submission B	Registration	This service (EAW) provides a function to submit the manifest information (advance report) and the transshipment notification (advance report) registered by "Manifest registration B (ACH)" service.		<input type="radio"/>				<input type="radio"/>	<input type="radio"/>						
14	IMF11	Manifest reference B	Reference	This service (IMF11) is available for reference of the manifest information registered by "Manifest registration B (ACH)" service on the basis of each arrival of airplane.		<input type="radio"/>				<input type="radio"/>	<input type="radio"/>						
15	HCH	House manifest registration B	Registration Alteration Cancellation	This service (HCH) registers, alters and cancels the house manifest and transshipment on the basis of each master AWB. The data produced in this service allows for screening.		<input type="radio"/>					<input type="radio"/>	<input type="radio"/>					
16	HCH11	House manifest alteration B (Call up)	Calling up	This service (HCH11) provides a function to call up information registered by "House manifest registration B (HCH)" service from retrieval before altering the information by HCH.		<input type="radio"/>					<input type="radio"/>	<input type="radio"/>					
17	IMF12	House manifest reference B	Reference	This service (IMF12) is available for reference of the house manifest information registered by "House manifest registration B (HCH)" service on the basis of each master AWB.		<input type="radio"/>				<input type="radio"/>	<input type="radio"/>						
18	CLB	Cargo loaded registration B	Registration	This service (CLB) provides a function to register the information on cargoes loaded on an aircraft when the notification on transshipment of those cargoes has been submitted.		<input type="radio"/>				<input type="radio"/>	<input type="radio"/>	<input type="radio"/>					
19	RMR	Manifest registration C	Registration	This service (RMR) is provided to register manifest information and transshipment information regarding the foreign cargo unloaded from railway trains. RMR is available before the execution of "Manifest submission C (DRM)" service The data registered in this service allows for screening.			<input type="radio"/>			<input type="radio"/>	<input type="radio"/>						
20	CRM	Manifest correction C	Alteration Correction Cancellation Addition	This service (CRM) provides following functions; (1) Before the execution of "Manifest submission C (DRM)" service It is available for alteration and cancellation of the information. (2)After the execution of DRM It is available for addition, correction and cancellation of the information.			<input type="radio"/>			<input type="radio"/>	<input type="radio"/>						
21	CRM11	Manifest correction C (Call up)	Calling up	This service (CRM11) provides a function to call up information registered by "Manifest registration C (RMR)" service from retrieval before execution of "Manifest correction C (DRM)" service.			<input type="radio"/>			<input type="radio"/>	<input type="radio"/>						

No.	Service code	Name of service	Function	Outline of service	Sea	Air	Rail	Truck	Upper: Input by .. Lower: Output to ..				Upper: Input Lower: Output					
									Customs	Carrier	Importer/Exporter	Logistics and its related companies	Bank	EDIFACT	XML	WCO Customs Model		
22	DRM	Manifest submission C	Registration	This service (DRM) provides a function to submit the manifest information (advance report) and the transshipment notification (advance report) registered by "Manifest registration C (RMR)" service.														
23	IRM	Manifest reference C	Reference	This service (IRM) is available for reference of the manifest information registered by "Manifest registration C (RMR)" service.														
24	HRM	House manifest registration C	Registration Alteration Cancellation	This service (HRM) is provided to register, alter and cancel the house manifest information. The data registered in this service allows for screening.														
25	HRM11	House manifest alteration C (Call up)	Calling up	This service (HRM) provides a function to call up information registered by "House manifest registration C (HRM)" service from retrieval before altering the information by HRM.														
26	IHR	House manifest reference C	Reference	This service (IHR) is available for reference of the house manifest information registered by "House manifest registration C (HRM)" service.														
27	LCR	Cargo shipment registration C	Registration	This service (LCR) provides a function to register the lading information when the transshipment notification has been submitted.														
<b>【e-Declaration】</b>																		
28	IDA	Pre-registration of import declaration	Pre-registration Alteration	This service (IDA) is provided to register the information required for import declaration and valuation declaration before execution of "Import declaration (IDC)" service. When executing IDA, the system automatically calculates the amount of taxes including customs duty.														
29	IDB	Pre-registration of import declaration (Call up)	Calling up	This service (IDB) provides a function to call up information registered by "Pre-registration of import declaration (IDA)" service from retrieval before altering the information by IDA. It is also available to call up manifest information and(or) invoice/packing list information from retrieval before registering the information by IDA.														
30	IDC	Import declaration	Registration	This service (IDC) provides a function to declare the import declaration information and valuation declaration information registered by "Pre-registration of import declaration (IDA)" service.														
31	IDA01	Correction of Pre-registration of import declaration	Correction	This service (IDA01) is provided to correct the declared information before the import permit and after the execution of the "import declaration (IDC)" service.														

No.	Service code	Name of service	Function	Outline of service	Sea	Air	Rail	Truck	Upper: Input by ... Lower: Output to ...				Upper: Input Lower: Output			
									Customs	Carrier	Importer/Exporter	Logistics and its related companies	Bank	EDIFACT	XML	WCO Customs Model
32	IDD	Correction of Pre-registration of import declaration (Call up)	Calling up	This service (IDD) provides a function to call up information from retrieval before correcting the information by "Correction of Pre-registration of import declaration (IDA01)" service.	○	○	○	○	○	○	○	○				
33	IDE	Correction of import declaration	Correction	This service (IDE) provides a function to re-declare the import declaration information corrected by "Correction of Pre-registration of import declaration (IDA01)" service.	○	○	○	○	○	○	○	○				
301	MIC	Import declaration (for express cargos)	Registration	This service (MIC) is provided for import declaration in case of express cargos which is exempted from customs duty due to small sum.			○		○	○	○					
302	MID	Correction of import declaration (for express cargos) (Call up)	Calling up	This service (MID) provides a function to call up information registered by "Import declaration (for express cargos) (MIC)" service from retrieval before correcting the information by "Correction of import declaration (for express cargos) (MIE)" service.						○	○					
303	MIE	Correction of import declaration (for express cargos)	Correction	This service (MIE) provides functions to correct and re-declare the import declaration information registered by "Import declaration (for express cargos) (MIC)" service.					○	○	○					
35	CEA	Registration of completion of examination/inspection (import declaration)	Registration	This service (CEA) is provided to register the information on completion of examination and inspection regarding import declaration (CEA needs to be executed only when the import declaration is selected as documentary examination (Yellow) or physical inspection (Red).	○	○	○	○	○		○	○	○			
36	PAI	Registration of import declaration cancellation	Cancellation	This service (PAI) is provided to register the information regarding cancellation or transition to manual procedure in case of terminating customs procedures executed by the system for any reason at import declaration or amended declaration.	○	○	○	○	○							
37	IID	Reference of import declaration	Reference	This service (IID) is available for reference of the declared information and current procedure status of import declaration.	○	○	○	○	○	○	○	○				
38	EDA	Pre-registration of export declaration	Pre-registration Alteration	This service (EDA) is provided to register and alter the information required for export declaration before execution of "Export declaration (EDC)" service. When executing EDA, the system automatically calculates the amount of taxes including customs duty.	○	○	○	○			○	○				

No.	Service code	Name of service	Function	Outline of service	Sea	Air	Rail	Truck	Upper: Input by .. Lower: Output to ..				Upper: Input Lower: Output			
									Customs	Carrier	Importer/Exporter	Logistics and its related companies	Bank	EDIFACT	XML	WCO Customs Model
39	EDB	Pre-registration of export declaration (Call up)	Calling up	This service (EDB) provides a function to call up information registered by "Pre-registration of export declaration (EDA)" service from retrieval before altering the information by EDA. It is also available to call up invoice/packing list information from retrieval before registering the information by EDA.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>			<input type="radio"/>	<input type="radio"/>				
40	EDC	Export declaration	Registration	This service (EDC) provides a function to declare the export declaration information registered by "Pre-registration of export declaration (EDA)" service.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>			<input type="radio"/>
41	EDA01	Correction of Pre registration of export declaration	Correction	This service (EDA01) is provided to correct the declared information before the export permit and after the execution of the "export declaration (EDC)" service	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>			
42	EDD	Correction of Pre-registration of export declaration (Call up)	Calling up	This service (EDD) provides a function to call up information from retrieval before correcting the information by "Correction of Pre-registration of export declaration (EDA01)" service.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>			
43	EDE	Correction of export declaration	Correction	This service (EDE) provides a function to re-declare the export declaration information corrected by "Correction of Pre-registration of export declaration (EDA01)" service.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>			
401	MEC	Export declaration (for express cargos)	Registration	This service (MEC) is provided for export declaration in case of express cargos which are exempt from customs duty due to their small value.		<input type="radio"/>				<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>			
402	MED	Correction of export declaration (for express cargos) (Call up)	Calling up	This service (MED) provides a function to call up information registered by "Export declaration (for express cargos) (MEC)" service from retrieval before correcting the information by "Correction of export declaration (for express cargos) (MEE)" service.		<input type="radio"/>					<input type="radio"/>	<input type="radio"/>	<input type="radio"/>			
403	MEE	Correction of export declaration (for express cargos)	Correction	This service (MEE) provides functions to correct and re-declare the export declaration information registered by "Export declaration (for express cargos) (MEC)" service.		<input type="radio"/>				<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>			
44	CEE	Registration of completion of examination/ inspection (export declaration)	Registration	This service (CEE) is provided to register the information on completion of examination and inspection regarding import declaration (CEE needs to be executed only when the import declaration is selected as documentary examination (Yellow) or physical inspection (Red).	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>			
45	PAE	Registration of export declaration cancellation	Cancellation	This service (PAE) is provided to register the information regarding cancellation or transition to manual procedure in case of terminating customs procedures executed by the system for any reason at export declaration or amended declaration.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>			

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									Customs	Carrier	Importer/Exporter	Logistics and its related companies	Bank	EDIFACT	XML	WCO Customs Model
46	IEX	Reference of export declaration	Reference	This service (IEX) is available for reference of the declared information and current procedure status of export declaration.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
47	CKO	Modification of examination/inspection classification and specification of inspection category	Registration Modification	This service (CKO) is provided to modify the examination/inspection classification after screening or designate the inspection category when import/export declaration is selected as documentary examination (Yellow) or physical inspection (Red).	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
48	RCC	Registration of information on receipt confirmation of tax payment	Registration	This service (RCC) is provided to register the information on receipt confirmation of amount of tax payment regarding import declaration or export declaration based on the certificate of receipt submitted by the declarant.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
49	COW	Cancellation of suspended declaration	Registration	This service (COW) is provided to cancel the suspension of import/export permit due to the insufficient funds in the balance of bank account for import/export declaration.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
501	AMA	Pre-registration of amended tax return information	Registration Alteration	The service (AMA) is provided to register and alter the information required for amended tax return before declaring by "Amended return (AMC)" service.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
502	AMB	Amended tax return information (Call up)	Calling up	This service (AMB) provides a function to call up information registered by "Pre-registration of amended tax return information (AMA)" service from retrieval before altering the information by AMA.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
503	AMC	Amended tax return	Registration	This service (AMC) provides a function to declare the amended tax return information registered by "pre-registration of amended tax return information (AMA)" service.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
506	CAM	Registration of completion of examination/inspection (amended tax return)	Registration	This service (CAM) is provided to register the information on completion of examination/inspection regarding amended tax return.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
507	IAD	Reference of amended tax return information	Reference	This service(IAD) is available for references of the amended tax return.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
50	MSB	Attached document files registration	Registration	This service (MSB) is provided to register the attached files which are requested by customs office.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
51	MSC	Attached document files retrieval		This service (MSC) is provided to retrieve the attached document files registered by "Attached document registration (MSB)" service.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
57	IAS	Reference of security information	Reference	This service (IAS) is available for reference of the security information such as balance of the security.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



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									Customs	Carrier	Importer/Exporter	Logistics and its related companies	Bank	EDIFACT	XML	WCO Customs Model	
508	TEA	Registration of the list of tax exemption	Registration Correction Cancellation	This service (TEA) is provided to register and correct and cancel the information on the list of tax exemption.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>			<input type="radio"/>					
509	TEB	Correction of the list of tax exemption (Call up)	Calling up	This service (TEB) provides a function to call up information registered by "Registration of the list of tax exemption (TEA)" service from retrieval before altering the information by TEA.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>								
510	ITE	Reference of the list of tax exemption	Reference	This service (ITE) is available for reference of the list of tax exemption list information.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>					
511	TIA	Registration of the information of temporary export and import	Correction Cancellation	This service (TIA) is provided to correct and cancel the information on temporary export and import.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>			<input type="radio"/>					
512	TIB	Correction of the information of temporary export and import (Call up)	Calling up	This service (TIB) provides a function to call up information registered before altering the information by TIA.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>								
513	ITI	Reference of declaration status information on temporary import/export	Reference	This service (ITI) is available for reference of the declaration status information on temporary import/export.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>					
<b>【e-Payment】</b>																	
58	IBA	Reference of account information	Reference	This service (IBA) is available for reference of the dedicated account information.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>			<input type="radio"/>	<input type="radio"/>	<input type="radio"/>			
<b>【e-Invoice】</b>																	
59	IVA	Registration of invoice/packing list information	Registration Alteration	This service (IVA) is provided to register and alter the invoice and packing list information required for import/export declaration.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>			<input type="radio"/>				<input type="radio"/>	
60	IVA01	Alteration of invoice/packing list information (Call up)	Calling up	This service (IVA01) provides a function to call up information registered by "Registration of invoice/packing list information (IVA)" service from retrieval before altering the information by IVA.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>			<input type="radio"/>					
61	IIV	Reference of invoice/packing list information	Reference	This service (IIV) is available for reference of the invoice and packing list information.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>					
601	IVB	Registration of classified invoice/packing list information	Registration Alteration	This service (IVB) is provided to register and alter the classified invoice and packing list information required for import/export declaration.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>			<input type="radio"/>	<input type="radio"/>				
602	IVB01	Alteration of invoice/packing list information (Call up)	Calling up	This service (IVB01) provides a function to call up information registered by "Registration of classified invoice/packing list information (IVB)" service from retrieval before altering the information by IVB.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>			<input type="radio"/>	<input type="radio"/>				

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									Customs	Carrier	Importer/Exporter	Logistics and its related companies	Bank	EDIFACT	XML	WCO Customs Model	
<b>【e-C/O】</b>																	
62	OVA	Registration of received certificate of origin information	Registration	This service (OVA) provides a function to automatically register the information on the certificate of origin as "C/O information" to the system when the information on the certificate of the origin is received from the overseas system.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>									
63	IOV	Reference of certificate of origin information	Reference	This service (IOV) is available for reference of the certificate of origin registered by "Registration of received certificate of origin information (OVA)" service.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>						
<b>【Seaports and airports related single window】</b>																	
64	VBX	Registration of vessel basic information	Registration Alteration Cancellation	This service (VBX) is provided to register, alter and delete the basic information on ocean-going vessels.	<input type="radio"/>					<input type="radio"/>				<input type="radio"/>			
65	VBX11	Alteration of vessel basic information (Call up)	Calling up	This service (VBX11) provides a function to call up information registered by "Registration of vessel basic information (VBX)" service from retrieval before altering the information by VBX.	<input type="radio"/>					<input type="radio"/>							
66	VIT	Registration of arrival notification A	Registration Correction Cancellation	This service (VIT) is provided to register, correct and cancel arrival notification of an ocean-going vessel based on the information registered by "Registration of vessel basic information (VBX)" service. The registered arrival notification is submitted to both a customs office and the other governmental agencies. VIT is also available to register the ship's store list.	<input type="radio"/>					<input type="radio"/>	<input type="radio"/>			<input type="radio"/>			
67	VIT11	Correction of arrival notification A (Call up)	Calling up	This service (VIT11) provides a function to call up information registered by "Registration of arrival notification A (VIT)" service from retrieval before correcting the information by VIT.	<input type="radio"/>					<input type="radio"/>							
68	VOT	Registration of departure notification A	Registration Correction Cancellation	This service (VOT) is provided to register, correct and cancel departure notification of an ocean-going vessel based on the information registered by "Registration of vessel basic information (VBX)" service. The registered departure notification is submitted to both a customs office and the other governmental agencies.	<input type="radio"/>					<input type="radio"/>	<input type="radio"/>			<input type="radio"/>			
69	VOT11	Correction of departure notification A (Call up)	Calling up	This service (VOT11) provides a function to call up information registered by "Registration of departure notification A (VOT)" service from retrieval before correcting the information by VOT.	<input type="radio"/>					<input type="radio"/>							
70	IVS	Reference of arrival/ departure notification A	Reference	This service (IVS) is available for reference of the basic information, arrival notification and departure notification regarding ocean-going vessel.	<input type="radio"/>					<input type="radio"/>	<input type="radio"/>						

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									Customs	Carrier	Importer/Exporter	Logistics and its related companies	Bank	EDIFACT	XML	WCO Customs Model	
71	GIR	Registration of arrival notification B	Registration Correction Cancellation	This service (GIR) is provided to register, correct and cancel notification on arrival of aircrafts. The registered arrival notification is submitted to both a customs office and the other governmental agencies.		<input type="radio"/>				<input type="radio"/>	<input type="radio"/>						
72	GIR11	Correction of arrival notification B (Call up)	Calling up	This service (GIR11) provides a function to call up information registered by "Registration of arrival notification B (GIR)" service from retrieval before correcting the information by GIR.		<input type="radio"/>				<input type="radio"/>	<input type="radio"/>						
73	GOR	Registration of departure notification B	Registration Correction Cancellation	This service (GOR) is provided to register, correct and cancel notification on departure of aircrafts. The registered departure notification is submitted to both a customs office and the other governmental agencies.		<input type="radio"/>				<input type="radio"/>	<input type="radio"/>						
74	GOR11	Correction of departure notification B (Call up)	Calling up	This service (GOR11) provides a function to call up information registered by "Registration of departure notification B (GOR)" service from retrieval before correcting the information by GOR.		<input type="radio"/>				<input type="radio"/>	<input type="radio"/>						
75	IGD	Reference of arrival/ departure notification B	Reference	This service (IGD) is available for reference of the notification on arrival or departure of aircrafts.		<input type="radio"/>				<input type="radio"/>	<input type="radio"/>						
76	RIR	Registration of arrival notification C	Registration Correction Cancellation	This service (RIR) is provided to register, correct and cancel notification on arrival of railway trains. The registered arrival notification is submitted to both a customs office and the other governmental agencies.			<input type="radio"/>			<input type="radio"/>	<input type="radio"/>						
77	RIR11	Correction of arrival notification C (Call up)	Calling up	This service (RIR11) provides a function to call up information registered by "Registration of arrival notification C (RIR)" service from retrieval before correcting the information by RIR.			<input type="radio"/>			<input type="radio"/>	<input type="radio"/>						
78	ROR	Registration of departure notification C	Registration Correction Cancellation	This service (ROR) is provided to register, correct and cancel notification on departure of railway trains. The registered departure notification is submitted to both a customs office and the other governmental agencies.			<input type="radio"/>			<input type="radio"/>	<input type="radio"/>						
79	ROR11	Correction of departure notification C (Call up)	Calling up	This service (ROR11) provides a function to call up information registered by "Registration of departure notification C (ROR)" service from retrieval before correcting the information by ROR.			<input type="radio"/>			<input type="radio"/>	<input type="radio"/>						
80	IRD	Reference of arrival/ departure notification C	Reference	This service (IRD) is available for reference of the notification on arrival or departure of railway trains.			<input type="radio"/>			<input type="radio"/>	<input type="radio"/>						
701	TIR	Registration of arrival notification D	Registration Correction Cancellation	This service (TIR) is provided to register, correct and cancel notification on arrival of trucks. The registered arrival notification is submitted to both a customs office and the other governmental agencies.				<input type="radio"/>		<input type="radio"/>	<input type="radio"/>						

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702	TIR11	Correction of arrival notification D (Call up)	Calling up	This service (TIR11) provides a function to call up information registered by "Registration of arrival notification D (TIR)" service from retrieval before correcting the information by TIR.					<input type="radio"/>	<input type="radio"/>							
703	TOR	Registration of departure notification D	Registration Correction Cancellation	This service (TOR) is provided to register, correct and cancel notification on departure of trucks. The registered departure notification is submitted to both a customs office and the other governmental agencies.					<input type="radio"/>	<input type="radio"/>							
704	TOR11	Correction of departure notification D (Call up)	Calling up	This service (TOR11) provides a function to call up information registered by "Registration of departure notification D (TOR)" service from retrieval before correcting the information by TOR.					<input type="radio"/>	<input type="radio"/>							
705	ILD	Arrival and departure notifications related information reference D	Reference	This service (ILD) is available for reference of the notification on arrival or departure of trucks.					<input type="radio"/>	<input type="radio"/>							
81	PLR	Report of passenger list	Registration Correction Cancellation	This service (PLR) is provided to register, correct and cancel a passenger list for arrival and departure. The registered passenger list is submitted to both a customs office and the other governmental agencies.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>		<input type="radio"/>			<input type="radio"/>				
82	PLR11	Report of passenger list (Call up)	Calling up	This service (PLR11) provides a function to call up information registered by "Report of passenger list (PLR)" service from retrieval before correcting the information by PLR.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>		<input type="radio"/>							
83	NLR	Report of crew list	Registration Correction Cancellation	This service (NLR) is provided to register, correct and cancel a crew list for arrival and departure. The registered crew list is submitted to both a customs office and the other governmental agencies. It is also available to declare the personal effects of crews.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>		<input type="radio"/>			<input type="radio"/>				
84	NLR11	Report of crew list (Call up)	Calling up	This service (NLR11) provides a function to call up information registered by "Report of crew list (PLR)" service from retrieval before correcting the information by NLR.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>		<input type="radio"/>							
85	INP	Reference of passengers/ crew information	Reference	This service (INP) is available for reference of the passenger list and the crew list.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>							
<b>【Government-related single window】</b>																	
801	IFA, etc.			Notification of import of foods and related products, etc.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>			<input type="radio"/>	<input type="radio"/>					

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									Customs	Carrier	Importer/Exporter	Logistics and its related companies	Bank	EDIFACT	XML	WCO Customs Model
802	IPA, etc.			Application for inspection for importing plants and related products, etc.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>			<input type="radio"/>	<input type="radio"/>				
803	ILA, etc.			Application for inspection for importing animal products, etc.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>			<input type="radio"/>	<input type="radio"/>				
86	IXX	Reference of declaration and application statuses in concerned ministries	Reference	This service (IXX) is available for reference of the current procedure status of the other governmental agencies regarding import declaration.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>			<input type="radio"/>	<input type="radio"/>				
87	SWA	Pre-registration of import declaration (Single window)	Registration	This service (SWA) is available for pre-registration of import declaration and its relevant procedures of the other governmental agencies.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>			<input type="radio"/>	<input type="radio"/>				
88	SWB	Pre-registration of import declaration (Single window) (Call up)	Calling up	This service (SWB) provides a function to call up information registered by "Pre-registration of import declaration (Single window) (SWA)" service from retrieval before pre-registration by SWA. It is also available to call up manifest information and (or) invoice/packing list information from retrieval before registering the information by SWA.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>			<input type="radio"/>	<input type="radio"/>				
89	SWX	Calling single window declaration and application	Calling up	This service (SWX) provides a function to call up the issued number of procedures of the other governmental agencies by inputting the issued number of import declaration before executing "Import declaration (single window) (SWC)" service.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>			<input type="radio"/>	<input type="radio"/>				
90	SWC	Import declaration (Single window)	Registration	This service (SWC) provides a function to declare the important declaration information registered by "Pre-registration of import declaration (Single window) (SWA)" service to both customs offices and the other governmental agencies simultaneously.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>			
<b>【Declaration on transportation subject to withholding tax】</b>																
91	OLA	Pre-registration of declaration on transportation subject to withholding tax	Registration Alteration	This service (OLA) is provided to register and alter the information required for declaration on transportation subject to withholding tax before declaring by "Declaration of transportation subject to withholding tax (OLC)" service.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>			<input type="radio"/>	<input type="radio"/>	<input type="radio"/>			
92	OLB	Pre-registration of declaration on transportation subject to withholding tax (Call up)	Calling up	This service (OLB) provides a function to call up information registered by "Pre-registration of declaration on transportation subject to withholding tax (OLA)" service from retrieval before altering the information by OLA. It is also available to call up manifest information from retrieval before registering the information by OLA.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>			<input type="radio"/>	<input type="radio"/>	<input type="radio"/>			

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									Customs	Carrier	Importer/Exporter	Logistics and its related companies	Bank	EDIFACT	XML	WCO Customs Model
93	OLC	Declaration of transportation subject to withholding tax	Registration	This service (OLC) provides a function to declare the information on the transportation subject to withholding tax registered by "Pre-registration of declaration on transportation subject to withholding tax (OLA)" service.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>				
94	CET	Registration of completion of examination/inspection (declaration of transportation subject to withholding tax)	Calling up	This service (CET) is provided to register the information on completion of examination/inspection regarding declaration on transportation subject to withholding tax (CET need to be executed only when the declaration on transportation subject to withholding tax is selected as documentary examination (Yellow) or physical inspection (Red). It is also available to register the approval regarding correction and cancellation of the information registered by "Correction of declaration on transportation subject to withholding tax (COT)" service after the declaration on transportation subject to withholding tax has been approved.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>				
95	COT	Correction of declared information on transportation subject to withholding tax (approval)	Correction	This service (COT) is provided to correct or cancel the approved information on transportation subject to withholding tax. COT is also available to correct or cancel the declared information on transportation subject to withholding tax.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>				
96	COT11	Correction of declared information on transportation subject to withholding tax (approval (Call up))	Calling up	This service (COT11) provides a function to call up the declared information on transportation subject to withholding tax (approval) information from retrieval before correcting the information by "Correction of declared information on transportation subject to withholding tax (approval) information (COT)" service.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>				
97	BOA	Registration of notification on departure regarding transportation subject to withholding tax	Registration	This service (BOA) is provided to register the notification on departure of cargos which are approved to be transported while withholding tax.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>				
98	BIA	Registration of notification on arrival regarding transportation subject to withholding tax	Registration	This service (BIA) is provided to register the notification on arrival of cargos transported while withholding tax.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>				
99	BIA11	Registration of notification on departure regarding transportation subject to withholding tax (Call up)	Calling up	This service (BIA11) provides a function to call up the declared information on transportation subject to withholding tax before registering the notification on arrival by "Registration of notification of arrival regarding transportation subject to withholding tax (BIA)" service.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>				

No.	Service code	Name of service	Function	Outline of service	Sea	Air	Rail	Truck	Upper: Input by .. Lower: Output to ..				Upper: Input Lower: Output			
									Customs	Carrier	Importer/Exporter	Logistics and its related companies	Bank	EDIFACT	XML	WCO Customs Model
100	ITF	Reference of declared information on transportation subject to withholding tax	Reference	This service (ITF) is available for the reference of the information regarding declaration and approval of transportation subject to withholding tax. Customs officers are able to refer to the declarations on transportation subject to withholding tax that are not confirmed even after the approved period of transportation.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>				
<b>【Criteria for screening management service】</b>																
101	ZBU	Emergency setup of screening criteria for Customs clearance		This service (ZBU) is provided to set the screening criteria regarding customs clearance in case of emergency.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>								
102	ZHA	Management of screening criteria for declaration on transportation subject to withholding tax	Reference Registration Alteration Deletion	This service (ZHA) sets the screening criteria for the declaration on transportation subject to withholding tax.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>						
<b>【Others】</b>																
201	DCL	Submission of unloaded containers list	Registration Correction	This service (DCL) is provided to submit the list of containers unloaded from vessels to the customs office. DCL is also available for correction of the submitted list.	<input type="radio"/>				<input type="radio"/>	<input type="radio"/>	<input type="radio"/>					
202	DCL11	Submission of unloaded containers list (Call up)	Calling up	This service (DCL11) provides a function to call up information submitted by "Submission of unloaded containers list (DCL)" service from retrieval before correcting the list by DCL.	<input type="radio"/>				<input type="radio"/>	<input type="radio"/>	<input type="radio"/>					
203	HYS	Registration of application attached by electronic file	Registration	This service conducts applying for the customs procedures by attaching electronic files containing the information on application and other information such as the type of application procedure.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>					
204	HYE	Modification of application attached by electronic file	Correction	This service modifies the information on the application attached by electronic file registered in the system in the "Registration of application attached by electronic file (HYS)" service.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>					
205	CHY	Completion of examination/inspection of application attached by electronic file	Registration	This service registers completion of examination/inspection of application attached by the electronic file.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>					

No.	Service code	Name of service	Function	Outline of service	Sea	Air	Rail	Truck	Upper: Input by .. Lower: Output to ..				Upper: Input Lower: Output				
									Customs	Carrier	Importer/Exporter	Logistics and its related companies	Bank	EDIFACT	XML	WCO Customs Model	
206	IHY	Reference of application attached by electronic file	Reference	This service references details of application attached by the electronic file	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
207	CUF	Registration of advanced payment of service charge		This service registers the service charge paid in advance.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
208	ICF	Reference of advanced payment of service charge		This service references the service charge paid in advance.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
107	ROT	Re-output		This service outputs the output information again. To be determined for the available period for and the details of re-output.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
108	TCC	Establishment of communication channel check		This service checks establishment of communication channel by sending and receiving messages.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
109	CNO	Registration of correction of original data	Registration Correction	This service registers correction of original data.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
110	CNO11	Calling up of original data for correction	Calling up	This service provides a function to call up original data for correction.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
111	DLG01	Searching of original data related to Customs procedures	Searching	This service searches original data related to Customs procedures.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
114	DLG11	Searching of original data related to HYS	Searching	This service searches original data related to HYS(application attached by electronic file)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
116	DLG22	Searching of original data related to manifest	Searching	This service searches original data related to manifest.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



Table 2-4 List of VNACCS Batch Services

No	Name of the document on statistical record	Output intervals	Related division	Outline of the service
1	List of the import customs clearance report (number of cases) (daily)	Daily	Customs	The number of import customs clearance services related to the import declaration, etc. conducted in the previous day is output for each of the divisions in each customs authority.
2	List of the export customs clearance report (number of cases) (daily)	Daily	Customs	The number of export customs clearance services related to the export declaration, etc. conducted in the previous day is output for each of the divisions in each customs authority.
3	List of system statistics (daily)	Daily	Administering authority	The number of services conducted in the previous day is output after compiling it according to the user, service and user's service.
4	List of system statistics (monthly)	Monthly	Administering authority	The number of services conducted in the previous month is output after compiling it according to the user, service and user's service.
5	List of system traffic (daily)	Daily	Administering authority	The number of services conducted in the previous day is output after compiling it according to the input method (SMTP, HTTP, etc.) and ending code (normal or error).
6	List of system traffic (monthly)	Monthly	Administering authority	The number of services conducted in the previous month is output after compiling it according to the input method (SMTP, HTTP, etc.) and ending code (normal or error).

Table 2-5 List of VCIS Online Services

No.	Category	Number of the services
1	Customs clearance	4
2	Examination/inspection for Customs clearance	8
3	Management of importers and exporters	2
4	Inquiry	1

Table 2-6 List of VCIS Batch Services

No.	Category	Number of the services
1	Customs clearance	4
2	Examination/inspection for Customs clearance	2
3	Management of importers and exporters	3

### **(3) Design of the Online Processing Method**

The online processing method shown in Chapter 3 of the B/D has various features which include: (i) use of the open platform; (ii) 24-hour operation in general; (iii) message size of about 100 Kbytes; (iv) original data management; (v) transmission function of data on the attached document file; (vi) adoption of the NACCS-EDI format and partial compatibility with XML and EDIFACT; (vii) adoption of rich client and three-tier client server methods; (viii) a system consisting of front-end servers, service processing servers and operation servers, and arrangement of servers by function; (ix) incorporation of a mechanism to decentralize and reduce system load; and (x) compatibility with English single-byte characters and Vietnamese. As for the system processing method, interactive processing methods (SMTP interactive and HTTP), and an e-mail processing method (EDIFACT) are adopted. The above-mentioned online processing methods, such as the use of the open platform, 24-hour operation, adoption of the NACCS-EDI format, original data management, and adoption of rich client and three-tier client server methods, are common to NACCS/CIS in Japan and are thus generally appropriate, since they are in line with the policy whereby VNACCS/VCIS shall be developed on the basis of Japanese NACCS/CIS technology and functions. Accordingly, the online processing methods of VNACCS/VCIS are basically to be as shown in Chapter 3 of the B/D and as outlined below.

#### **(i) Principles for the Design of Online Processing Method**

- VNACCS/VCIS shall be established on the basis of the open server.
- 24-hour online operation shall normally be available, except for about three hours a week of planned outage for maintenance.
- The size of the messages sent and received through VNACCS/VCIS shall be about 100 Kbytes.
- The mechanism that stores the original data in the NAS device<sup>6</sup> and allows output of the original data shall be adopted.
- Transmission of data on the attached document file shall be available through the exclusive services.
- Other than the NACCS-EDI message, VNACCS/VCIS adopts XML and EDIFACT messages for part of its services.
- The rich client method shall be adopted as the system processing method for VNACCS/VCIS. The online processing method shall be that of the three tier client server.
- The system shall consist of front-end servers for communication with users and other

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<sup>6</sup> NAS stands for Network Attached Storage. This is a storage device that is directly connected to the network. It is used as a file server and backup server.

systems, service processing servers for processing the services and accessing the data, and operation servers for operating the center and providing functions such as data management. A separate server is allocated to each function.

- A mechanism that decentralizes and reduces the processing shall be incorporated to prepare for potential system overload when a number of messages requesting processing reach the system at the same time.
- VNACCS/VCIS shall be compatible with English single-byte characters and Vietnamese.

(ii) Online Processing Methods (VNACCS)

- The list of the system processing methods that shall be available for VNACCS is as shown in Table 2-7.

Table 2-7 List of System Processing Methods

No.	Processing Method		Compatibility	Used Network	Type of Message	Used Protocol
			VNACCS/VCIS			
1	Interactive processing method	SMTP interactive (VCIS functions' connection)	YES	Customs network	NACCS-EDI format XML format Attached file format	SMTP, MIME
		SMTP interactive (Users' EDI connection)	YES	Internet (VPN)		SMTP, MIME
2		HTTP (Terminal connection)	YES	Internet	NACCS-EDI format Attached file format	HTTPS, MIME
		HTTP (Users' EDI connection)	YES	Internet	XML format	HTTPS, MIME
3	Mail processing method	EDIFACT (Users' EDI connection)	YES	Internet (VPN)	EDIFACT Format	SMTP/POP3, MIME

- For each of the users' connection methods, compatibility with the message formats and the attached file format are as shown in Table 2-8.

Table 2-8 Compatibility with Message Formats by the Connection Method

Connection method	Message Format			Attached File Format
	NACCS-EDI	EDIFACT	XML	
SMTP interactive (VCIS functions' connection)	YES	NO	YES	YES
SMTP interactive (Users' EDI connection)	YES	NO	YES	YES
HTTP (Terminal connection)	YES	NO	NO	YES
HTTP (Users' EDI connection)	NO	NO	YES	NO
EDIFACT (Users' EDI connection)	NO	YES	NO	NO

(iii) Outline of the Online Processing Functions (VNACCS)

- VCIS online processing for customs clearance is realized mainly through linkage between the AP server (VCIS) for service processing and the DB server (VCIS) for the database connection processing.
- VNACCS online processing for service collaboration is realized mainly through linkage of the AP server (VCIS) with the interface AP server (VCIS) for the VNACCS collaboration processing and the interface DB server (VCIS) for the database connection processing.
- For system users, a single sign-on authentication function is installed on the authentication server (VCIS).

**(4) Design of the Batch Processing Method**

The batch processing method shown in Chapter 4 of the B/D realizes various functions, including creation and distribution of the document on statistical records, an original data management service and CSF<sup>7</sup> service support. This batch processing method also implements batch maintenance during operation of the online services and activates the logical validity check function during CSF maintenance. Accordingly, the method is generally appropriate, since functions such as creation and distribution of documents on statistical records, original data management service and CSF service support are fundamental for the batch processing

<sup>7</sup> Center Setup File. A setup file used for maintenance (adding/modifying/removing records) of files/tables etc.

method of NACCS in Japan and indispensable for the full utilization of NACCS technology and functions in Viet Nam. Therefore, the batch processing method of VNACCS/VCIS is basically to be as shown in Chapter 4 of the B/D and as outlined below.

(i) Batch Processing Method (VNACCS)

- Extraction of the data subject to the batch processing
  - The batch processing starts automatically every day at midnight. The data processed in the online services of the previous day are extracted, based on which the batch processing is conducted.
- Information of the document on statistical record creating method
  - The data processed in the online services of the previous day are edited according to specifications to create daily reported information of the document on statistical records. Relating to the creation of the document on statistical records, information on the setting to determine its necessity is managed with a table.
  - The NAS device directly stores the distributed information, such as information of the original data extracted in the original data search process and information of the document on the statistical record created in the process of editing the information relating to the document on statistical records. Users retrieve such information directly through the NAS device by accessing from their own systems or using the software installed on the terminal.
  - VNACCS allows users to re-retrieve the information of the document on statistical records without asking VNACCS's system operator.
- Original data processing method
  - This service collects and stores the original data generated in the online services in the system after the start of the services.
  - The stored original data shall be retrievable via user requests.
  - If necessary, the service registers and alters the information regarding correction of original data, registers and maintains information of the forms' templates, along with addition or alteration of the information of new original data, and deletes the information of original data due to expiry of the original data storage period.

(ii) CSF Service Processing Method (VNACCS)

- Based on the bulk data created in advance for the purpose of correction (hereinafter referred to "data for updating"), the batch maintenance is implemented without interrupting the online services while they are in operation.
- To avoid influencing the online services, batch maintenance uses mechanisms such as exclusive control to implement the processing while the online services are in operation.

- To avoid the data for updating not conforming with the CSF data in the production environment when the CSF is installed, a logical validity check function is activated in the CSF maintenance.
  - An environment to incorporate the testing data is set up to provide a mechanism that verifies details of the data for updating in advance. Security during installation in the production environment is increased by installing data there for updating after the verification of validity in the environment for incorporation of testing data.
- (iii) Bank Account and Direct Duty Payment Related Processing Method (VNACCS)
- This service sets the balance information sent from a bank in the account table, and enables automatic debit transfer for payment of custom duties within the time allowed for the use of the account.
  - After the end of the time zone allowed for the use of the account, the service creates payment information and information on payment statements as records of the use of the account. After receiving the relevant information, each bank sends VNACCS the balance information in response.
- (iv) Statistics Associated Services' Processing Method (VNACCS)
- The number of services is compiled according to the user, service type and services used by each user and output daily and monthly as information of the document on statistical record.
  - The number of services used by each user is compiled according to the service type and output daily and monthly as information of the document on statistical records of each of the terminal types, i.e. SMTP, HTTP and EDIFACT, and each of the ending codes, i.e. normal and error.
- (v) Design of the Batch Processing Method (VCIS)
- A batch processing method that can minimize the impact on other processes such as the online services shall be adopted.
  - When the process is accompanied by updating the database, other batch services and online services shall reflect the results of updating in principle at the same time as completion of the process.

(vi) Overview of Batch Processing Functions (VCIS)

- Data of import/export customs clearance records are retrieved from VNACCS and registered in the database after conversion into a format for the information database and editing of the data.
- A function for maintenance of the files, tables and so on used in the system internal processing shall be provided.

**(5) External Interface**

Chapter 5 of the B/D shows the method of and requirements for connection to external systems, including the method of connection to each external system ((i) NACCS (international collaboration server; invoice data sending/receiving function) in Japan, (ii) Viet Nam Customs system (statistical function), (iii) banking system, (iv) KTT559/e-Payment, (v) e-Customs, and (vi) GTT01) which will be realized within the timescale of this Project. The design shown in Chapter 5 of the B/D is generally appropriate for a design of VNACCS/VCIS's external interface since the requirements for the external interface necessary for the realization of online/batch services shown in Chapter 2 of the B/D are satisfied. Accordingly, the method of and requirements for connection between VNACCS/VCIS and external systems are basically to be as shown in Chapter 5 and as outlined below.

(i) Connection to NACCS (International Collaboration Server) (Invoice Information Send/Receive Function) in Japan

- Online connection (Invoice information)
- Batch connection is not implemented.

(ii) Connection to the Viet Nam Customs System (Statistics Function)

- Online connection (Information for statistics)
- Batch connection is not implemented.

(iii) Connection to the Banking System

- Online connection is not implemented.
- Batch connection (Information on payments, statement of payments and balance)

(iv) Connection to KTT559/e-Payment

- Online connection (Information on duty amount, payment and security)
- Batch connection (Information on importers/exporters with unpaid duty)

- (v) Connection to E-Customs
  - Online connection (Information on import/export permission)
  - Batch connection is not implemented.
  
- (vi) Connection to GTT01
  - Online connection (Information on import/export permission)
  - Batch connection is not implemented.

**(6) Reliability Design**

The reliability design shown in Chapter 6 of the B/D, including reliability requirements (target values of operation rate for VNACCS (99.9%) and VCIS (99.4%)), methods to ensure reliability (server architecture, storage configuration and network device configuration) and response against failure (server node<sup>8</sup> failure, network failure and software failure), adopts measures to improve reliability equivalent to NACCS/CIS in Japan, including redundant configurations. Also, specific targets are set, such as operation rates of 99.9% for VNACCS and 99.4% for VCIS. The designs generally satisfy the reliability standards required for VNACCS/VCIS as mission critical systems. Accordingly, for VNACCS/VCIS, reliability requirements and a method to ensure reliability and a response against failure are basically to be as shown in Chapter 6 of the B/D and as outlined below.

- (i) Reliability Requirements
  - The reliability requirements (reliability key performance indicator, evaluation cycle, and target values) to be ensured as a system are shown in Table 2-9.

Table 2-9 Reliability Requirements to be Ensured for the System Level

Indicator	Evaluation Cycle	Target value	
Operation Rate*	Annually	VNACCS	99.9%
		VCIS	99.4%

\* The operation rate is derived from the calculation formula shown below. The operation rate of VNACCS/VCIS, however, is defined not as the operation rate of servers at the service nodes alone but as that of the whole system. Also, the scope of the failure that is the basis of the VNACCS/VCIS operation rate does not include failures caused by factors unrelated to VNACCS/VCIS operation such as network failures, enterprise systems, private systems, other governmental agencies' systems, etc.

<sup>8</sup> A node means a device such as a computer or router, etc. connected to a network.



$$\text{Operation Rate} = (\text{Operation Time}^9 - \text{Downtime}^{10}) / \text{Operation Time}$$

(ii) Method to Ensure Reliability

- All servers must be made redundant by applying duplex configuration or all active configuration.
- Regarding each server with duplex configuration, two sets of servers must be built depending on their purpose and usage, and configured in a mutual standby configuration, providing respective backup functions.
- The configurations of each server are shown in Table 2-10.

Table 2-10 Redundant Configurations of Each Server

No.	Server Name	Configuration
1	AP Server, Interface Server (VNACCS)	All Active
2	Operation DB Server (VNACCS)	Duplex
3	Data Translate server, SMTP Interactive Server (VNACCS)	Duplex
4	HTTP Interactive Server (VNACCS)	- Dialogue / Web: All Active - Documents / Bank Connection: Duplex
5	Integrated Operation Monitoring Server / Batch Operation Server, File Linkage Server / Single Window Server (VNACCS)	Duplex
6	Interface AP Server / Authentication Server (VCIS)	All Active
7	Interface DB Server (VCIS)	Duplex
8	Web AP Server (VCIS)	All Active
9	DB Server (VCIS)	Duplex
10	Batch Server (VCIS)	Duplex
11	Operation Monitoring Server (VCIS)	Duplex
12	PKI Operation Server (Digital Signature)	Duplex

- Storage Configuration
  - Various data used in online and batch processes is located in storage and managed in an integrated manner.
  - From the device perspective, storage is configured with two units and redundantly

<sup>9</sup> Operation time includes neither maintenance time nor planned downtime.

<sup>10</sup> Cases of large-scale disaster are excluded.

with RAID<sup>11</sup>0+1 or RAID5, depending on the contents of the data.

- Network Device Configuration
  - A LAN configuration for VNACCS/VCIS shall be configured with dual lines in all paths involved in the online process, and shall be a configuration that can continue the online process, even in the case of single network device failure (Switching hub, Layer 3 switch, and Load balancer).

(iii) Response against Failure

- Server Node Failure
  - In case of a node failure in the all active configuration, the system cuts off the failure node and resumes the operation.
  - In case of a node failure in the duplex configuration, the system activates stand-by node and resumes the operation.
- Network Failure
  - LAN within VNACCS/VCIS shall be built with dual paths and shall be designed so that it switches the path automatically in case of failure with a certain network device.
- Software Failure
  - The design shall cut off failure node in all active configuration servers and activate the standby node in duplex configurations in case of failures with OS and P.P.<sup>12</sup> in a server.
  - Since there is a need to respond after investigating the affected area in case of failure in the development software, the latter shall be designed to facilitate fault isolation and also the output contents of failure messages and logs shall be designed to facilitate investigation.

(iv) Replacement of Defective Parts

- When hardware failure happens at any server, operation can resume after cutting the node or activating the standby node, but the defective part shall be replaced immediately to recover the server to normal state as a standby node.
- The design shall be such as to ensure that the standby node does not affect online operation as much as possible.

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<sup>11</sup> Redundant Array of Inexpensive Disks, which is a technology to manage multiple hard disks collectively. There are 7 levels from RAID0 to RAID6, depending on speed and safety.

<sup>12</sup> Program Product, which is a non-developmental software available commercially.

## (7) Performance Design

Performance requirements (1 second or less on average for the throughput time of online services) and performance specifications (anticipated annual traffic, anticipated peak traffic and logical size of data to be stored) shown in Chapter 7 of the B/D are generally appropriate for VNACCS/VCIS, since peak traffic in Viet Nam is taken into account and target values for the throughput time of online services are set at a level equivalent to NACCS/CIS in Japan. Accordingly, performance requirements and specifications of VNACCS/VCIS are basically to be as shown in Chapter 7 of the B/D and as outlined below.

### (i) Policy of Performance Design

- The design shall target the performance requirements shown in Table 2-11.

Table 2-11 Performance Requirements to be Ensured

No.	Items	Target Value
1	Throughput time* (VNACCS online)	No longer than 1 second on an average
2	Throughput time* (VCIS online)	No longer than 1 second on an average (Limited to a fixed pattern search)

\* Throughput time is defined as the whole time required for the front server to receive a message, process service, send it, and complete the transaction. Traffic that uses special processes such as EDIFACT data processing functions, XML data processing functions etc. is not counted. Also, the time taken for communication in networks such as the Internet and processing time spent on external systems is not taken into account.

- The design shall meet the following performance requirements for the batch service process:
  - The batch service process shall be complete without affecting the online service.
  - The batch process shall be capable of being processed on a background of the online process.
  - The batch process shall not cause a significant decline in the response of the online process.

### (ii) Performance Specifications (Fundamental Values for the Performance Design)

- The assumed annual traffic that is used as VNACCS/VCIS design condition is shown in Table 2-12.

Table 2-12 Assumed Annual Traffic

Year	VNACCS/VCIS (VNACCS)	VNACCS/VCIS (VCIS)
2014	51,572,653	24,535,168
2015	55,492,174	26,399,841
2016	59,709,580	28,406,228
2017	64,247,508	30,565,102
2018	69,130,318	32,888,050

(Unit: Number of traffic)

(Formula for computation)

Number of traffic = Number of declarations \* Number of conducted services per declaration

- The assumed peak traffic, which is the traffic volume (number of process requests generated by process request messages from private users and customs users) during the heaviest period, is shown in Table 2-13.

Table 2-13 Assumed Peak Traffic

Year	VNACCS/VCIS (VNACCS)	VNACCS/VCIS (VCIS)
2014	9.2	4.4
2015	9.9	4.7
2016	10.6	5.0
2017	11.4	5.4
2018	12.3	5.8

(Unit: Traffic/Second)

(Formula for computation)

Peak Traffic = Number of total traffic \* Weekday rate \* Concentration rate

- The forecasted peak traffic volume by protocol conversion node is shown in Table 2-14.

Table 2-14 Assumed Peak Traffic (by Protocol Conversion Node)

Year	VNACCS/VCIS (VNACCS)		
	HTTP Interactive	SMTP Interactive	Data Translate
2014	7.8	0.9	0.5
2015	8.4	1.0	0.5
2016	9.0	1.1	0.5
2017	9.7	1.1	0.6
2018	10.5	1.2	0.6

(Unit: Traffic/Second)

(Formula for computation)

Rate of each protocol conversion node is assumed as follows by referring NACCS.

HTTP Interactive : SMTP Interactive : Data Translate = 85 : 10 : 5

- The logical size of the data to be stored for VNACCS/VCIS is shown in Table 2-15.

Table 2-15 Data Size

Year	Shared DISK Array Device			NAS Device
	Online Data (VNACCS)	Attached File (VNACCS)	Online Data (VCIS)	Original Master (VNACCS)
2014	17.9	50.2	330.9	283.6
2015	19.2	54.1	356.1	305.1
2016	20.7	58.2	383.1	328.3
2017	22.3	62.6	412.3	353.3
2018	24.0	67.3	443.6	380.1

(Unit : GB)

(Formula for computation)

Online data: Number of registration \* Record length \* Number of days to store

Attached file: Number of registration \* Average attached file size \* Number of days to store

Original master: Number of registration \* Record length \* Number of days to store

## **(8) Network Design**

Chapter 8 of the B/D shows the design policy of networks within the data center ( (i) realization of faster/simpler networks, (ii) adoption of TCP/IP for communication protocols, (iii) adoption of a redundant configuration in principle, (iv) ensuring a communication bandwidth of 1 Gbps for the path of the online communication), the main features implemented in the network ((i) load balancing feature, (ii) virus checking feature, (iii) security monitoring feature, (iv) packet filtering feature, (v) internet connecting feature, (vi) routing feature (vii) redundancy feature, (viii) monitoring feature for server/network appliance in the data center, (ix) time synchronization feature, (x) download feature of patch etc.), communication protocol design, and specifications of communication bandwidth, etc. They satisfy the features necessary for establishing VNACCS/VCIS based on NACCS/CIS technology, since its main features to be implemented are almost the same as those of NACCS/CIS in Japan. Also, the ensured bandwidth for communications, which is 1 Gbps, is sufficient, taking the current level of network technology into account. Accordingly, the network design is generally appropriate since it satisfies the design level required for VNACCS/VCIS developed on the basis of NACCS/CIS technology. The network design of VNACCS/VCIS will therefore be basically as shown in Chapter 8 of the B/D and as outlined below.

### **(i) Design Policy of Network within the Data Center**

- Regarding VNACCS/VCIS, targeting a swifter and simpler network within the data center, it shall be designed to overcome these challenges.
- TCP/IP shall be adopted as the communication protocol for VNCCS/VCIS.
- The adoption of a redundant configuration for the network within the VNACCS/VCIS data center, which, in principle, can switch to another path instantly if communication failure arises on a path, allowing normal communication to resume and improving overall system reliability. However, some operating system segments (concrete examples include segments to collect virus pattern files and patch information, and segments to monitor hardware, etc.), which do not affect the online process, shall have a single configuration.
- With system traffic increases in mind, a 1Gbps communication bandwidth shall be ensured (realistically, some decrease is expected because 1000BASE-T is mainly used.) for the path of the online communication in the data center network.

### **(ii) Main Features Implemented for the Data Center Network**

- The main features implemented for the data center network are shown in Table 2-16.

Table 2-16 Main Features Implemented for the Data Center Network

No.	Feature Overview	Description	Target Equipment
1	Load balancing feature	To balance sessions from clients to front end server in “all active configuration” such as HTTP Interactive server, Interface server (VNACCS).	Load balancer
2	Virus checking feature	To monitor the infection by virus on the message exchanged between private/customs users and the data center. Basically, attached files are targeted for virus checking.	Virus checking equipment
3	Security monitoring feature	Firewall shall be installed at the connection with the external network by TCP/IP and keep monitoring constantly based on a filtering rule.	Firewall
4	Packet filtering feature	Firewall shall be installed at the connection with the external network by TCP/IP and control the go/no-go on packet to pass based on a filtering rule.	Firewall (Router, L3SWHUB)
5	Internet connecting feature	It has a feature to connect to the Internet to get virus pattern files and server patches. The firewall controls that only the server and the equipment within the DMZ <sup>13</sup> shall be able to access directly to the Internet. In addition, IDS <sup>14</sup> is installed to detect unauthorized access at the segment that is connected to the Internet.	Firewall, IDS
6	Routing feature	To properly deliver communication packets to the server and the equipment at the destination address.	Router, Firewall, others
7	Redundancy feature	To preserve connection path using alternate communication path in case of a single failure of equipment in the redundant portion.	—
8	Monitoring feature for server/network appliance in data center	When the communication to specific server, node or segment is cut off, it displays alert on system operation monitoring terminal.	System operation monitoring terminal
9	Time synchronization feature	To synchronize the system time at each node via time synchronization device and operation monitoring server.	Time synchronization device Operation monitoring server.
10	Patch etc. download feature	To download security patch etc. for each server from the Internet.	Windows patch/virus pattern collecting equipment Linux patch collecting equipment

<sup>13</sup> DeMilitarized Zone is an area isolated from both external network (Internet) and internal network (Intranet) by firewalls in the network connected to the Internet.

<sup>14</sup> Intrusion Detection System is a system that monitors communication line to detect an invasion to the network and to notify the administrator.

(iii) Communication Protocol Design

- The major protocols (mainly in the Application Layer) used for the various communications in the network within the VNACCS/VCIS data center are shown in Table 2-17.

Table 2-17 List of the Major Communication Protocols to be Used

No.	Communication Protocol	Main Usage, Location Used
1	HTTP(S)	Interactive processing method (HTTP (terminal connections))
		Downloading documents on statistical record
		Receiving external virus pattern file
		Receiving external patch file etc.
2	SMTP	Mail processing method (EDIFACT (Private user EDI connection))
		Interactive processing method (SMTP Interactive (VCIS connection))
		Interactive processing method (SMPT Interactive (Private user EDI connection))
		Sending information to Viet Nam customs system (Statistics function)
3	POP3	Mail processing method (EDIFACT (Private user EDI connection))
4	FTP	Transfer for system internal file
5	SNMP	Between nodes, between NW equipment – system operation monitoring server
6	ICMP	Between nodes, between NW equipment – system operation monitoring server
7	NTP	Time synchronization communication

(iv) Specifications of Communication Bandwidth etc.

- Bandwidth for the online system segment shall be 1 Gbps.

**(9) Security Design**

The security design shown in Chapter 9 of the B/D is intended to ensure, in principle, limitation of access to data, data backup, monitoring of access logs, access control to system, training of users, management of service logs, OS/P.P. security patches, split of servers by roles/functions, server fortification, concealment of control information, and limitation of access to electronic documents. The design also ensures measures against threats, information asset analysis and measures, and basic security measures equivalent to NACCS/CIS in Japan. As such, the security design is generally appropriate for VNACCS/VCIS, which targets efficiency and stability equivalent to NACCS/CIS. Accordingly, the security design of VNACCS/VCIS is



basically to be as shown in Chapter 9 of the B/D and as outlined below.

(i) Security Design Policy

- The security for VNACCS/VCIS shall be ensured based on data access limitation, data backup, access log monitoring, access control to the system, user training, service log management, OS/P.P. security patch, servers split by roles/functions, server fortification, concealment of control information and access limitation of electronic document.
- Policies against threats are shown in Table 2-18.

Table 2-18 Policies against Threats

No.	Threat	Threat Overview	Policies
1	Unauthorized access acts (leak, destruction, falsification) to information assets	An act to access to the information asset in the system without proper procedure or permission. The threat should be prevented from happening by a certain level of encryption and settings of access permission corresponding to the importance of the information asset since it is supposed that some information asset such as personal information may cause significant damage in the system inside and outside.	- Access limitation to data - Encryption of communication data - Data backup - Access log monitoring - Digital signature
2	Spoofing	An act to pass off as authorized user and to misuse the system services. The threat should be prevented from happening by user certificate authentication and users education (prevention of social engineering) because of expectations of affects such as wrong billing request to the authorized user and disorder in system operation.	- Control of access to system - Users education
3	Post disclaimer	An act to deny the fact of the use after using system. The threat should be prevented from happening by user signature and log management etc. since in some cases it is expected to cause some problems like inconsistency etc. in operating system.	- Service log management
4	Denial of service attack to system	An act to be executed with the intention of disturbing stable operation of the system. The threat should be prevented from happening by access control, packet monitoring, etc. since the system service suspension by the attack is predicted to cause fairly-large influence to foreign trade and Vietnamese society.	- Control of access to system - System data backup - Access log monitoring - Patching - Packet monitoring - Securing program
5	Infection by computer virus of attached file Worm infection	An act to embed illegal code into binary file. The threat should be prevented from happening by virus check etc. of attached file since it is supposed that spread of virus can cause a big influence to the user system side.	- Virus check of binary file (center end, user end) - Regular update of pattern file
6	Unauthorized use (Use in an unexpected way, springboard)	An act to access to enter into the system without proper procedure or permission and enjoy unauthorized use of service. The threat should be prevented from happening by access control etc. since it is expected that it may be used for other than its original system service purpose and as a springboard to compromise against external system.	- Control of access to system - Access log monitoring - Server fortification - Concealment of control information

No.	Threat	Threat Overview	Policies
7	Physical destruction * <sup>1</sup>	An act to physically intrude into system and to physically destruct server, equipment etc. The threat should be prevented from happening by reasonable management of entering and leaving a machine room, continuous monitoring with camera etc., and so forth because of prediction of possible huge influence such as service suspension of the system etc.	- Management of entering and leaving a machine room (Identification, monitoring, record) - Continuous monitoring with camera etc.
8	Buffer overflow	An act to have a system got out of service or execute overflowed data by sending data that exceeds acceptable amount. The threat should be prevented from happening by securing program such as execution of proper management of memory buffer etc., since it results a trigger to unauthorized entering to the system or unauthorized access to information asset.	- Securing program
9	SQL Injection	An act to execute illegal SQL code in database utilizing vulnerability of application. The threat should be prevented from happening by securing program such as use of stored procedure that does not handle input string as executable statement and so on since it enables unauthorized access to information asset and attacks to other servers.	- Securing program
10	Normalization	An act to illegally access to the information asset that is originally not intended to be accessed by making bad use of the fact that same name can be indicated by using many different types such as file, path name etc. The threat should be prevented from happening by securing program, for example, having a program code not take an input of file name.	- Securing program

\*<sup>1</sup> Need to be realized in housing (data center).

- The major important information asset handled by VNACCS/VCIS, its description and policies against security invasions are shown in Table 2-19.

Table 2-19 Information Asset Analysis and Policies

No.	Information Category	Information Asset Description	Expected Effects and Security Policies
1	Personal information	VNACCS/VCIS handles some of information that shall be protected by Personal Information Protection Act.	The policy is to take the following policies in order to strictly protect by operation and system particularly focusing on information leak. - Access limitation to data - Encryption of communication data
2	Service related information	Collective term for various information from the customs, enterprises and individuals regarding export/import declaration and other foreign trade	The policy is to take the following policies since it is predicted that it would significantly affect system operation and users' benefit if such information was leaked, deleted, or falsified. - Limitation of access to data - Encryption of communication data - Data backup - Digital signature

No.	Information Category	Information Asset Description	Expected Effects and Security Policies
3	System control related information	Program run in the system, setting value of environment, login ID and password etc.	The policy is to take the following policies since it is predicted that ensuring security of whole system would become difficult if such information was leaked, deleted, or falsified. - Limitation of access to data - Encryption of communication data - Data backup - Concealment of control information
4	Related documents	Documents created during VNACCS/VCIS development etc. (system design information, program information, operation manual information etc.)	The policy is to take the following policies since it is predicted that ensuring security of whole system would become difficult if such information was leaked, deleted, or falsified. - Limitation of access to electronic document data - Data backup

(ii) Data Center Security Design

- The basic security policies implemented in VNACCS/VCIS are shown in Table 2-20.

Table 2-20 Basic Security Policies

No.	Security Policies	Difficulty Level of Policies	Effectiveness taking account of frequency of threat occurrence	Summary of Security Policies
1	Access limitation to data	Middle	High	Access control to data stored within the center by ID password authentication etc.
2	Encryption of transmitting data <sup>*2</sup>	Middle	Middle	Encryption of transmitting data with SSL, VPN, etc.
3	Data backup	Middle	Middle	Backing up data stored within the center, related documents etc.
4	Access log monitoring	Middle	High	Monitoring log of access to equipment within the center
5	Access control to system	Middle	High	Access control to equipment within the center by ID password authentication etc.
6	Users education	Middle	High	Security education to users
7	Service log management	Middle	Middle	Store, monitor, and management of service application log.
8	Patch applying	Middle	High	Applying patch and version up to OS and P.P.
9	Packet monitoring	Middle	High	Store and monitor of communication packet information at firewall.
10	Secure programming	High	High	Securing during development of application program of control and service
11	Virus check	Middle	High	Virus check of communication message (binary attached file)
12	Pattern file updates	Middle	High	Regular updates of pattern file for virus check
13	Server fortification	Middle	High	Blocking of unnecessary service and communication port
14	Management of entering and leaving a machine room <sup>*3</sup>	Low	Middle	Management of entering and leaving a machine room, implementation of authentication system

No.	Security Policies	Difficulty Level of Policies	Effectiveness taking account of frequency of threat occurrence	Summary of Security Policies
15	Monitoring by camera <sup>*3</sup>	Low	Middle	Continuous monitoring and video recording of machine room and its margin with monitoring camera etc.
16	concealment of control information	Middle	High	Masking important information such as input password etc. on the display
17	Access limitation of electronic documents	Low	Middle	Limitation of access to electronic documents by ID password authentication

<sup>\*2</sup> Need to be realized with Network.

<sup>\*3</sup> Need to be realized with housing (data center)

## (10) Operation Design

Chapter 10 of the B/D shows system operation design policy (realization of online operation for 24 hours / 365 days, realization of less operation with automatic operation control, log collection for analysis at failure, etc.), system operation design (automatic operation of online process, automatic operation of batch process, mechanism of start by timer and coupled messages), center operation monitor design (centralized management of system monitoring and monitoring of network security, etc.) and an environment for development and maintenance. They are equivalent to NACCS/CIS in Japan in various aspects, including the realization of online operation for 24 hours / 365 days, realization of less operation with automatic operation control, and automatic online/batch process operations. They are generally appropriate for realizing stable operation of VNACCS/VCIS since they are compatible with the objectives of VNACCS/VCIS to ensure efficiency and stability equivalent to NACCS/CIS in Japan. Accordingly, the operation design of VNACCS/VCIS shall be basically as shown in Chapter 10 of the B/D and as outlined below. It should be noted that the operation activities themselves are outside the scope of Japan's Grant Aid.

### (i) System Operation Design Policy

- 24 hour online operation shall be realized at normal time. However, a regular maintenance day shall be set aside for hardware maintenance.
- For VNACCS/VCIS during normal operation, automatic operation shall be realized as much as possible for online process operation and batch process operation by system operation monitoring servers and batch operation servers.
- In VNACCS/VCIS, log data corresponding to the requirements of services and each

server shall be collected and stored. This enables analysis of service and failure status in the past when a VNACCS/VCIS user requests investigation.

(ii) System Operation Design

- Automatic operation of the online process
  - To realize automatic online process operation, the system operation shall be conducted with an operation monitoring server. Normal operation is completely automated by managing all job-schedules of online processes by the operation monitoring server.
  - To perceive the state of system operation and system failure easily, each server status shall be managed by a concentrated central system operation monitoring terminal.
- Automatic operation of the batch process
  - To realize automatic batch process operation, the system operation shall be conducted with a batch operation server. Using this, processes must be executed based on the processing order of the batch process, and fully automatic operation can continue by judging the results of the prior process.
  - To perceive the state of system operation and system failure easily, each server status shall be managed by a concentrated central system operation monitoring terminal.
- Mechanisms of startup control by timer; Message-coupled command
  - The required command is automatically executed in accordance with the defined schedule, which is set in advance in the operation monitoring server.
  - The required command is automatically executed in accordance with the defined message command, which is set in advance in the system operation monitoring server.

(iii) Center Operation Monitoring Design

- Centralized management of system monitoring
  - By installing an operation monitoring server, monitoring and operation of each server in the data center, network and service working status are managed centrally at a single location.
  - Also, the information output and manual operation are performed by the system operation monitoring terminal.
- Monitoring network security etc.
  - A dedicated monitoring terminal shall be installed for monitoring security equipment such as equipment for firewalls, virus checks etc.

(iv) Environment for Development and Maintenance

- At VNACCS/VCIS online normal operations, development/test activities etc. are executed to support requests for additional system features under the development and maintenance environment in the data center. By providing another development environment in the data center, online operation in the data center is unaffected.

**(11) Maintenance Design**

Chapter 11 of the B/D shows a maintenance design which sets dates for regular maintenance, while the system is in operation for 24 hours / 365 days in principle, with planned shutdowns scheduled for about 3 hours per week. The design also includes various types of system monitoring such as alive monitoring<sup>15</sup>, process monitoring, system resource monitoring, performance monitoring, virus monitoring and message monitoring. The design is generally appropriate for VNACCS/VCIS, since it is based on the system operation for 24 hours / 365 days and its system monitoring is equivalent to NACCS/CIS in Japan. Accordingly, the maintenance design of VNACCS/VCIS is basically to be as shown in Chapter 11 of the B/D and as outlined below. It should be noted that maintenance work itself is outside the scope of Japan's Grant Aid.

(i) Maintenance Date

- Preconditions
  - VNACCS/VCIS shall be operated basically 24 hours a day and 365 days a year. However, dates of periodical maintenance shall be set to conduct planned system shutdowns.
  - The system shall be designed under the precondition that its maintenance shall be performed for a period of three hours on a weekly basis.
- Work during planned system shutdown
  - During the planned system shutdown, work requiring temporary system suspension, such as release of a program, hardware maintenance, patching of OS and middleware, and data structure changes.
  - For VNACCS/VCIS, operation for periodically rebooting servers, utilizing the maintenance date, shall be introduced with the objective of achieving stable system running.

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<sup>15</sup> It is a mechanism that checks whether a server is in operation or not, by sending a message from another server and receiving a response to the message.

## (ii) System Monitoring

- Alive monitoring
  - Alive monitoring shall be conducted for all system servers from the operation monitoring server to manage the statuses of the servers in a batch.
- Process monitoring
  - The status of OS and application processes shall be monitored. In the event of any error in the status, this shall be notified by a message or warning sound. Furthermore, the process monitoring function shall be designed to facilitate notification of the process to be monitored.
- System resource monitoring
  - By monitoring the CPU utilization, defects resulting from a short- or long-term CPU utilization increase shall be predicted and preventive measures taken.
  - By monitoring the memory utilization, defects resulting from short- or long-term memory utilization increase shall be predicted and preventive measures taken.
  - By monitoring the database utilization, failures resulting from record overflow shall be prevented. Preventive measures against cases where each table has a significantly different retention rate from that expected shall be promptly taken.
- Performance monitoring
  - The system shall be designed to periodically monitor and measure traffic volume during normal operation.
- Virus monitoring
  - The system shall be designed to check viruses in messages with attached file(s) sent to the system by antivirus units before the front server group receives said message.
  - Messages infected with viruses shall be isolated within the antivirus equipment without being transferred to the subsequent front server.
  - The isolated, infected message shall be used for post analysis later, and then deleted.
- Message monitoring
  - The system shall incorporate a mechanism to notify faulty messages by audible warnings at the point of detection by the operation monitoring server.

## (12) Safety Design

Chapter 12 of the B/D shows the safety design policy (ensuring system security and implementation of data backup operation), data backup design (full backup and system volume backup), and the main control functions of the backup server (data backup function, backup operation control function and log output function), which are equivalent to NACCS/CIS in Japan. The design is generally appropriate for VNACCS/VCIS since it is compatible with the

objectives of such system, to ensure safety equivalent to NACCS/CIS in Japan. Accordingly, the safety design of VNACCS/VCIS is basically to be as shown in Chapter 12 of the B/D and as outlined below.

(i) Safety Design Policy

- Ensuring of system security
  - Adequate security for VNACCS/VCIS shall be ensured.
- Implementing of data backup operation
  - Data shall be backed-up to prepare for any contingency.

(ii) Data Backup Design

- Full backup
  - A full backup of data for the online and batch databases shall be made within the data center to immediately recover online and batch data there; even where any defect arises in the same.
  - This backup shall include all data managed within the data storage unit.
  - Through the above, data recovery shall be possible, even when the data storage unit is held up, and data storage for an extended duration shall be possible while reducing the cost.
- System volume backup
  - The system volume of each node shall be backed up on DAT.
  - The backup shall be made only when any change is made to the system volume and for the purpose of using the backup when the need to restore the environment arises.
  - In providing this backup, versions of backup media shall be managed.

(iii) Major Control Functions of the Backup Server

- The major control functions of the backup server are shown in Table 2-21.

Table 2-21 List of the Major Control Functions of the Backup Server

No.	Function Name	Function Outline
1	Data backup function	Used to make a backup of data for the system.
2	Backup operation control function	Used to automatically process various types of operations related to system backup processing.
3	Log output function	Used to record the results of system backup processing as a log.



### **(13) Terminal Design**

The terminal design shown in Chapter 13 of the B/D adopts a rich client system for terminal software to avoid putting a heavy burden on the network and also with ease of access in mind. NACCS/CIS in Japan also adopts a rich client system for terminal software and a design which is generally appropriate for VNACCS/VCIS, since it is compatible with the policy of establishing a system based on NACCS/CIS technology. Accordingly, the terminal design of VNACCS/VCIS is basically to be as shown in Chapter 13 of the B/D and the rich client system is to be adopted for terminal software.

### **(14) Hardware, OS and Middleware**

Software for VNACCS/VCIS is developed on the basis of NACCS/CIS software in Japan. Accordingly, in principle, the hardware, OS and middleware products used to operate such software must be at least equivalent to those products used in NACCS/CIS, i.e. those proved as operating normally with NACCS/CIS software, to ensure system quality including performance, security and safety. The items to be procured for VNACCS/VCIS are specified in Table 2-22, which are subject to update when preparing tender documents.

Table 2-22 List of Hardware, OS and Middleware

No.	Server	Structure and Specification
1	AP Server, Interface Server [VNACCS]	<p>Structure</p> <ol style="list-style-type: none"> <li>1. Server : 2 pcs.</li> <li>2. DVD-ROM Device : 2 pcs.</li> <li>3. DAT Device : 2 pcs.</li> <li>4. OS</li> <li>5. Middleware</li> </ol> <p>Specification</p> <ol style="list-style-type: none"> <li>1. Server                             <ul style="list-style-type: none"> <li>CPU : Itanium 9340 1.6 GHz, 1 CPU (4 Core) or above</li> <li>Memory : 16 GB or above</li> <li>Internal Hard Disk Drive : 146 GB or above (execution capacity after duplication)</li> <li>LAN Interface : 1000 BASE-T x 4 ports or above</li> <li>FC Interface : 2 ports or above</li> </ul> </li> <li>2. DVD-ROM Device</li> <li>3. DAT Device</li> <li>4. OS</li> <li>5. Middleware                             <ul style="list-style-type: none"> <li>: HP UX11i v3</li> <li>: HP ANSI C++/C-L</li> <li>: MirrorDisk/UX-L</li> <li>: EMS HA Monitors-L</li> <li>: HA/ResourceSaver</li> <li>: HA/StorageSaver</li> <li>: TPBASE (IPF) R8.1</li> <li>: TP-Listener/OLF-UT (IPF) R8.1</li> <li>: DiosaGlobe APBASE</li> </ul> </li> </ol>
2	Operation DB Server [VNACCS]	<p>Structure</p> <ol style="list-style-type: none"> <li>1. Server : 2 pcs.</li> <li>2. DVD-ROM Device : 2 pcs.</li> <li>3. DAT Device : 2 pcs.</li> <li>4. LTO Library Device : 2 pcs.</li> <li>5. OS</li> <li>6. Middleware</li> </ol> <p>Specification</p> <ol style="list-style-type: none"> <li>1. Server                             <ul style="list-style-type: none"> <li>CPU : Xeon Processor 2 GHz, 1 CPU (8 Core) or above</li> <li>Memory : 32 GB or above</li> <li>Internal Hard Disk Drive : 300 GB or above (execution capacity after duplication)</li> <li>LAN Interface : 1000 BASE-T x 8 ports or above</li> <li>FC Interface : 4 ports or above</li> </ul> </li> <li>2. DVD-ROM Device</li> </ol>

No.	Server	Structure and Specification
		<p>3. DAT Device  4. LTO Library Device  5. OS  6. Middleware</p> <p>: Red Hat Enterprise Linux5  : Oracle Database 11g Enterprise Edition  : Oracle Partitioning 11g  : NetBackup Enterprise Server v7.1 for Linux  : NetBackup Enterprise Client v7.1 for Windows/Linux  : NetBackup Enterprise Client v7.1 for UNIX  : NetBackup Library Based Tape Drive v7.1  : NetBackup Shared Storage Option for Tape v7.1  : NetBackup Application And Database Pack v7.1 for UNIX  : NetBackup Vault Option Unlimited License v7.1  : NetBackup v7.1 for UNIX and Linux Documentation Kit  : CLUSTERPRO X 3.0 for Linux  : CLUSTERPRO X Replicator 3.0 for Linux</p>
3	Data Translate Server, SMTP Interactive Server [VNACCS]	<p>Structure</p> <ol style="list-style-type: none"> <li>1. Server : 2 pcs.</li> <li>2. DVD-ROM Device : 2 pcs.</li> <li>3. DAT Device : 2 pcs.</li> <li>4. OS</li> <li>5. Middleware</li> </ol> <p>Specification</p> <ol style="list-style-type: none"> <li>1. Server <ul style="list-style-type: none"> <li>CPU : Itanium 9340 1.6 GHz, 3 CPU (12 Core) or above</li> <li>Memory : 32 GB or above</li> <li>Internal Hard Disk Drive : 146 GB or above (execution capacity after duplication)</li> <li>LAN Interface : 1000 BASE-T x 6 ports or above</li> <li>FC Interface : 2 ports or above</li> </ul> </li> <li>2. DVD-ROM Device : HP UX11i v3</li> <li>3. DAT Device : HP ANSI C++/C-L</li> <li>4. OS : HP Serviceguard-L</li> <li>5. Middleware : MirrorDisk/UX-L</li> </ol> <p>: EMS HA Monitors-L  : HA/ResourceSaver  : HA/StorageSaver  : TPBASE (IPF) R8.1  : TP-Listener/OLF-UT (IPF) R8.1  : AnyTran</p>

No.	Server	Structure and Specification
4	<p>HTTP Interactive Server [VNACCS]</p>	<p>Structure</p> <ol style="list-style-type: none"> <li>1. Server : 4 pcs.</li> <li>2. DVD-ROM Device : 4 pcs.</li> <li>3. DAT Device : 4 pcs.</li> <li>4. OS</li> <li>5. Middleware</li> </ol> <p>Specification</p> <ol style="list-style-type: none"> <li>1. Server <ul style="list-style-type: none"> <li>CPU : XeonE5620, 2 CPU (8 Core) or above</li> <li>Memory : 24 GB or above</li> <li>Internal Hard Disk Drive : 300 GB or above (execution capacity after duplication)</li> <li>LAN Interface : 1000 BASE-T x 6 ports or above</li> <li>FC Interface : 2 ports or above</li> </ul> </li> <li>2. DVD-ROM Device</li> <li>3. DAT Device</li> <li>4. OS</li> <li>5. Middleware <ul style="list-style-type: none"> <li>: Red Hat Enterprise Linux</li> <li>: TPBASE Media (Linux) R9.1</li> <li>: TP-Listener/OLF-UT R9.1</li> <li>: CLUSTERPRO X 3.0 for Linux</li> <li>: CLUSTERPRO X Replicator 3.0 for Linux</li> <li>: WebOTX Application Server Standard V8.3</li> <li>: WebOTX Application Server Standard V8.3 CU License</li> <li>: WebOTX Developer (for CORBA Application) V8.3</li> </ul> </li> </ol>
5	<p>Integrated Operation Monitoring Server / Batch Operation Server, File Linkage Server / Single Window Server [VNACCS]</p>	<p>Structure</p> <ol style="list-style-type: none"> <li>1. Server : 2 pcs.</li> <li>2. DVD-ROM Device : 2 pcs.</li> <li>3. DAT Device : 2 pcs.</li> <li>4. OS</li> <li>5. Middleware</li> </ol> <p>Specification</p> <ol style="list-style-type: none"> <li>1. Server <ul style="list-style-type: none"> <li>CPU : Itanium 9340 1.6 GHz, 2 CPU (8 Core) or above</li> <li>Memory : 24 GB or above</li> <li>Internal Hard Disk Drive : 146 GB or above (execution capacity after duplication)</li> <li>LAN Interface : 1000 BASE-T x 6 ports or above</li> <li>FC Interface : 2 ports or above</li> </ul> </li> <li>2. DVD-ROM Device</li> <li>3. DAT Device</li> <li>4. OS</li> <li>5. Middleware <ul style="list-style-type: none"> <li>: HP UX11i v3</li> <li>: HP ANSI C++/C-L</li> <li>: HP Serviceguard-L</li> </ul> </li> </ol>

No.	Server	Structure and Specification
6	Integrated Operation Monitoring Terminal [VNACCS]	<p>Structure and Specification</p> <ul style="list-style-type: none"> <li>: MirrorDisk/UX-L</li> <li>: EMS HA Monitors-L</li> <li>: MC/ServiceGuard NFS Toolkit-L</li> <li>: HA/ResourceSaver</li> <li>: HA/SStorageSaver</li> <li>: WebSAM MCO Operations Base Manager for HP-UX</li> <li>: WebSAM MCO Operations Workflow Manager for HP-UX</li> <li>: WebSAM MCO Operations Operations Manager for HP-UX</li> <li>: WebSAM MCO Operations Base Agent for HP-UX/Solaris/AIX</li> <li>: WebSAM MCO Operations Operations Agent for HP-UX/Solaris/AIX</li> <li>: WebSAM MCO Operations Workflow Agent for HP-UX/Solaris/AIX</li> <li>: WebSAM MCO Operations HA Option Agent for HP-UX/Solaris/AIX</li> <li>: WebSAM MCO Operations Base Agent for Win/Linux</li> <li>: WebSAM MCO Operations Operations Agent for Win/Linux</li> <li>: WebSAM MCO Operations Workflow Agent for Win/Linux</li> <li>: WebSAM MCO Operations HA Option Agent for Win/Linux</li> <li>: WebSAM NetvisorPro V 5.0 for HP-UX</li> <li>: SORTKIT (IPF)</li> <li>: DiosoGlobe APBASE</li> <li>: WebSAM JobCenter SV (T1)</li> <li>: WebSAM JobCenter CJC Option</li> </ul> <p>Structure</p> <ol style="list-style-type: none"> <li>1. Terminal : 3 pcs.</li> <li>2. DVD Super Multi Drive Device : 3 pcs.</li> <li>3. External HDD (1 TB) : 3 pcs.</li> <li>4. Monitor (17 inch or above) : 3 pcs.</li> <li>5. Warning Lamp Device : 3 pcs.</li> <li>6. OS</li> <li>7. Middleware</li> </ol> <p>Specification</p> <ol style="list-style-type: none"> <li>1. Terminal <ul style="list-style-type: none"> <li>CPU</li> <li>Memory</li> <li>Internal Hard Disk Drive</li> </ul> </li> <li>2. DVD Super Multi Drive Device</li> <li>3. External HDD (1 TB)</li> <li>4. Monitor (17 inch or above)</li> <li>5. Warning Lamp Function</li> <li>6. OS</li> <li>7. Middleware</li> </ol> <ul style="list-style-type: none"> <li>: Core i3 2120 3.3 GHz or above</li> <li>: 2 GB or above</li> <li>: 250 GB or above</li> <li>: Microsoft Windows7 Professional</li> <li>: WebOTX Administrator V8.3</li> <li>: WebSAM MCO Operations – View</li> <li>: ASTEC-X7.0</li> </ul>

No.	Server	Structure and Specification
7	Interface AP Server / Authentication Server [VCIS]	<p>: Express Symantec Ghost Solution Suite 2.5</p> <p>Structure</p> <ol style="list-style-type: none"> <li>1. Server : 2 pcs.</li> <li>2. Console-related Device (can be shared with other servers) : 2 pcs.</li> <li>3. DVD-ROM Device : 2 pcs.</li> <li>4. DAT160 Device : 2 pcs.</li> <li>5. Connecting Cable : 2 pcs.</li> <li>6. OS</li> <li>7. Middleware</li> </ol> <p>Specification</p> <ol style="list-style-type: none"> <li>1. Server <ul style="list-style-type: none"> <li>CPU : SPARC64 VII+ Processor 2.86.GHz, 1 CPU (4 Core) or above</li> <li>Memory : 16 GB or above</li> <li>Internal Hard Disk Drive : 300 GB or above (10000rpm, SAS Disk) x 2</li> <li>Extended LAN Interface : Dual-Port (10 BASE-T / 100 BASE-T / 1000 BASE-T) x 4 or above</li> <li>FC Interface : N/A</li> </ul> </li> <li>2. Console-related Device (can be shared with other servers)</li> <li>3. DVD-ROM Device</li> <li>4. DAT160 Device</li> <li>5. Connecting Cable</li> <li>6. OS : Solaris 10 OS</li> <li>7. Middleware : PRIMECLUSTER GDS : PRIMECLUSTER GLS : Sophos Anti-Virus</li> </ol>
8	Interface DB Server [VCIS]	<p>Structure</p> <ol style="list-style-type: none"> <li>1. Server : 2 pcs.</li> <li>2. Console-related Device (can be shared with other servers) : 2 pcs.</li> <li>3. DVD-ROM Device : 2 pcs.</li> <li>4. DAT72 Device : 2 pcs.</li> <li>5. Connecting Cable : 2 pcs.</li> <li>6. OS</li> <li>7. Middleware</li> </ol> <p>Specification</p> <ol style="list-style-type: none"> <li>1. Server <ul style="list-style-type: none"> <li>CPU : Xeon Processor 2.13 GHz, 1 CPU (4 Core) or above</li> <li>Memory : 16 GB or above</li> </ul> </li> </ol>

No.	Server	Structure and Specification
		<p>Internal Hard Disk Drive            LAN Interface            FC Interface            Console-related Device            (can be shared with other servers)            3. DVD-ROM Device            4. DAT72 Device            5. Connecting Cable            6. OS            7. Middleware</p> <p>: 146 GB or above x 4            : Dual-Port (1000 BASE-T) x 2 or above            : 8 Gbps x 2 ports or above</p> <p>: Red Hat Enterprise Linux            : PRIMECLUSTER HA            : PRIMECLUSTER Wizard for Oracle            : ETERNUS Multipath Driver            : Oracle Database 11g Release2            : Oracle Database Enterprise Edition            : ETERNUS SF Recovery Manager for Oracle EE            : Sophos Anti-Virus</p>
9	Web AP Server [VCIS]	<p>Structure</p> <p>1. Server            2. Console-related Device            (can be shared with other servers)            3. DVD-ROM Device            4. DAT72 Device            5. Connecting Cable            6. OS            7. Middleware</p> <p>Specification</p> <p>1. Server            CPU            Memory            Internal Hard Disk Drive            Extended LAN Interface            FC Interface            Console-related Device            (can be shared with other servers)            3. DVD-ROM Device            4. DAT72 Device            5. Connecting Cable            6. OS            7. Middleware</p> <p>: 2 pcs.            : 2 pcs.            : 2 pcs.            : 2 pcs.            : 2 pcs.</p> <p>: Xeon Processor 2.13 GHz, 1 CPU (4 Core) or above            : 8 GB or above            : 146 GB or above (15000rpm, SAS Disk) x 4            : Single-Port (10 BASE-T / 100 BASE-T / 1000 BASE-T) x 2 or above            : N/A</p> <p>: Red Hat Enterprise Linux            : PRIMECLUSTER GLS            : Sophos Anti-Virus</p>

No.	Server	Structure and Specification
10	DB Server [VCIS]	<p>Structure</p> <ol style="list-style-type: none"> <li>1. Server : 2 pcs.</li> <li>2. Console-related Device (can be shared with other servers) : 2 pcs.</li> <li>3. DVD-ROM Device : 2 pcs.</li> <li>4. DAT72 Device : 2 pcs.</li> <li>5. Connecting Cable : 2 pcs.</li> <li>6. OS</li> <li>7. Middleware</li> </ol> <p>Specification</p> <ol style="list-style-type: none"> <li>1. Server <ul style="list-style-type: none"> <li>CPU : Xeon Processor 2.40 GHz, 1 CPU (6 Core) or above</li> <li>Memory : 32 GB or above</li> <li>Internal Hard Disk Drive : 146 GB or above (SAS Disk, 15000rpm) x 2</li> <li>LAN Interface : Dual-Port (1000 BASE-T) x 2 or above</li> <li>FC Interface : 8 Gbps x 2 ports or above</li> </ul> </li> <li>2. Console-related Device (can be shared with other servers)</li> <li>3. DVD-ROM Device</li> <li>4. DAT72 Device</li> <li>5. Connecting Cable</li> <li>6. OS : Red Hat Enterprise Linux</li> <li>7. Middleware : PRIMECLUSTER HA Server</li> </ol> <p>: Sophos Anti-Virus : ETERNUS Multipath Driver : TextPorter V4.1x</p>
11	Batch Server [VCIS]	<p>Structure</p> <ol style="list-style-type: none"> <li>1. Server : 2 pcs.</li> <li>2. Console-related Device (can be shared with other servers) : 2 pcs.</li> <li>3. DVD-ROM Device : 2 pcs.</li> <li>4. DAT72 Device : 2 pcs.</li> <li>5. Connecting Cable : 2 pcs.</li> <li>6. OS</li> <li>7. Middleware</li> </ol> <p>Specification</p> <ol style="list-style-type: none"> <li>1. Server <ul style="list-style-type: none"> <li>CPU : Xeon Processor 2.13 GHz, 1 CPU (4 Core) or above</li> <li>Memory : 8 GB or above</li> <li>Internal Hard Disk Drive : 146 GB or above (SAS Disk, 15000rpm) x 4 or above</li> <li>LAN Interface : Dual-Port (1000 BASE-T) x 2 or above</li> </ul> </li> </ol>



No.	Server	Structure and Specification
		<p>FC Interface : 8 Gbps x 2 ports or above</p> <p>2. Console-related Device (can be shared with other servers)</p> <p>3. DVD-ROM Device</p> <p>4. DAT72 Device</p> <p>5. Connecting Cable</p> <p>6. OS : Red Hat Enterprise Linux</p> <p>7. Middleware : PRIMECLUSTER HA</p> <p>: ETERNUS Multipath Driver</p> <p>: Sophos Anti-Virus</p>
12	<p>Operation Monitoring Terminal [VCIS]</p>	<p>Structure</p> <p>1. Terminal : 1 pc.</p> <p>2. DVD-ROM Device : 1 pc.</p> <p>3. Warning Lamp Device : 1 pc.</p> <p>4. Page Printer : 1 pc.</p> <p>5. OS</p> <p>6. Middleware</p> <p>Specification</p> <p>1. Terminal CPU : Intel® Core™ i5-520M (2.40 GHz) or above</p> <p>Memory : 8 GB or above</p> <p>Internal Hard Disk Drive : 80 GB or above (SATA)</p> <p>LAN Interface : Onboard</p> <p>FC Interface : N/A</p> <p>2. DVD-ROM Device</p> <p>3. Warning Lamp Device</p> <p>4. Page Printer</p> <p>5. OS : Windows® 7 Professional (64 bit edition)</p> <p>6. Middleware : Sophos Anti-Virus (Endpoint security and control)</p>
13	<p>Operation Monitoring Server [VCIS]</p>	<p>Structure</p> <p>1. Server : 2 pcs.</p> <p>2. Console-related Device (can be shared with other servers) : 2 pcs.</p> <p>3. DVD-ROM Device : 2 pcs.</p> <p>4. DAT72 Device : 2 pcs.</p> <p>5. Connecting Cable : 2 pcs.</p> <p>6. OS</p> <p>7. Middleware</p> <p>Specification</p>

No.	Server	Structure and Specification
		<p>1. Server</p> <ul style="list-style-type: none"> <li>CPU : Xeon Processor 2.13 GHz, 2 CPU (8 Core) or above</li> <li>Memory : 16 GB or above</li> <li>Internal Hard Disk Drive : 146 GB or above (SAS Disk, 15000rpm) x 2 or above</li> <li>LAN Interface : Single-Port (1000 BASE-T) x 2 or above</li> <li>FC Interface : N/A</li> <li>2. Console-related Device (can be shared with other servers)</li> <li>3. DVD-ROM Device</li> <li>4. DAT72 Device</li> <li>5. Connecting Cable</li> <li>6. OS : Red Hat Enterprise Linux</li> <li>7. Middleware : PRIMECLUSTER GLS</li> <li>: Sophos Anti-Virus</li> </ul>
14	Linux Patch Collector [VNACCS]	<p>Structure</p> <ul style="list-style-type: none"> <li>1. Collector : 1 pc.</li> <li>2. Internal DVD-ROM : 1 pc.</li> <li>3. Internal DAT : 1 pc.</li> <li>4. OS</li> <li>5. Middleware</li> </ul> <p>Specification</p> <ul style="list-style-type: none"> <li>1. Collector <ul style="list-style-type: none"> <li>CPU : Pentium G620, 2.6 GHz or above</li> <li>Memory : 2 GB or above</li> <li>Internal Hard Disk Drive : 146.5 GB or above</li> <li>LAN Interface : 1000 BASE-T Connector Board (2 channel)</li> </ul> </li> <li>2. Internal DVD-ROM</li> <li>3. Internal DAT</li> <li>4. OS</li> <li>5. Middleware</li> </ul>
15	Windows Patch and Virus Pattern Collector [VNACCS]	<p>Structure</p> <ul style="list-style-type: none"> <li>1. Collector : 1 pc.</li> <li>2. Internal DVD-ROM : 1 pc.</li> <li>3. Internal DAT : 1 pc.</li> <li>4. OS</li> <li>5. Middleware</li> </ul> <p>Specification</p> <ul style="list-style-type: none"> <li>1. Collector <ul style="list-style-type: none"> <li>CPU : Pentium G620, 2.6 GHz or above</li> </ul> </li> </ul>

No.	Server	Structure and Specification
		<p>Memory : 2 GB or above</p> <p>Internal Hard Disk Drive : 146.5 GB or above</p> <p>LAN Interface : 1000 BASE-T Connector Board (2 channel)</p> <p>2. Internal DVD-ROM</p> <p>3. Internal DAT</p> <p>4. OS : Microsoft Windows Server 2008 R2 Standard</p> <p>5. Middleware : CA ARCserve Backup r15 for Windows : VirusBuster Client/Server Suite</p>
16	Firewall Monitoring Terminal [VNACCS]	<p>Structure</p> <p>1. Terminal : 1 pc.</p> <p>2. Internal DVD-ROM : 1 pc.</p> <p>3. Internal DAT : 1 pc.</p> <p>4. Monitor (17 inch or above) : 1 pc.</p> <p>5. OS</p> <p>6. Middleware</p> <p>Specification</p> <p>1. Terminal CPU Memory : Pentium G620, 2.6 GHz or above</p> <p>Internal Hard Disk Drive : 2 GB or above</p> <p>LAN Interface : 146.5 GB or above</p> <p>2. Internal DVD-ROM : 1000 BASE-T Connector Board (2 channel)</p> <p>3. Internal DAT</p> <p>4. Monitor (17 inch or above)</p> <p>5. OS : Microsoft Windows Server 2008 R2 Standard</p> <p>6. Middleware : CA ARCserve Backup r15 for Windows</p>
17	System Operator's Terminal [VNACCS]	<p>Structure</p> <p>1. Terminal : 1 pc.</p> <p>2. DVD Super Multi Drive Device : 1 pc.</p> <p>3. External HDD (1 TB or above) : 1 pc.</p> <p>4. Monitor (17 inch or above) : 1 pc.</p> <p>5. OS</p> <p>Specification</p> <p>1. Terminal CPU Memory : Core i3 2120, 3.3 GHz or above</p> <p>Internal Hard Disk Drive : 2 GB or above</p> <p>2. DVD Super Multi Drive Device : 250 GB or above</p> <p>3. External HDD (1 TB or above)</p>

No.	Server	Structure and Specification
18	Integrated Console Terminal [VNACCS]	<p>4. Monitor (17 inch or above) 5. OS : Microsoft Windows7 Professional</p> <p>Structure 1. Terminal : 2 pcs. 2. DVD Super Multi Drive Device : 2 pcs. 3. Internal DAT : 2 pcs. 4. Monitor (19 inch or above) : 2 pcs. 5. OS 6. Middleware</p> <p>Specification 1. Terminal CPU : Pentium G6950, 2.8 GHz or above Memory : 2 GB or above Internal Hard Disk Drive : 146.5 GB or above LAN Interface : 1000 BASE-T Connector Board (2 channel)</p> <p>2. DVD Super Multi Drive Device 3. Internal DAT 4. Monitor (19 inch or above) 5. OS : Microsoft Windows Server 2008 R2 Standard 6. Middleware : CA ARCserve Backup r15 for Windows</p>
19	Network Maintenance Terminal [VCIS]	<p>Structure 1. Terminal : 1 pc. (A4 note type) 2. Super Multi Drive Device : 1 pc. 3. Mouse Device : 1 pc. 4. OS 5. Middleware</p> <p>Specification 1. Terminal CPU : Intel® Core™ i5-2520M (2.50 GHz) or above Memory : 2 GB or above Internal Hard Disk Drive : 250 GB or above (SATA) LAN Interface : Onboard FC Interface : N/A</p> <p>2. Super Multi Drive Device 3. Mouse Device 4. OS : Windows® 7 Professional (32 bit edition) 5. Middleware : Sophos Anti-Virus (Endpoint security and control)</p>

No.	Server PKI Operation Server (Digital Signature)	Structure and Specification
20		<p>Structure</p> <ol style="list-style-type: none"> <li>1. Server : 2 pcs.</li> <li>2. Console-related Device (can be shared with other servers) : 2 pcs.</li> <li>3. DVD-ROM Device : 2 pcs.</li> <li>4. DAT72 Device : 2 pcs.</li> <li>5. Connecting Cable : 2 pcs.</li> <li>6. OS</li> <li>7. Middleware</li> </ol> <p>Specification</p> <ol style="list-style-type: none"> <li>1. Server <ul style="list-style-type: none"> <li>CPU : Xeon Processor 2.13 GHz, 1 CPU (4 Core) or above</li> <li>Memory : 16 GB or above</li> <li>Internal Hard Disk Drive : 146 GB x 4</li> <li>LAN Interface : Dual-Port (1000 BASE-T) x 2 or above</li> <li>FC Interface : 8 Gbps x 2 ports or above</li> </ul> </li> <li>2. Console-related Device (can be shared with other servers)</li> <li>3. DVD-ROM Device</li> <li>4. DAT72 Device</li> <li>5. Connecting Cable</li> <li>6. OS : Red Hat Enterprise Linux</li> <li>7. Middleware : PRIMECLUSTER HA</li> </ol> <p style="margin-left: 40px;">: PRIMECLUSTER Wizard for Oracle</p> <p style="margin-left: 40px;">: ETERNUS Multipath Driver</p> <p style="margin-left: 40px;">: Oracle Database 11g Release2</p> <p style="margin-left: 40px;">: Oracle Database Enterprise Edition</p> <p style="margin-left: 40px;">: ETERNUS SF Recovery Manager for Oracle EE</p> <p style="margin-left: 40px;">: Sophos Anti-Virus</p>

Note: In addition to the above, other related equipment is to be procured, which includes: Storage devices, LTO, Network equipment, Racks, Time synchronization devices and printers.

## 2-2-3 Outline Design Drawing

### (1) System Layout

The system layout of VNACCS/VCIS to be introduced in Viet Nam is as shown in Figure 2-3.

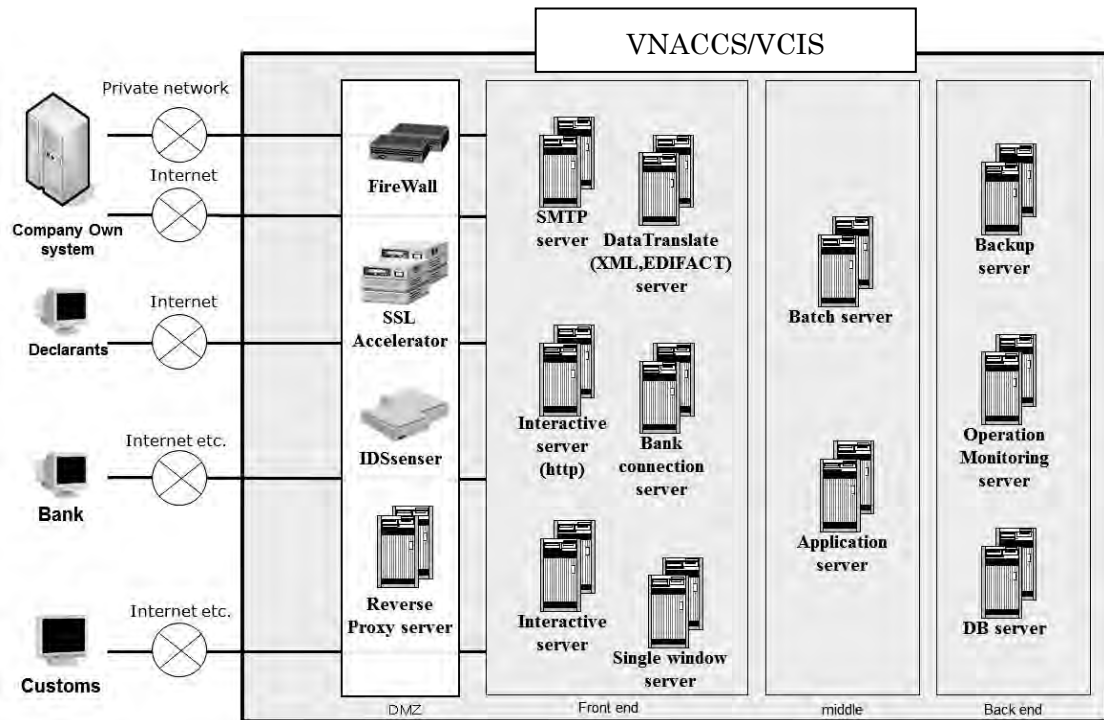


Figure 2-3 System Layout

Note: The layout shown above is the logical layout, which is not the same as the actual physical layout. The networks and external destinations relating to the external connections shown in the above figure are outside the scope of the design of VNACCS/VCIS to be done by the Japanese side.

### (2) Software Structure Drawings

The software structure of each server in VNACCS/VCIS, which is conceptual, is basically as shown in Figures 2-4 to 2-13.

System Name	Figure Description	Category	Version	Date of Creation	Page No.
VNACCS / VCIS	System Overview [OV]	[OV]			1/1

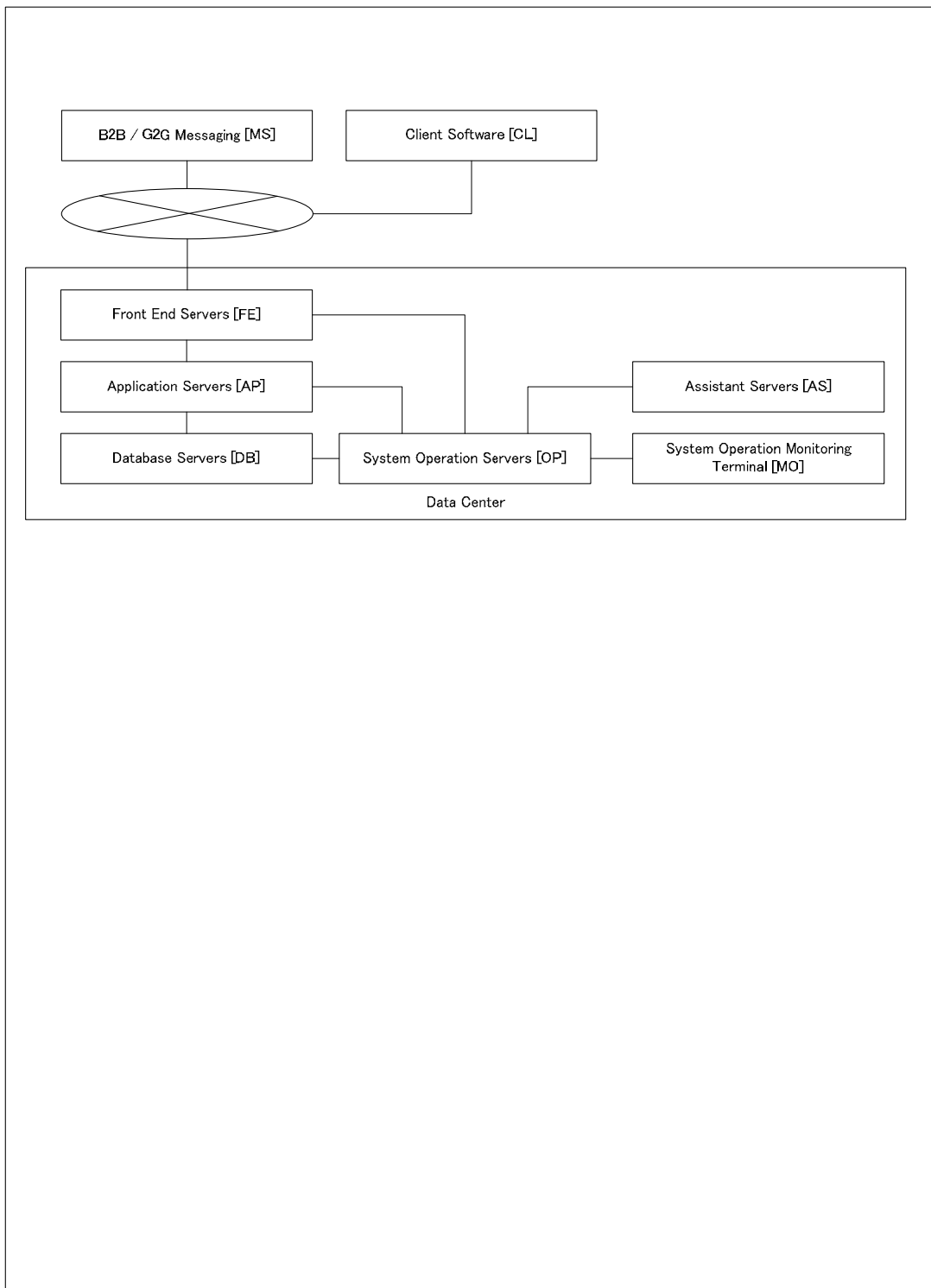


Figure 2-4 System Overview

System Name	Figure Description	Category	Version	Date of Creation	Page No.
VNACCS / VCIS	Front End Servers [FE]	[FE]			1/3

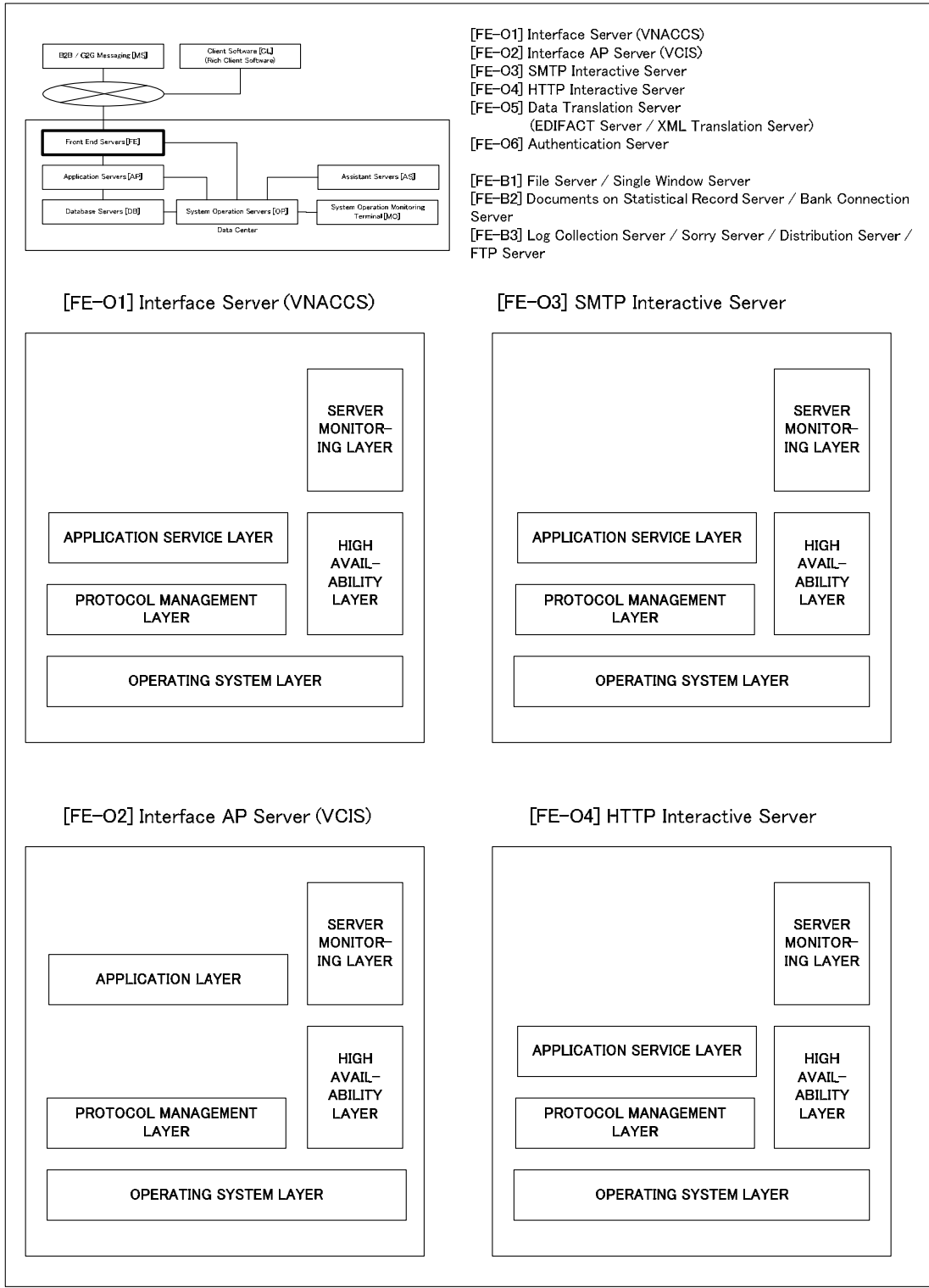


Figure 2-5 Front End Servers (1/3)



System Name	Figure Description	Category	Version	Date of Creation	Page No.
VNACCS / VCIS	Front End Servers [FE]	[FE]			2/3

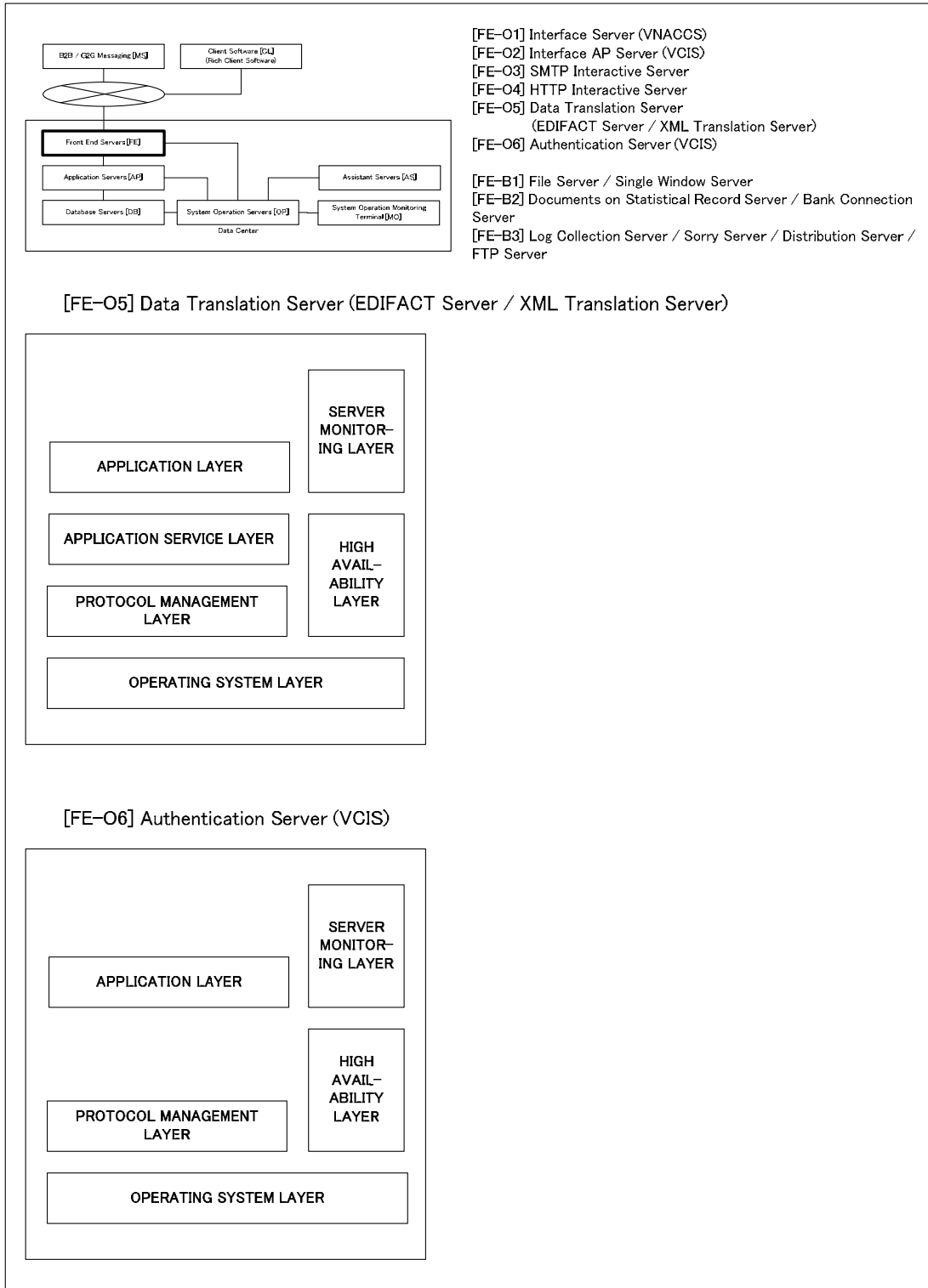


Figure 2-6 Front End Servers (2/3)

System Name	Figure Description	Category	Version	Date of Creation	Page No.
VNACCS / VCIS	Front End Servers [FE]	[FE]			3/3

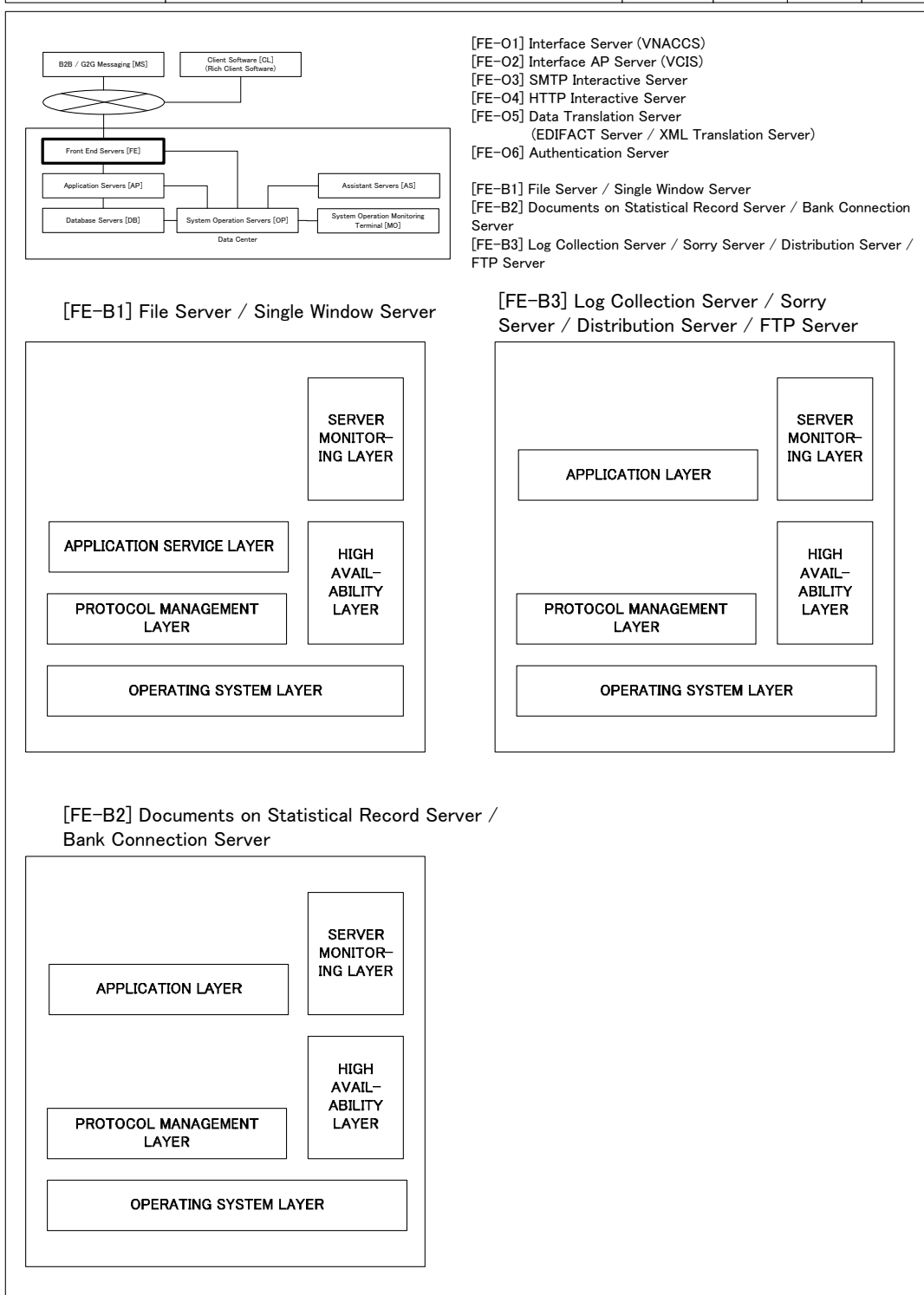


Figure 2-7 Front End Servers (3/3)

System Name	Figure Description	Category	Version	Date of Creation	Page No.
VNACCS / VCIS	Application Servers [AP]	[AP]			1/1

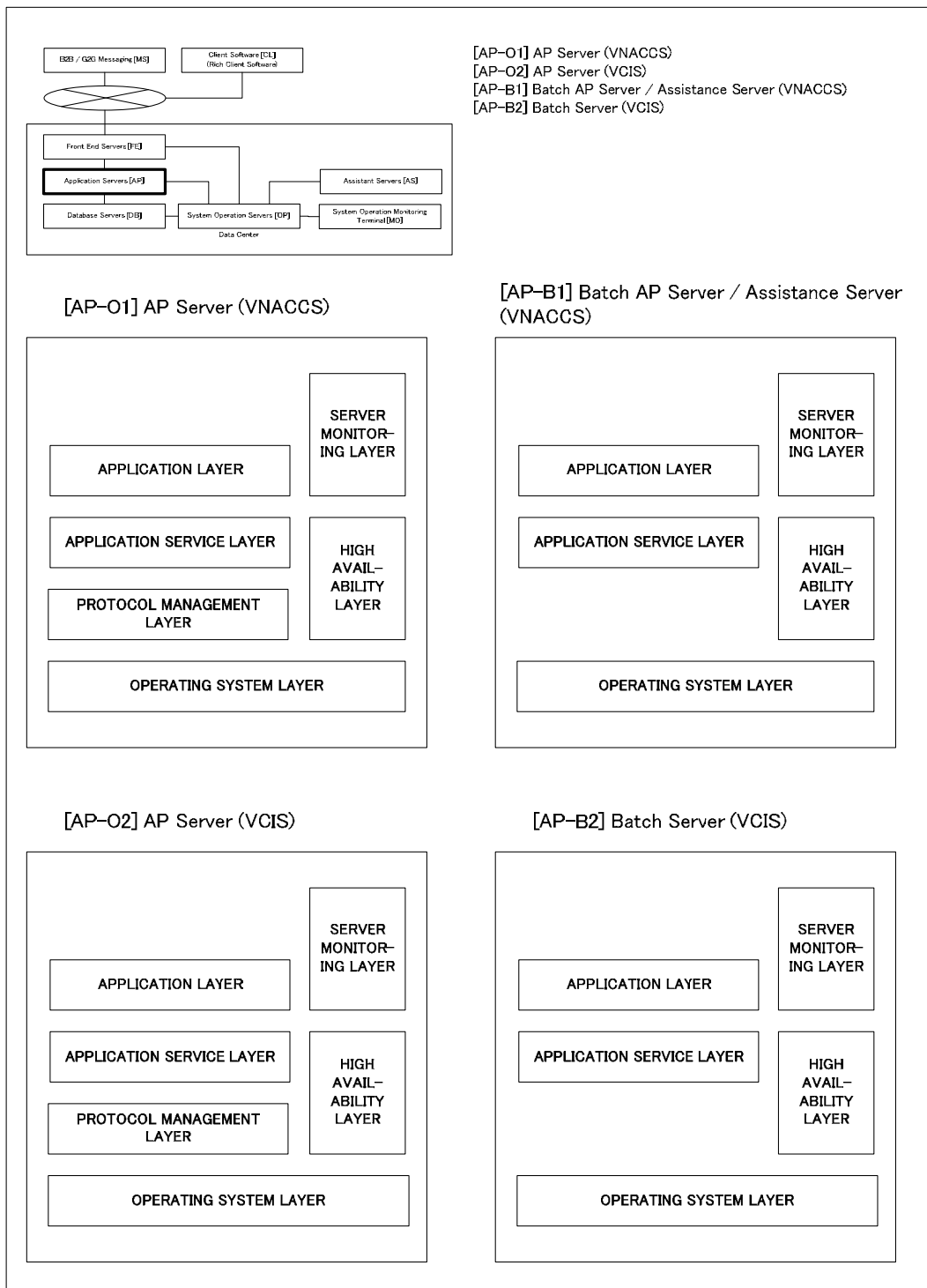


Figure 2-8 Application Servers

System Name	Figure Description	Category	Version	Date of Creation	Page No.
VNACCS / VCIS	Database Servers [DB]	[DB]			1/1

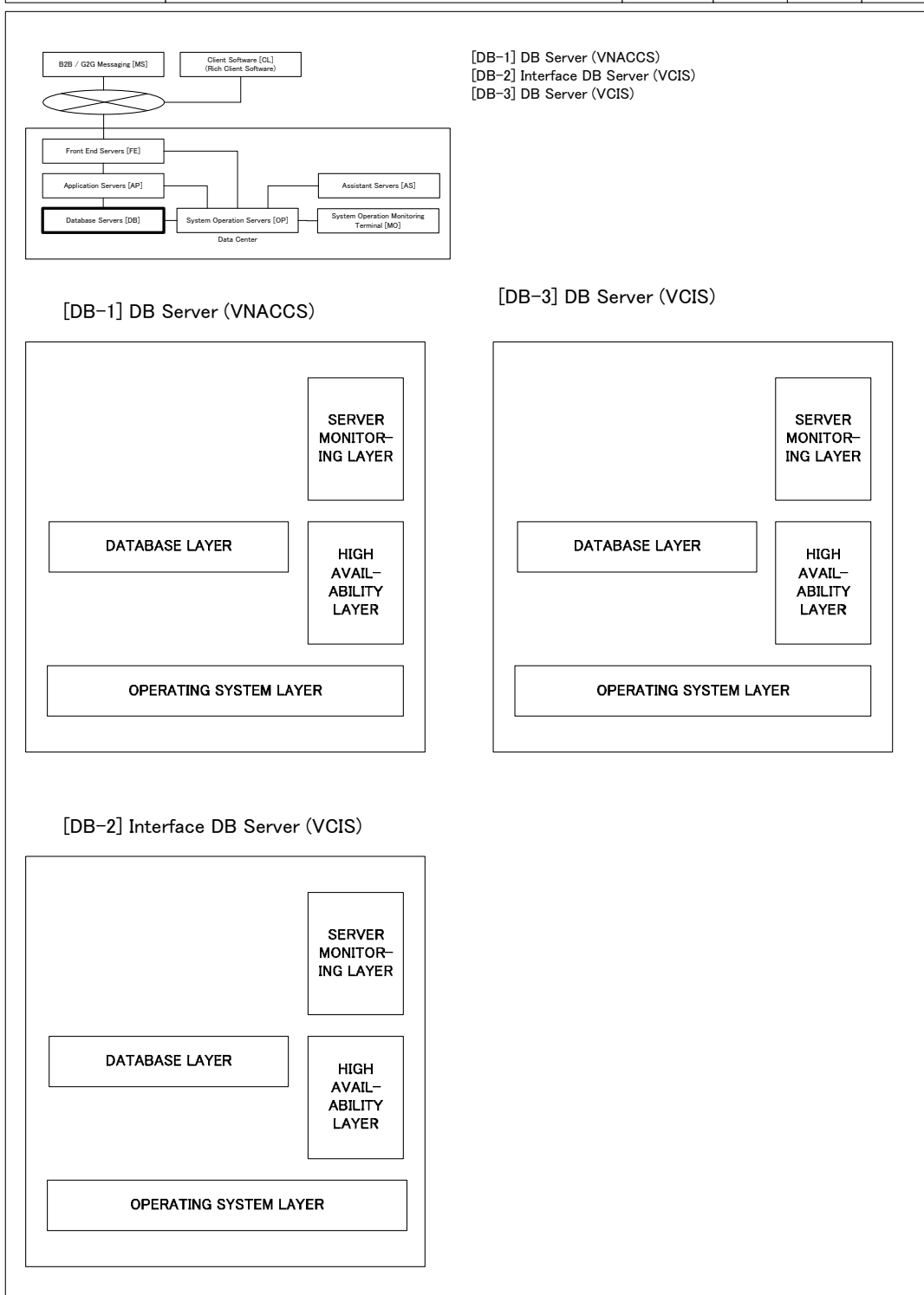


Figure 2-9 Database Servers

System Name	Figure Description	Category	Version	Date of Creation	Page No.
VNACCS / VCIS	System Operation Servers [OP]	[OP]			1/1

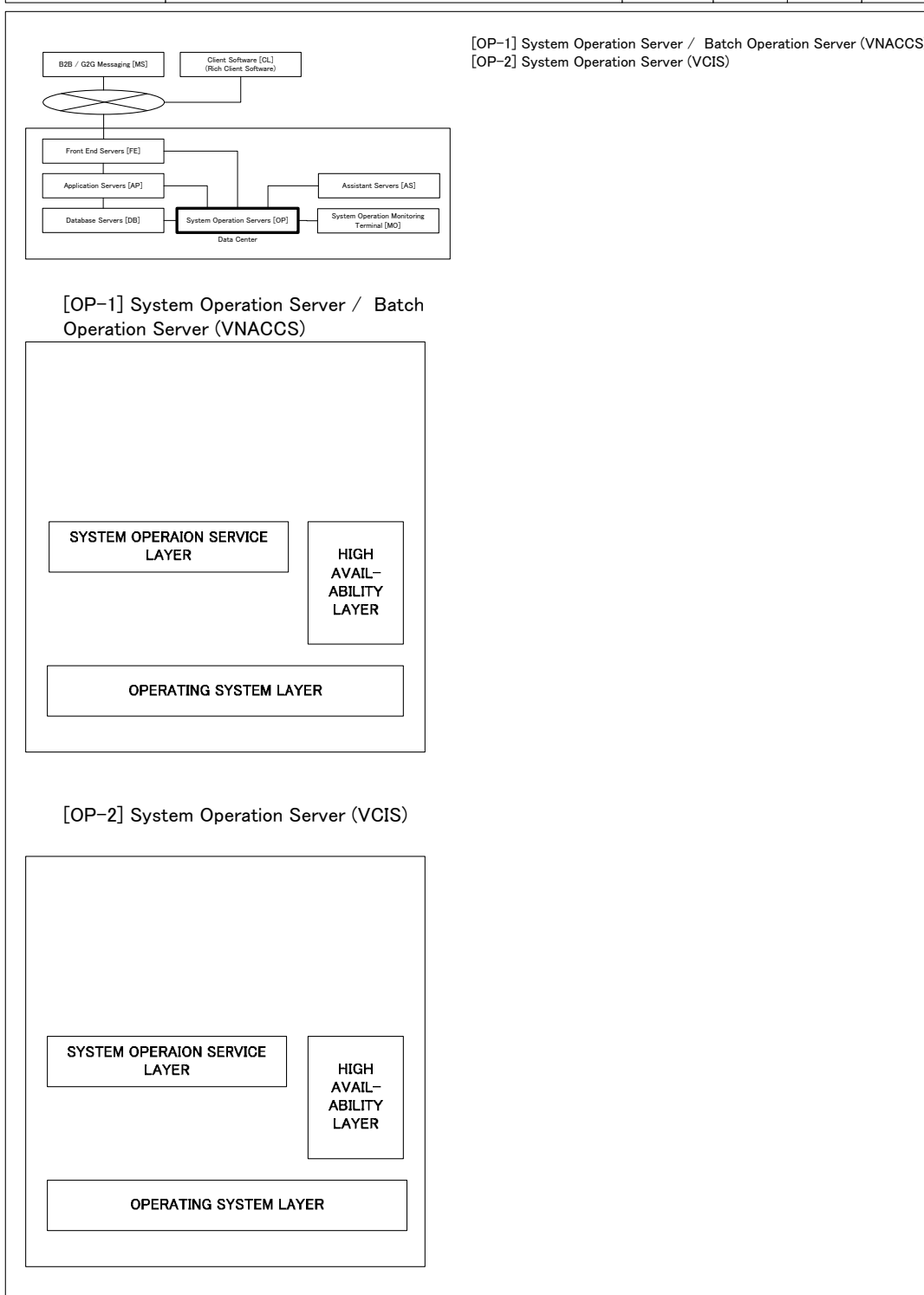


Figure 2-10 System Operation Servers

System Name	Figure Description	Category	Version	Date of Creation	Page No.
VNACCS / VCIS	Assistant Servers [AS]	[AS]			1/1

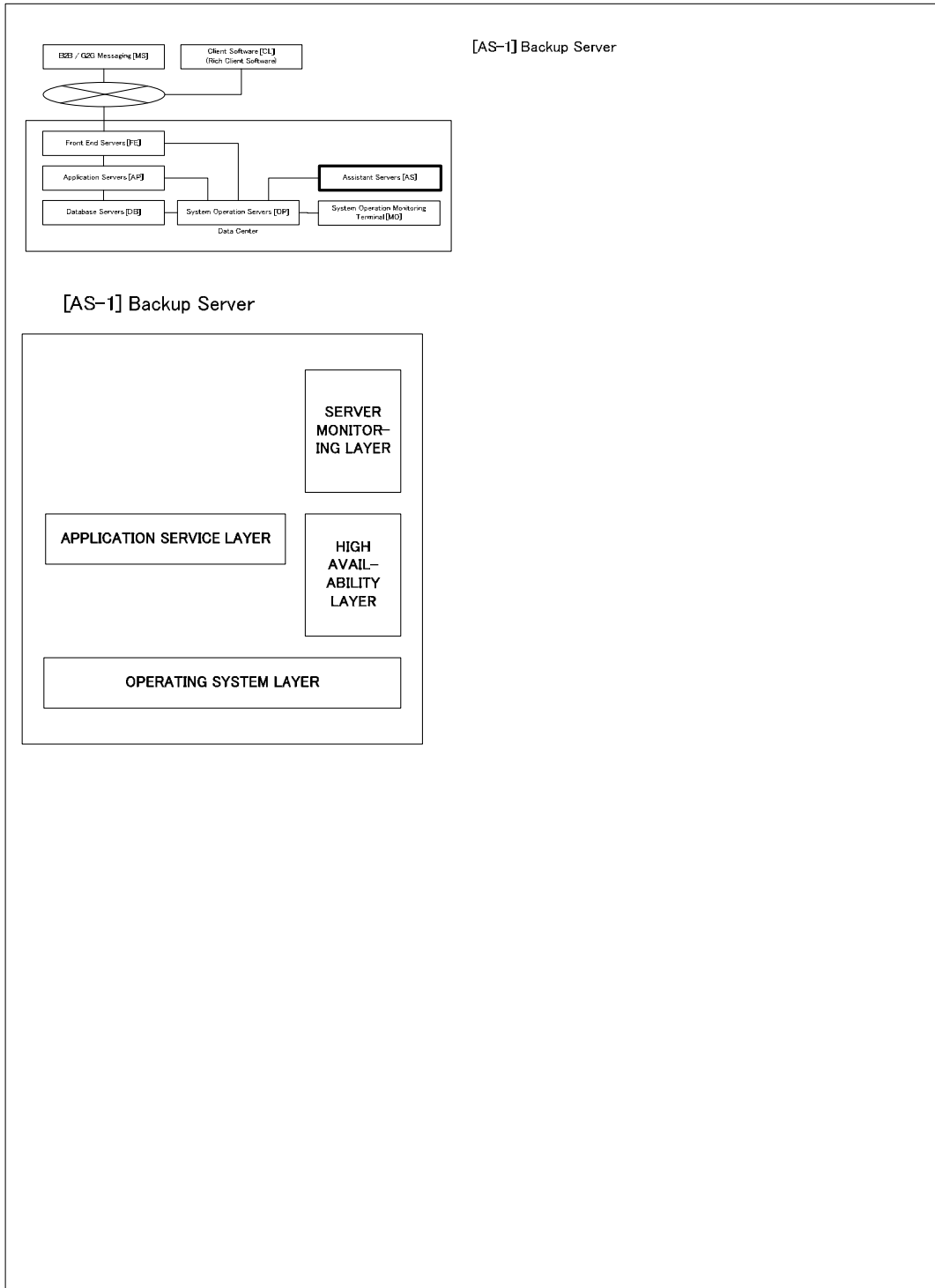


Figure 2-11 Assistant Servers

System Name	Figure Description	Category	Version	Date of Creation	Page No.
VNACCS / VCIS	System Operation Monitoring Terminal [MO]	[MO]			1/1

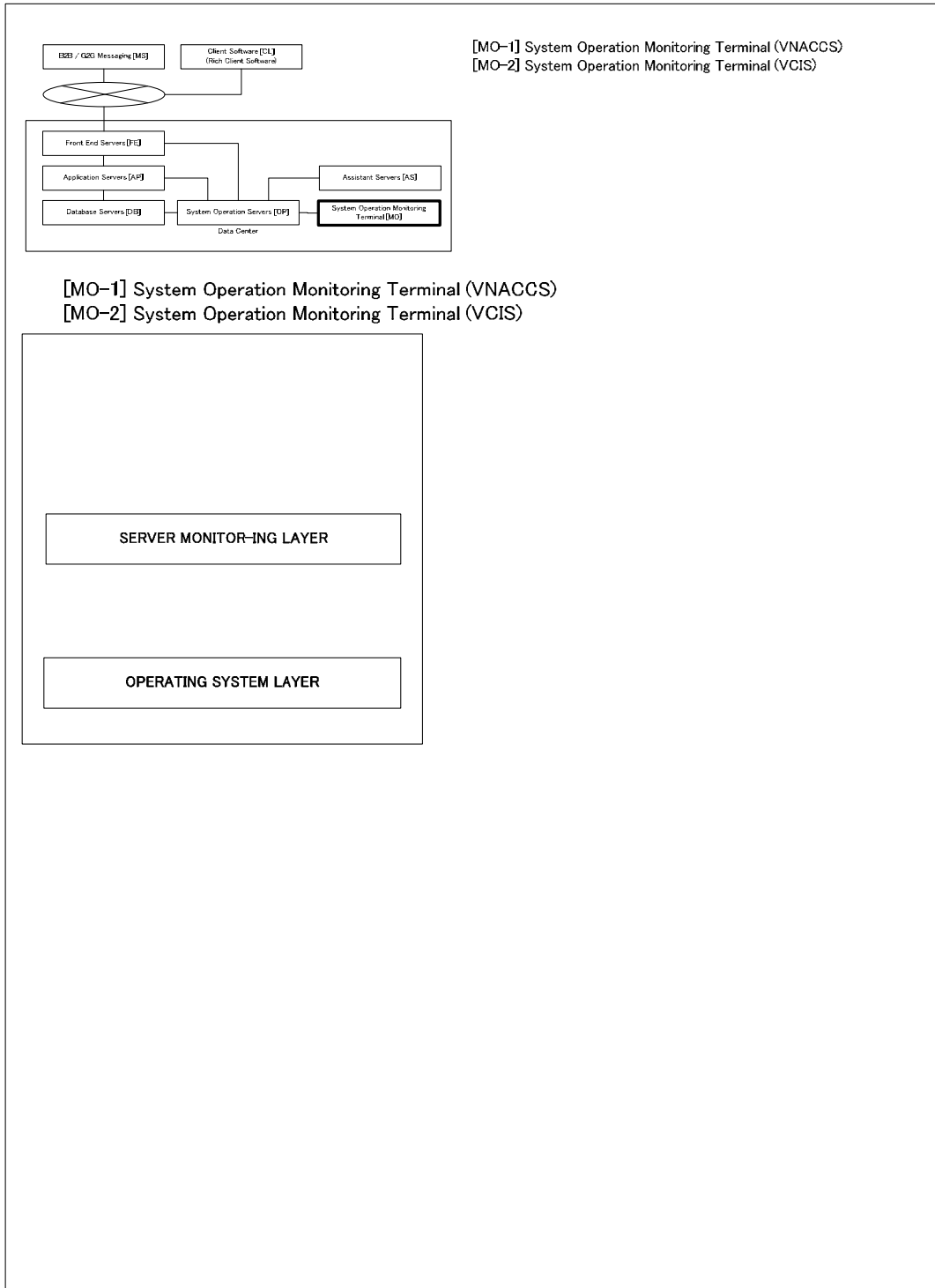


Figure 2-12 System Operation Monitoring Terminal

System Name	Figure Description	Category	Version	Date of Creation	Page No.
VNACCS / VCIS	Client Software [CL] B2B / G2G Messaging [MS]	[CL] [MS]			1/1

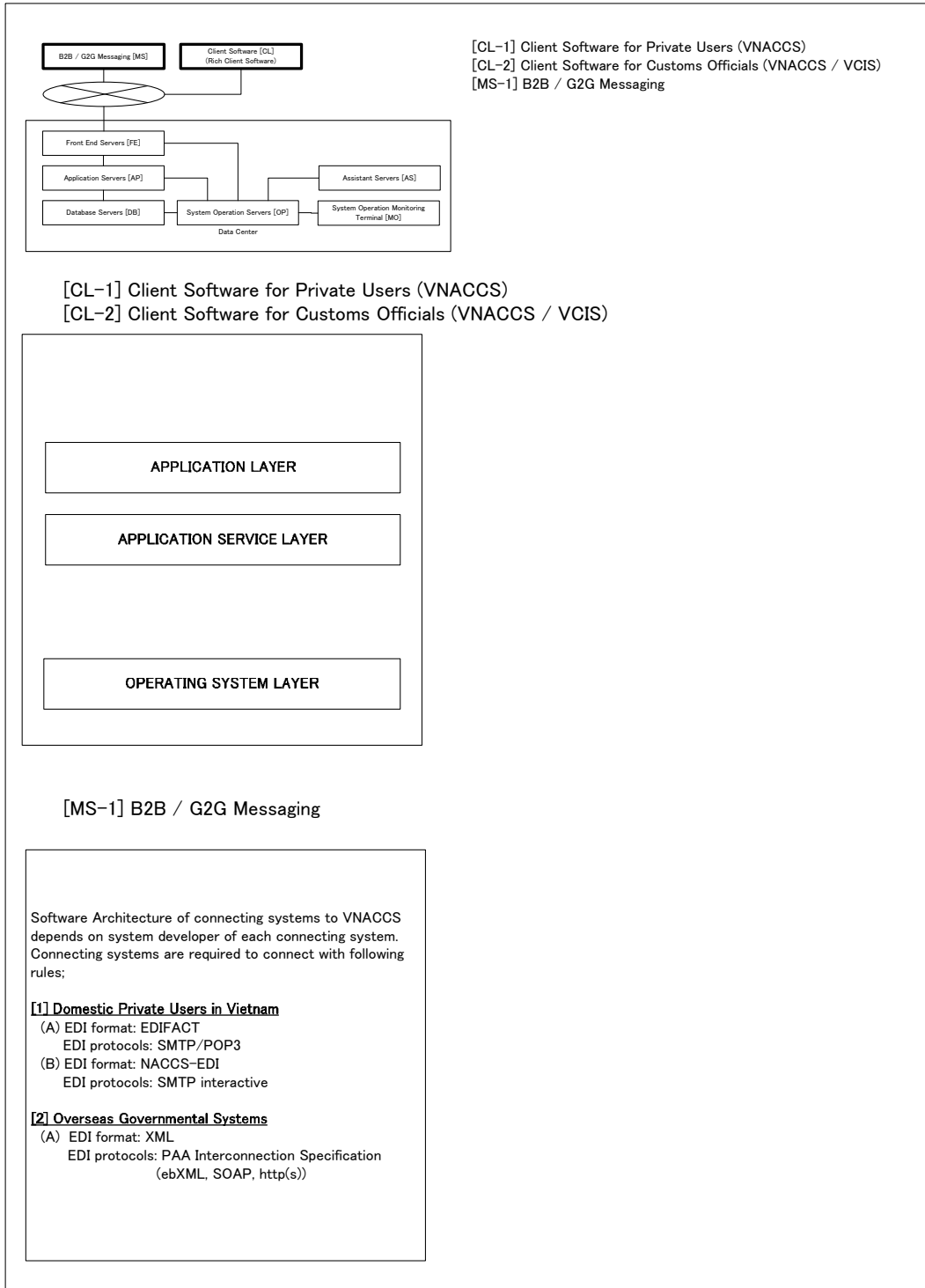


Figure 2-13 Client Software and B2B/G2G Messaging



### (3) Network Layout Design

The overview of the network layout within the data center of VNACCS/VCIS is basically as shown in Figure 2-14. VNACCS/VCIS supports the area surrounded by bold lines.

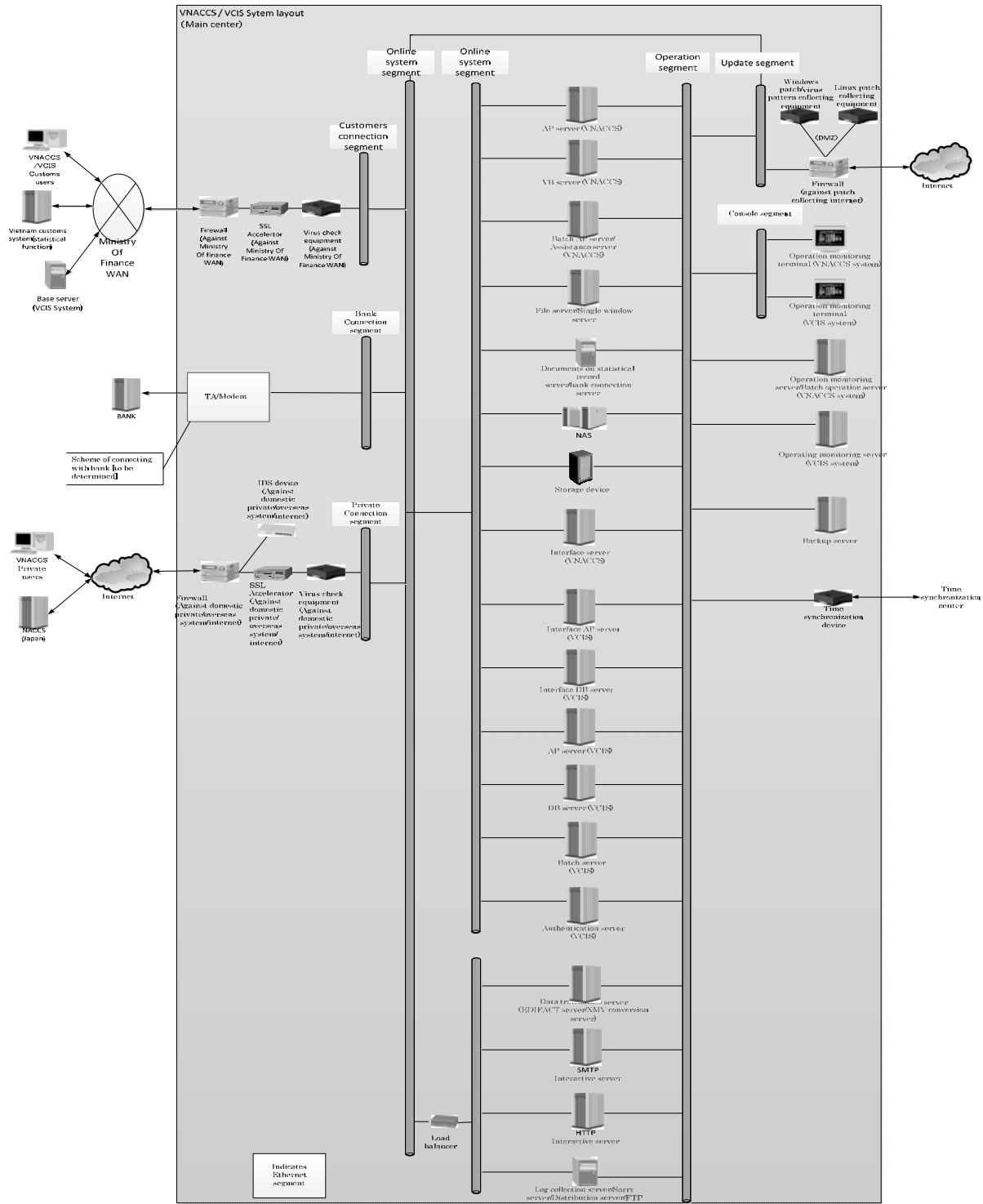


Figure 2-14 Overview of the Network Layout

## **2-2-4 Implementation Plan**

### **2-2-4-1 Implementation Policy**

With regard to software development for this Project, procurement by direct contracting with the vendor who has developed the current version of NACCS/CIS in Japan, i.e. a single-source method to select a contractor, is reasonable based on technical considerations regarding the following: peculiarity of output of this Project, VNACCS/VCIS, which is a new IT system for Customs clearance procedures in Viet Nam to be developed with Japanese NACCS/CIS technology; the limited time frame for the completion of the output; and economic rationality from a perspective of the total cost of implementing this Project. In the above considerations, a request from Viet Nam for direct contracting, i.e. a single-source method to select a contractor, and the fact that only one vendor having developed NACCS/CIS in Japan exists, were also taken into account. As explained in the above section 2-2-1 (4), the provisions of the Procurement Guidelines which allow direct contracting are applicable to this case.

With regard to the procurement of hardware, OS and middleware for this Project, it is fundamentally desirable to do this together with software. However, as explained in the above, the software vendor shall be procured by direct contracting in this case. Since procurement through competitive tendering is required in principle for Japan's Grant Aid projects from a perspective of economy, efficiency and fairness, it is considered inappropriate to procure both software and hardware, OS and middleware together through direct contracting. Accordingly, hardware, OS and middleware must be procured, separately from software, through open competitive tendering. In such cases, however, hardware, OS and middleware may be procured from a vendor other than the software development vendor. To facilitate this Project, it is appropriate to minimize the risk of mismatch between the software and OS/middleware by appropriately preparing tender documents, including concrete information on OS/middleware as server specifications, and clarifying the scope of responsibilities of each vendor. Also, tender documents shall contain specifications of the software for reference.

The hardware, OS and middleware for this Project can basically be purchased in Viet Nam. However, they are not produced in Viet Nam and their country of origin is either Japan or third countries. Due to the business practice of global pricing, price variation of such hardware, OS and middleware is not significant among the countries of procurement.

#### **2-2-4-2 Implementation Conditions**

In this Project, it is quite important to ensure timely and proper maintenance services from official vendors, including their local agents, in Viet Nam after VNACCS/VCIS has started its operation. However, official vendors in Viet Nam may not provide maintenance services for their products which are not purchased in Viet Nam due to their business policy. Accordingly, as a policy on the procurement of hardware, OS and middleware, timely and proper maintenance services from official vendors must be ensured.

The lead time for the introduction of hardware, OS and middleware in Viet Nam varies depending on products. In the longest case, it will take 10 to 12 weeks in total, 8 to 10 weeks for purchase and 2 weeks for local arrangements. Accordingly, as a policy on the procurement of hardware, OS and middleware through open tendering, schedules for the procurement must be set taking account of the above lead time.

The hardware products must be installed in the data center, which is currently under construction at the expense of the Vietnamese side. Timings of procurement, carrying-in and installation of the hardware products must be arranged taking account of the timing of completion of the data center.

#### **2-2-4-3 Scope of Works**

In this Project, the Japanese side is financially responsible for developing VNACCS/VCIS software with NACCS/CIS technology and the procurement of hardware, OS, middleware and other related equipment to operate such software. Details of services covered by such software are as shown in Tables 2-3 to 2-6 and the equipment to be procured is as set out in Table 2-22.

Conversely, to facilitate the introduction and operation of VNACCS/VCIS, the Vietnamese side is responsible for implementing certain matters. Such matters and their timings are as shown in Table 2-23, which is a reproduction from Chapter 17 of the B/D.

Table 2-23 Work to be Conducted by Viet Nam Customs and Deadlines

No.	Category	Work to be conducted	Deadline
1	Procurement	Procurement and construction of data center	Prior to commencement of hardware installation
2		Procurement and construction of networks among bases	Prior to commencement of hardware installation
3		Procurement and determination of operation vendor	Prior to commencement of running test
4		Procurement and determination of software maintenance vendor	Prior to commencement of running test
5		Procurement and determination of hardware maintenance vendor	Prior to commencement of running test
6		Provision of terminals of recommended specification for Customs users	Prior to commencement of running test
7		Provision of “ File-Server” for distribution of data from VCIS in Regional Customs	Prior to commencement of running test
8	Coordination and communication	Communication and coordination with other ministries and agencies	As needed during development period
9		Communication, coordination, and arrangement among vendors (Arrangement among software development vendor, hardware vendor, network vendor, and data center vendor)	As needed during development period
10	Organization and environment arrangement	Establishment of an organization serving as contact for inquiries from system operators and users in Viet Nam Customs	Prior to commencement of running test
11		Establishment of an organization determining risk analysis and screening criteria in Viet Nam Customs	Prior to commencement of running test
12		Making of Website with publicity to users and download functions	Prior to commencement of running test

No.	Category	Work to be conducted	Deadline
13	Items related to creation of CSF (Center Setup File), including user information and product files	Determination of user coding scheme (method for granting user code)	Prior to completion of external design
14		Receipt and summarization of applications for use from private users	By three months prior to commencement of running test
15		Creation of CSF, including user and product files	Prior to commencement of running test
16		Determination of organization and procedure for managing information on private users and Customs users	Prior to commencement of running test
17	Briefing sessions; Distribution of terminal	Activities for making private users and Customs users aware of briefing sessions	As needed during development period
18		Holding of briefing sessions for private users; Preparation, printing, and distribution of documents for briefing sessions (About business specification and EDI connection specification)	Promptly after freezing external design
19		Holding of briefing sessions for private users and Customs users; Preparation, printing, and distribution of documents for briefing sessions (About procedure for conducting running tests)	Prior to commencement of running test
20		Distribution of terminal software to private users and Customs users	Prior to commencement of running test
21		Serving as contact for inquiries from private users and Customs users at running tests	As needed during running test

No.	Category	Work to be conducted	Deadline
22	Business processing procedure	Preparation of business processing procedure (Document describing the interrelation between services achieved by the system and legal systems)	Prior to commencement of running test
23	Data migration	Migration of data from the previous system	Migration period to be considered according to the contents of data to be migrated

#### **2-2-4-4 Consultant Supervision**

The development of VNACCS/VCIS software for this Project is scheduled for completion within 22 months of concluding a contract if such development is carried out by direct contracting, i.e. a single-source method to select a contractor, with the software vendor who has developed current NACCS/CIS in Japan. In such case, it will take 2 months to define the requirements and external design, 4 months for the internal design, 5 months for production, 6 months for tests (integration and program tests) and just under 5 months for running tests. With regard to the supervision of software development by a consultant, it is to be done basically in Japan through the Earned Value Management (EVM) method. The work of supervision in Viet Nam will be done on a spot basis by sending persons in charge from Japan on an as-required rather than full-time basis.

In this Project, the hardware, OS, middleware and other related equipment are to be procured through open competitive tendering. Taking account of the lead time for their procurement, the consultant must properly and timely implement procurement procedures, including preparation of tender documents and holding of a tender under a name of implementing agency, and ensure that the implementation of tests for developed software is not delayed.

While the construction of the data center shall be done by the Vietnamese side, it is also appropriate for the consultant to occasionally confirm the progress of such construction in consideration of its huge impact on the Project as a whole.

#### **2-2-4-5 Quality Control Plan**

To facilitate the implementation of VNACCS/VCIS in Viet Nam, sufficient time, which is envisaged as 6 months, shall be spared for tests (integration and program tests) to be performed after the production of software. Also, after the above tests, running tests must be performed for about 5 months for all users (carriers, importers and exporters, logistics and related companies, banks, Customs and other governmental agencies) to provide them with service learning training. Such running tests must be conducted in the production environment by the GDVC as a host in order for all users to confirm and become familiar with the services as well as to ensure normal operation of VNACCS/VCIS by implementing a series of services from upstream to downstream.

Also, to deal with bugs, which may emerge after operation of the system, the software development vendor shall bear warranty against defects for one year after the delivery of VNACCS/VCIS.

Furthermore, as part of supervision activities for software development, the consultant shall implement quantitative quality control by using quality control indicators, i.e. test density and bug density.

#### **2-2-4-6 Procurement Plan**

The hardware, OS and middleware for this Project can be basically purchased in Viet Nam. However, they are not produced in Viet Nam and their country of origin is either Japan or third countries. Due to the business practice of global pricing, price variation of such hardware, OS and middleware is not significant among the countries of procurement.

In this Project, it is quite important to ensure timely and proper maintenance services from official vendors, including their local agents, in Viet Nam after VNACCS/VCIS has started its operation. However, official vendors in Viet Nam may not provide maintenance services for their products which are not purchased in Viet Nam due to their business policy. Accordingly, as a policy on the procurement of hardware, OS and middleware, timely and proper maintenance services from official vendors must be ensured.

#### **2-2-4-7 Operational Guidance Plan**

To facilitate the implementation of VNACCS/VCIS, it is important for Customs officials in Viet Nam, who actually use the system for their services, to fully understand how to use such system. Accordingly, as stipulated in Chapter 16 of the B/D, before running tests of VNACCS/VCIS are conducted, the software development vendor shall prepare a terminal operation manual, present it electronically, and provide members of the VNACCS/VCIS development expert team of Vietnamese Customs with the following training so that they can train other officials in how to use VNACCS/VCIS:

- Terminal operation procedures
- Procedures for using the services of the Customs incorporated in VNACCS/VCIS
- Presentation of VNACCS/VCIS operation procedures

The above training shall be done in groups in Ha Noi for one week (5 days) in total. With regard to the cost of such training, Japan's Grant Aid covers only the costs relating to the software development vendor, such as personnel expenses and accommodation fees for its employees, and the remaining costs, including expenses for the venue, the travel cost of local Customs officials and the printing cost of training materials, shall be borne by the Vietnamese side.

Furthermore, the software development vendor shall provide Vietnamese Customs with operational guidance, such as responding to inquiries, throughout the period of running tests as appropriate.

Also, engineers arranged by the vendor for equipment procurement shall provide Vietnamese Customs with operational guidance regarding the equipment, such as responding to inquiries, during the period of running tests as necessary.

#### **2-2-4-8 Soft Component Plan**

The new IT system to be realized by this Project will be jointly used by both public and private sectors. The system is intended to assist with users' administrative procedures and improve the efficiency and speed of the international flow of goods. It is a system to be developed on the basis of a concept which is completely new to Viet Nam. Accordingly, for VNACCS/VCIS to be used continuously in Viet Nam and to achieve its expected objectives, it is important to ensure the following: (i) the legal system and business process, which are bases



of services provided by VNACCS/VCIS, shall be reviewed and properly implemented after the review; (ii) operation and maintenance structures for VNACCS/VCIS shall be established and smoothly managed; and (iii) both Customs users and private users must be fully aware of how to use VNACCS/VCIS.

Among them, the review of the legal system and business process are quite important. However, such review has been conducted by the working group (WG) of Vietnamese Customs and the CTB, and the Vietnamese side is currently requesting, in order to secure continuous support from the CTB, a technical assistance project from the JICA to establish a necessary environment facilitating the operation/maintenance of VNACCS/VCIS. Since it is effective for the support from the CTB, which has relatively high level expertise in this field, to be continuously carried out, such review shall be left to the technical assistance project and not included in the soft components of this Project.

To establish operation and maintenance structures and facilitate their management, Chapters 10 (Operation Design) and 11 (Maintenance Design) of the B/D, developed in collaboration with the CTB, have shown the operation/maintenance structures to be established and the roles to be performed by the parties concerned involved in operation/maintenance. Such Chapters of the B/D also state that the activities of operation/maintenance themselves are outside the scope of Japan's Grant Aid. Furthermore, the above request for technical assistance project covers the support necessary for enhancing the capacity of the GDVC to operate, maintain and renew VNACCS/VCIS, and it is appropriate to leave such support to the comprehensive program under the technical assistance project. Accordingly, the scope shall not include establishing operation and maintenance structures and facilitating their management in the soft components of this Project.

With regard to ensuring understanding of how to use VNACCS/VCIS, Chapter 16 (Training for Viet Nam Customs Officials) of the B/D states that the software development vendor shall provide officials of the VNACCS/VCIS development expert team of Viet Nam Customs with training and such officials shall train other Customs officials. Also, Chapter 17 (Work to be Conducted by Viet Nam Customs for Introduction and Operation of VNACCS/VCIS) of the B/D includes the implementation of briefing sessions for users in the items to be conducted by the Vietnamese side. Furthermore, the above request for technical assistance project covers the support necessary for the GDVC, including training for both Customs and private sector users, and it is effective to leave such support to the comprehensive program under the technical assistance project. Accordingly, ensuring understanding of how to use VNACCS/VCIS shall not be included in the soft components of this Project.

#### **2-2-4-9 Implementation Schedule**

As mentioned in the above section 2-2-4-3, for this Project, the Japanese side is in charge of the development of VNACCS/VCIS software on the basis of NACCS/CIS technology and the procurement of hardware, OS, middleware and other related equipment to operate such software. Table 2-23 shown above summarizes the works to be done by the Vietnamese side during the system development period to facilitate the introduction and operation of VNACCS/VCIS, and the deadlines for such works.

The implementation schedule for the matters to be borne by the Japanese side is as shown in Table 2-24.



## **2-3 Obligations of Recipient Country**

### **(1) Procedural Undertakings**

Procedural undertakings to be taken by the Vietnamese side in this Project are as follows:

- To ensure tax exemption and customs clearance of the products purchased from Japan or third countries at the port of disembarkation in Viet Nam;
- To ensure exemption of customs duties, internal taxes and other fiscal levies which may be imposed in Viet Nam with respect to the purchase of the products and the services;
- To accord Japanese nationals whose services may be required in connection with the supply of the products and services, such facilitation and arrangements as may be necessary for their entry into Viet Nam and stay therein for the performance of their work;
- To ensure that the facilities and equipment are maintained and used properly and effectively under the Project;
- To bear the expenses, other than those covered by the Japan's Grant Aid, necessary for the implementation of the Project such as preparation of infrastructures;
- To bear advising commissions of authorization to pay and payment commissions paid to the Japanese bank for banking services based upon the banking arrangement; and
- To give due environmental and social consideration in the implementation of the Project.

### **(2) Works to be conducted by the Vietnamese side**

Table 2-23 shown above summarizes the works to be done by the Vietnamese side during the system development period to facilitate the introduction and operation of VNACCS/VCIS, and the deadlines for such works.

Since it is important to ensure that both Customs and private sector users fully understand how to use VNACCS/VCIS, recommendations on the implementation of briefing sessions for such users are shown as follows:

- (i) Briefing Sessions for Private Users (concerning business and EDI connection specifications)
  - (a) Timing
    - To hold promptly after freezing the external design.

- To set the dates ensuring sufficient duration for notice while taking account of the progress of the software development work.
- (b) Unit
- To set implementation units taking account of the convenience of expected users, e.g. to be held in each jurisdiction of the local Customs Department.
  - To hold more than once and/or by business types of users if numerous attendants are expected. It is also acceptable to limit the number of participants from each company, e.g. up to 2 persons per company.
- (c) Content
- To ensure sufficient time for questions and answers (Q & A).
- (d) Others
- To prepare Q & A before the sessions and distribute them to briefers.
  - To collect summaries of questions and answers in the GDVC, and share them with all local Customs Departments.
  - To post briefing materials and summaries of questions and answers generally applicable on the GDVC's website for user reference.
- (ii) Briefing Sessions for Private Users (concerning the procedure for conducting the running tests)
- (a) Timing
- To be held prior to, possibly about 1 month before, the commencement of running tests.
  - To set dates ensuring sufficient duration for notice while taking account of the progress of software development work.
- (b) Unit
- To set implementation units taking account of the convenience of expected users, e.g. to be held in each jurisdiction of the local Customs Department.
  - To hold more than once and/or by business types of users if numerous attendants are expected. It is also acceptable to limit the number of participants from each company, e.g. up to 2 persons per company.
- (c) Content
- To ensure sufficient time for questions and answers (Q & A).
- (d) Others
- To prepare Q & A before the sessions and distribute them to briefers.
  - To collect summaries of questions and answers in the GDVC, and share them with all local Customs Departments.
  - To post briefing materials and summaries of questions and answers generally applicable on the GDVC's website for user reference.

- (iii) Briefing Sessions for Customs Users (concerning the procedure for conducting the running tests)
  - (a) Timing
    - To be held prior to the commencement of running tests.
    - To be held promptly after the training by the software development vendor for officials of the system development expert team.
  - (b) Unit
    - To hold in each jurisdiction of the local Customs Department.
    - To hold more than once at each jurisdiction so that officials can attend in turn without affecting their duties.
  - (c) Content
    - To ensure sufficient time for questions and answers.
  - (d) Others
    - To collect summaries of questions and answers in the GDVC, and hare them with all local Customs Departments.

#### **2-4 Project Operation Plan**

As for the GDVC, the Customs IT and Statistics Department, which has 91 officials, will be responsible for the operation and maintenance of VNACCS/VCIS introduced by this Project. The Department will operate and maintain VNACCS/VCIS in collaboration with the vendors concerned. The operation structure, roles and responsibilities for operation, and the maintenance structure currently envisaged are as shown in Figure 2-15, Table 2-25 and Figure 2-16 respectively. They reflect the corresponding structures for NACCS/CIS in Japan and are thus appropriate. As such, it is important that the GDVC establish such structures for operation/maintenance and ensure common recognition of the burden-sharing among parties concerned expeditiously.

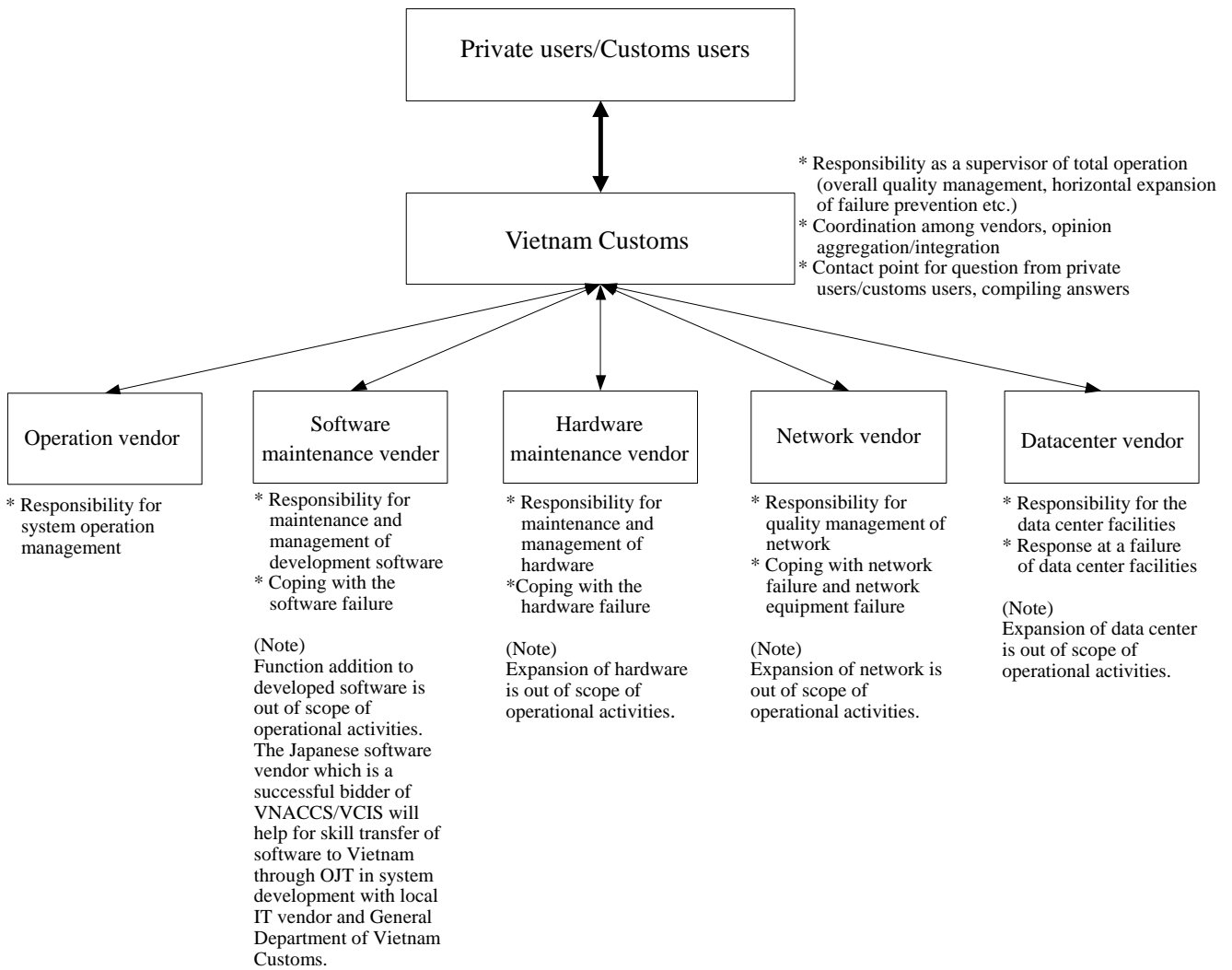


Figure 2-15 Envisaged Operation Structure

Table 2-25 Envisaged Roles and Responsibilities for Operation

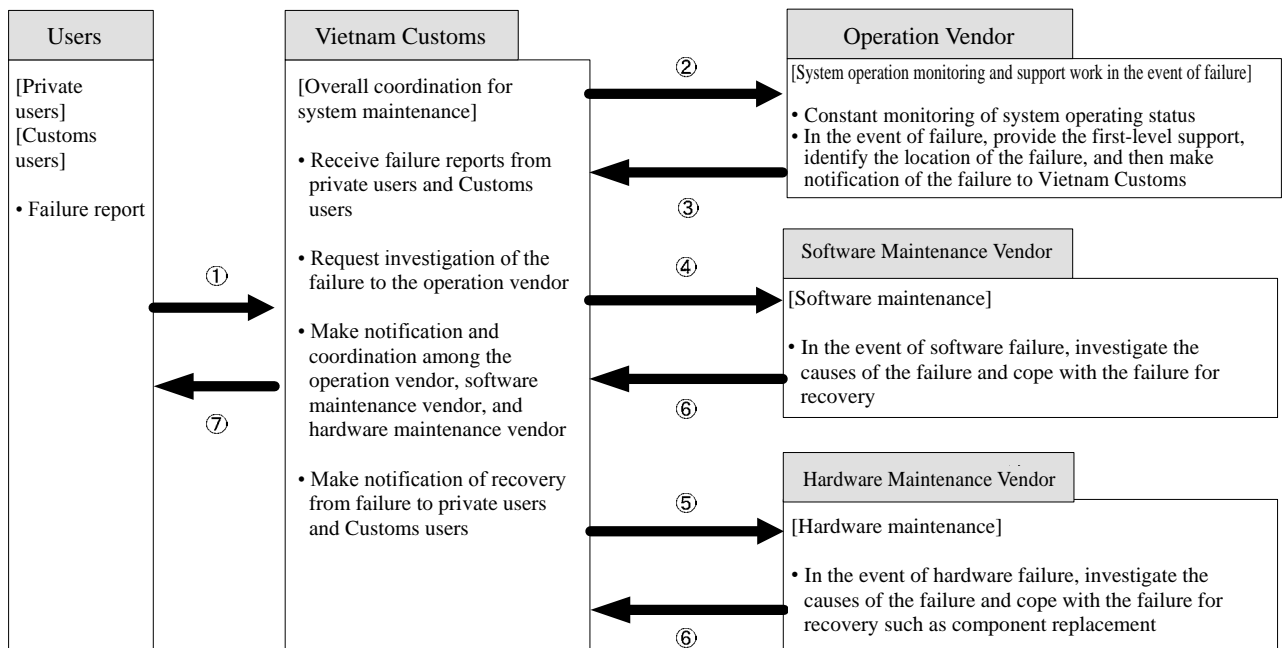
[Legend] ◎ : Primary person in charge : Main vendor in charge of each activity item, a responsible person of the item.  
 ○ : Secondary person in charge : A vendor who conducts activities in cooperation with primary person in charge if necessary.  
 △ : Report to

Large classification	Middle classification	Small classification	Activity items	Vietnam customs	Operation vendor	Software maintenance vendor	Hardware maintenance vendor	Network vendor	Datacenter vendor
System operation and management	System operation plan	Drafting of operation plan	Drafting of system operation plan	◎	○	○	○	○	
			Approval of system operation plan	◎					
	Management of system operation status	Operation status management	Checking the system operation status	△	◎				
			Investigation regarding system operation	◎					
			Review of operation plan, reflection and revision control	◎					
			Deliberation of special operation	◎					
	Management of system failure status	Response to recurrence prevention measure	Historical management of hardware failure, software failure and data failure	◎					
			Investigation and execution of recurrence prevention measure	△	◎	◎	◎		
			Practice of response to center failure	◎	◎	◎	◎		
	Management of management status of system resources	Center performance management	Collecting fundamental monitored values (at each server)		◎				
			Performance investigation, analysis, performance evaluation		◎				
			Report of evaluation results	△	◎				
Response to questions about performance			△	◎	◎	◎			
Data management	Security means measure	Security management	Drafting of security plan (security policy of VMACCS/VCIS)	◎					
			Execution of security measurements (security policy of VMACCS/VCIS)	◎	◎	◎	◎	◎	◎
	Data resource management	Center data management	Modification of table (CSF) (change in the customs organization, new participation/transfer of users, modification of item table etc.)	◎					
			Management of storing file and method of store.	◎					
System operation	Generation of operation schedule	Operation status management	Job schedule registration (online/batch)	△	◎				
		Backup management	Drafting of backup plan	◎					
	Operation	Operation status management	Execution of each operation (handling activity, data output to media etc.)	△	◎				
		Backup management	Execution/monitoring of backup	△	◎				
			Exchange of backup media	△	◎				



Large classification	Middle classification	Small classification	Activity items	Vietnam customs	Operation vendor	Software maintenance vendor	Hardware maintenance vendor	Network vendor	Datacenter vendor		
	Response to failure	Management of failure status and response to it	Failure status analysis (Primary fault isolation)	△	⊙						
			Proposal of response to primary failure	△	⊙						
			Hardware failure	△			⊙				
			Software failure	△		⊙					
			Data failure	△		⊙					
			Response to Center network failure	△			⊙				
			Response to Customs network failure	△				⊙			
			Coordination, communication, consolidation between vendors.	⊙							
	Status monitoring	Status monitoring	Monitoring of operation status of system	△	⊙						
			Monitoring status of various servers	△	⊙						
System resources management	Hardware resources management	Center equipment management	Monitoring status of various server configurations	△			⊙				
			Peripherals management	△			⊙				
			Maintenance and management of datacenter facility	△					⊙		
	Software resources management	Response at law amendment/ system revision	Response to addition/change of function requested by user	Influence research, report of research results	△		⊙				
				Decision of response policy	⊙						
			Response to addition/change of function of related system.	Influence research, report of research results	△		⊙				
				Decision of response policy	⊙						
			Network resources management	Center equipment management	Management of equipment in the network within center (network equipment provided by hardware vendor)	△			⊙		
					Management of equipment in the network within center (network equipment provided by network vendor)	△				⊙	
	Customs network management	Management of customs network equipment (router)		△				⊙			
User support	Education/ Training	User education/ training support	Planning of users education/training	⊙							
			users education/training execution	⊙							
	Response to a question from user	Response to the question from user	Contact for question	⊙							
			Research and generation of answer report	⊙							
		Response to the question from Vietnam customs	Response to various questions from Vietnam customs (including submissions of report etc.)	△	⊙	⊙	⊙	⊙	⊙		
			Response to service questions from users escalated through helpdesk	△	⊙	⊙	⊙	⊙	⊙		

Large classification	Middle classification	Small classification	Activity items	Vietnam customs	Operation vendor	Software maintenance vendor	Hardware maintenance vendor	Network vendor	Datacenter vendor
Documents on statistical record	Documents on statistical record	Operation for documents on statistical record	Execution of system statistics material retrieval		⊙				
			Execution of traffic material retrieval		⊙				
Resource management	Resource management	Resource management plan	Decision of resource management target (backup media)	⊙					
			Inventory management of resources (inventory check, placing an order, purchasing)	⊙					
			Execution of media disposal	⊙					



- ① Vietnam Customs shall receive failure reports from private users and Customs users.
- ② Vietnam Customs shall make notification of failure to the operation vendor.  
The operation vendor shall provide the first-level support for the failure and identify the location of the failure.
- ③ The operation vendor shall make notification of the location of the failure to Vietnam Customs and ask Vietnam Customs to make arrangements for individual maintenance vendors.
- ④ In the event of software failure, Vietnam Customs shall make notification thereof to the software maintenance vendor.  
The software maintenance vendor shall investigate the causes of the failure and cope with the failure for recovery.
- ⑤ In the event of hardware failure, Vietnam Customs shall make notification thereof to the hardware maintenance vendor.  
The hardware maintenance vendor shall investigate the causes of the failure and cope with the failure for recovery.
- ⑥ The software maintenance vendor and the hardware maintenance vendor shall make notification of the failure to Vietnam Customs respectively.
- ⑦ Vietnam Customs shall make notification of the recovery to private users and Customs users respectively.

Figure 2-16 Envisaged Maintenance Structure

## 2-5 Project Cost Estimation

### 2-5-1 Initial Cost Estimation

The estimated initial cost of the Project to be borne by the Vietnamese side and the conditions of such estimation are as shown below:

#### (1) Cost to be borne by the Vietnamese side

Establishment of Data Center	VND 75 billion (JPY 285 million)
Establishment of Network	VND 50 billion (JPY 190 million)
Others (Bank Commissions)	VND 1 billion (JPY 4 million)
Total	VND 126 billion (JPY 479 million)

#### (2) Conditions of Cost Estimation

Timing	: October 2011
Exchange Rates	: US\$ 1 = JPY 80.75; VND 1 = US\$ 0.000048 = JPY 0.0038
Implementation Schedule	: As shown in Table 2-24 above.
Others	: The cost estimation shall be done in accordance with the rules and guidelines regarding Japan's Grant Aid.

### 2-5-2 Operation and Maintenance Cost Estimation

The annual cost of operation/maintenance of VNACCS/VCIS, which shall be borne by the Vietnamese side since 2013 when running tests of VNACCS/VCIS will start, is estimated at VND 105 billion as follows: Given that the annual budget for the GDVC is to be set at 1.9% of the GDVC's targeted revenue of the respective year, GDVC's budget for Customs IT expenses in 2013 is estimated at about VND 471 billion, which is VND 236 billion larger than such budget in 2011. Since the estimated annual cost of operation/maintenance is less than half the budget increase for Customs IT expenses and the GDVC has committed to secure the necessary budget, such cost can be financed by the GDVC's budget.

Data Center	VND 4.5 billion (JPY 17 million)
Network	VND 15.0 billion (JPY 57 million)
Operation Vendor	VND 19.5 billion (JPY 74 million)
Software Maintenance Vendor	VND 27.0 billion (JPY 103 million)
Hardware Maintenance Vendor	VND 39.0 billion (JPY 148 million)
Total	VND 105.0 billion (JPY 399 million)

The specific budget to be secured for the annual cost of operating/maintaining VNACCS/VCIS shall be finalized by the GDVC after further scrutiny.

With regard to terminals for Customs officials, it is planned to continue using the existing terminals for the time being. However, such terminals must be renewed regularly, e.g. every 5 years or so. The cost of such renewal of terminals is estimated at VND 210 billion in total, or VND 21 million per person. The GDVC shall deal with this matter by properly making a plan for renewal and securing an appropriate budget based on such plan.

Also, in view of the practice in Japan whereby NACCS has been renewed about every 8 years, it is appropriate for VNACCS/VCIS to be renewed after about 8 to 10 years of operation. Furthermore, it is envisaged that alterations of programs resulting from revision of legislation and change of Customs procedures, amendments of software responding to upgrades of OS and middleware, and updates of hardware must be required before the planned renewal date of VNACCS/VCIS. Accordingly, the GDVC shall properly estimate such required cost in future and ensure a budget for such cost in a timely manner.

## **Chapter 3 Project Evaluation**



## Chapter 3 Project Evaluation

### 3-1 Preconditions

The procedures and works, which must be done by the Vietnamese side as prerequisites for implementing this Project, are as shown in the above section 2-3. In particular, it is important that works set out in the above Table 2-23 be conducted within their respective time-period. As for the data center, its construction is underway and the Vietnamese side has committed to complete it by the deadline.

### 3-2 Necessary Inputs by Recipient Country

For this Project, it is essential for the Vietnamese side to properly implement its undertakings set out in the above section 2-3 as agreed.

Also, as mentioned in the above section 2-2-4-8, the VNACCS/VCIS to be realized by this Project will be jointly used by both public and private sectors, and is intended to assist users' administrative procedures and improve the efficiency and speed of the international flow of goods. It is a system to be developed on the basis of a concept which is completely new to Viet Nam. Accordingly, for VNACCS/VCIS to be used continuously in Viet Nam and achieve the expected objectives, it is important to ensure the following: (i) the legal system and business process, which are the bases of services provided by the system, are reviewed and properly implemented after the review; (ii) operation and maintenance structures are established and smoothly managed; and (iii) both Customs and private users fully understand how to use VNACCS/VCIS. It is expected that these matters will be properly implemented, since the Vietnamese side has fully recognized their importance and Japan's technical assistance project shall support their implementation upon request from Viet Nam.

### 3-3 Important Assumptions

Important assumptions for the realization and continuation of this Project are shown below:

- Recognition of the importance of Customs modernization, including automation of Customs clearance procedures, shall be maintained within the Government of Viet Nam;
- The calculation method for the GDVC's budget shall be maintained and, if it is changed, the budget after such change must be at least equivalent to the amount based

- on the current calculation method;
- The use of IT in the business process of private users of Customs procedures shall continuously progress; and
  - The automation of trade-related procedures other than Customs procedures shall progress and the number of external systems to be connected to this one shall increase.

### **3-4 Project Evaluation**

#### **3-4-1 Relevance**

Viet Nam, which joined the WTO in January 2007, is implementing an open economic policy and targeting economic growth through the expansion of international trade. As for the economic relations between Viet Nam and Japan, the Japan-ASEAN Comprehensive Economic Partnership Agreement (EPA) came into force for Viet Nam in December 2008 and the bilateral EPA also became effective in October 2009. Also, South East Asian countries, including Viet Nam have been continuously striving to realize an ASEAN Community by 2015, adopting a “Master Plan on ASEAN Connectivity”, intended to enhance the physical, institutional and people-to-people linkages within the ASEAN region, on the occasion of the 17<sup>th</sup> ASEAN Summit held in Ha Noi on October 28, 2010. Furthermore, ASEAN countries share the concept of the “Asia Cargo Highway” with Japan as a common goal to facilitate trade. Under these circumstances, in Viet Nam, the modernization of Customs administration has been implemented by reviewing the legal system relating to Customs clearance and the business process of Customs as well as the introduction of an IT system on the basis of the Customs Development Strategy up to 2020 (Prime Minister’s Decision on March 25, 2011).

This Project shall establish VNACCS/VCIS, which is a convenient and efficient IT system for Customs clearance procedures on the basis of Japanese NACCS/CIS technology. It is considered a central part of efforts to modernize Vietnamese Customs and is expected to play a relatively important role in expanding trade and growing the economy through more expeditious Customs procedures. Accordingly, the Project is beneficial, not only to Customs and private companies directly engaged in international trade but also to the general public as a whole, including the poor.

Also, the Project will help stabilize people’s livelihoods by preventing the smuggling of illicit drugs and improving anti-terrorism measures, since it facilitates the implementation of proper enforcement by Vietnamese Customs.



Furthermore, the Project also contributes to the realization of the concept of the “Asia Cargo Highway” by facilitating trade, which is strongly supported by the GOJ. As such, the Project is eligible for financing from Japan’s Grant Aid budget for “Support for the Improvement of Foundation for the Overseas Deployment of Infrastructure”, which, under the New Growth Strategy promoted by the GOJ, is intended to implement projects jointly proposed by Japan’s government and private sectors in developing countries and aims to help develop recipient countries as well as the Japan’s growth strategy.

### 3-4-2 Effectiveness

#### (1) Quantitative Effects

Implementation of this Project means that VNACCS/VCIS, which is a convenient and efficient IT system for Customs clearance procedures based on NACCS/CIS technology in Japan, will be introduced in Viet Nam. Accordingly, the time for Customs clearance procedures shall be shortened in Viet Nam as the use of automated Customs clearance procedures is promoted.

The effect of expediting Customs clearance procedures can be quantitatively measured by surveying the time required for Customs clearance procedures.

Table 3-1 Quantitative Indicators of Effects

Effect	Indicator	Base	Target
Shortening of time for Customs clearance procedures	Average time required for Customs clearance (Green Channel)	15 minutes (2010)	3 minutes (2017)
	Average time required for Customs clearance (Yellow channel)	60 minutes (2010)	15 minutes (2017)

#### (2) Qualitative Effects

Implementation of this Project means that VNACCS/VCIS, which is a convenient and efficient IT system for Customs clearance procedures based on NACCS/CIS technology in Japan, will be introduced in Viet Nam. Accordingly, the number of Customs declarations in electronic form and the amount of electronically declared Customs value will increase as the use of automated Customs clearance procedures is promoted. Also, together with a decrease in the scope for arbitrary treatment by individual Customs officials, the efficiency of Customs clearance procedures in general shall be improved in Viet Nam.

As for the improving the efficiency of Customs clearance procedures, it is basically to be measured qualitatively since it largely depends on subjective evaluation by private users. However, the Logistics Performance Index (LPI), biennially released by the World Bank, shows an index regarding the efficiency of the clearance process (i.e. speed, simplicity and predictability of formalities) by border control agencies, including Customs. Accordingly, improvements in Customs clearance efficiency can be quantitatively measured by using such index for reference.

Table 3-2 Qualitative Indicator of Effects (Reference Indicator)

Effect	Indicator	Base	Target
Improvement of efficiency of Customs clearance procedures	LPI (efficiency of the clearance process)	2.68 (2010)	3.00 (2016) 3.20 (2020)

### (3) Others

Specific improvements on Customs procedures in Viet Nam, which are expected to be realized through the introduction of VNACCS/VCIS and accompanying changes of relevant laws and regulations in Viet Nam, include the following:

- VNACCS/VCIS automatically checks whether submitted export/import declarations meet the requirements or not, and examination of attached documents by Customs officials need not be done for this purpose. Accordingly, this will ease the administrative burden on Customs officials and trade facilitation will be enhanced by shortening the time for processing of declarations.
- VNACCS/VCIS classifies export/import declarations into appropriate channels upon acceptance, and declarations classified into the “green channel” will be immediately permitted, which will further enhance trade facilitation.
- While it is obligatory to pay export/import fees in Viet Nam, VNACCS/VCIS makes it possible to introduce a deposit system for such fees and automatically withdraw them upon receipt of export/import declarations. Accordingly, declared goods classified under the “green channel” through VNACCS/VCIS shall be expeditiously cleared without being disrupted by manual procedures for the payment of such fees.
- VNACCS/VCIS automatically calculates the duties for export/import declarations once the required data are entered into the appropriate fields. Accordingly, the burden of declarants will be mitigated and the number of misdeclarations will decrease.
- Once accepted by VNACCS/VCIS, export/import declarations shall not be withdrawn

without permission from Customs. Accordingly, misconduct involving abuse of IT systems, such as withdrawing export/import declarations if they are not classified into the “green channel” and repeating such declarations until they are classified into the “green channel”, shall be prevented.

- VNACCS/VCIS shall be equipped with a bond management function for in bond transportation and a reference function for non-arrival information on goods transported in bond while a legal system for transportation in bond shall be refined. Accordingly, the order of trade shall be maintained and national revenue secured, since abuse of transportation in bond will be prevented.
- VNACCS/VCIS enables requests for import for manufacturing and declarations for transportation in bond to be performed simultaneously for goods to be delivered to a processing area. In addition, export declarations and declarations for transportation in bond can also be performed simultaneously for goods to be exported while a legal system for such simultaneous declarations shall be established. Accordingly, the burden of declarants will be mitigated.

### **3-4-3 Conclusion**

In view of the above considerations, this Project is beneficial to the general public as a whole in Viet Nam and corresponds to the policy promoted by GOJ. Accordingly, it is highly appropriate for this Project to be implemented as a Japan’s Grant Aid project. Also, this Project is considered quite effective in realizing the modernization of Customs administration in Viet Nam.



## **Appendices**



## APPENDIX-1 Member List of the Survey Team

### (1) Preparatory Survey

No	Name	Task	Organization
1	Makoto YAMASHITA	Leader	Deputy Director General for Southeast Asia 1 and 2, Southeast Asia and Pacific Department, JICA
2	Kensuke TSUJI	Project Coordination	Deputy Director, Public Governance and Financial Management Div., Industrial Development and Public Policy Dept., JICA
3	Makoto KATO	Chief Consultant	Planning and Research Department, Nippon Automated Cargo And Port Consolidated System, Inc.
4	Koji ISHIKAWA	Customs Clearance Operation Planning	Planning and Research Department, Nippon Automated Cargo And Port Consolidated System, Inc.
5	Hidehiro OHASHI	Equipment Planning	Public System Solution Division, Public System Solution Group-2 Mitsubishi Research Institute, Inc.

Note: Interpreter (Japanese-Vietnamese) was employed from MISAKA Co.,Ltd.

### (2) Explanation of Draft Report

No	Name	Task	Organization
1	Motonori TANAKA	Leader	Deputy Director General and Group Director for Governance, Industrial Development and Public Policy Department, JICA
2	Kensuke TSUJI	Cooperation Planning	Deputy Director, Public Governance and Financial Management Div., Industrial Development and Public Policy Dept., JICA
3	Kenichi KOBAYASHI	Project Coordination	Assistant Director, Grant Aid Project Management Division 1, Financing Facilitation and Procurement Supervision Department, JICA
4	Makoto KATO	Chief Consultant	Planning and Research Department, Nippon Automated Cargo And Port Consolidated System, Inc.
5	Koji ISHIKAWA	Customs Clearance Operation Planning	Planning and Research Department, Nippon Automated Cargo And Port Consolidated System, Inc.
6	Hidehiro OHASHI	Equipment Planning	Public System Solution Division, Public System Solution Group-2 Mitsubishi Research Institute, Inc.

Note: Interpreter (Japanese-Vietnamese) was employed from TranJV Consulting Co.,Ltd.

## APPENDIX-2 Survey Schedule

### (1) Preparatory Survey

Date (2011)			JICA		Consultant		
			Leader (Mr. YAMASHITA)	Project Coordination (Mr. TSUJI)	Chief Consultant (Mr. KATO)	Customs Clearance Operation Planning (Mr. ISHIKAWA)	Equipment Planning (Mr. OHASHI)
1	Oct. 4	Tue	Departure from Tokyo ⇒Arrival in Hanoi Meeting with JICA Vietnam Office				
2	Oct. 5	Wed	Courtesy call to DG of GDVC Discussion with GDVC				
3	Oct. 6	Thu	Visiting the construction site of new GDVC office and Data Center Discussion with GDVC				
4	Oct. 7	Fri	Discussion with MOF and Meeting with Vice Minister Do Hoang Anh Tuan Discussion with GDVC Signing of the Minutes of Discussion (M/D)  Report to Embassy of Japan in Viet Nam				
5	Oct. 8	Sat	Departure from Hanoi Arrival in Tokyo		Wrap-up meeting		
6	Oct. 9	Sun	N/A		Survey preparation		
7	Oct. 10	Mon	N/A		Meeting with GDVC Visit to a private company; Fpt Information System [Survey on IT industry in Viet Nam]		
8	Oct. 11	Tue	N/A		Visit to private companies; NTT DATA VIETNAM and NTT Communications (Vietnam) [Survey on procurement/maintenance]		
9	Oct. 12	Wed	N/A		Visit to Huu Nghi Customs and Dong Dang Customs (Border with China) [Survey on Customs procedures at land border]		
10	Oct. 13	Thu	N/A		Visit to Dinh Vu Port Customs and Chua ve Customs (Hai Phong Port) [Survey on Customs procedures at seaport]		
11	Oct. 14	Fri	N/A		Visit to a private company; NEC Solutions Vietnam [Survey on procurement/maintenance] Discussion with GDVC Visit to Noibai International Airport Customs [Survey on Customs procedures at airport]		
12	Oct. 15	Sat	N/A		Travel from Hanoi to Ho Chi Minh City Wrap-up meeting		
13	Oct. 16	Sun	N/A		Survey preparation		
14	Oct. 17	Mon	N/A		Visit to Tan Son Nhat International Airport Customs [Survey on Customs procedures at airport] Visit to Sai Gon Port 1st District Customs (Cat Lai) [Survey on Customs procedures at seaport]		
15	Oct. 18	Tue	N/A		Visit to Moc Bai Customs (Border with Cambodia) [Survey on Customs procedures at land border]		
16	Oct. 19	Wed	N/A		Visit to a private company; MOL Logistics (Vietnam) [Survey on trade business]  Travel from Ho Chi Minh City to Hanoi		



Date (2011)			JICA		Consultant		
			Leader (Mr. YAMASHITA)	Project Coordination (Mr. TSUJI)	Chief Consultant (Mr. KATO)	Customs Clearance Operation Planning (Mr. ISHIKAWA)	Equipment Planning (Mr. OHASHI)
17	Oct. 20	Thu	N/A		Visit to a private company; Dragon Logistics [Survey on trade business] Visit to a private company; Global Data Service [Survey on data center operation]		
18	Oct. 21	Fri	N/A		Observing the Working Group (WG) of GDVC and the CTB Meeting with GDVC Visiting the construction site of new GDVC office and Data Center		
19	Oct. 22	Sat	N/A		Departure from Hanoi Arrival in Tokyo		

## (2) Explanation of Draft Report

Date (2012)			JICA			Consultant		
			Leader (Mr. TANAKA)	Cooperation Planning (Mr. TSUJI)	Project Coordination (Mr. KOBAYASHI)	Chief Consultant (Mr. KATO)	Customs Clearance Operation Planning (Mr. ISHIKAWA)	Equipment Planning (Mr. OHASHI)
1	Feb. 5	Sun	Departure from Tokyo Arrival in Hanoi					
2	Feb. 6	Mon	Discussion with GDVC [Explanation of Draft Report, Preparation of the Minutes of Discussion (M/D)]					
3	Feb. 7	Tue	Discussion with GDVC [Same as above] Signing of the Minutes of Discussion (M/D)					
4	Feb. 8	Wed	Another Assignment			Departure from Hanoi Arrival in Tokyo		
5	Feb. 9	Thu	Another Assignment		Departure from Hanoi Arrival in Tokyo	N/A		
6	Feb. 10	Fri	Another Assignment		N/A	N/A		
7	Feb. 11	Sat	Departure from Hanoi Arrival in Tokyo		N/A	N/A		

## APPENDIX-3 List of Parties Concerned in the Recipient Country

### General Department of Viet Nam Customs (GDVC)

Nguyen Ngoc Tuc	General Director
Vu Ngoc Anh	Deputy Director General
Nguyen Van Can	Deputy Director General
Nguyen Toan	Director, International Cooperation Department
Nguyen Manh Tung	Deputy Director, Customs Reform and Modernization Board
Nguyen Cong Binh	Director, Information Technology and Statistics Department
Pham Quang Tuyen	Deputy Director, Information Technology and Statistics Department
Nguyen Anh Tai	Chief of Division, International Cooperation Department

### Ministry of Finance (MOF)

Do Hoang Anh Tuan	Vice Minister
Nguyen Ba Toan	Deputy Director General, International Cooperation Department
Tran Nguyen Vu, MSC	Deputy General Director, Department of Financial Informatics and Statistics

### Noibai International Airport Customs Office (Ha Noi)

Dao Van Lien	Chief of Customs Brigade
Hoang Minh Tu	Vice Chief of Customs Brigade

### Dinh Vu Port Customs Office (Hai Phong Port)

Le Duc Hai	Chief
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### Chua Ve Customs Office (Hai Phong Port)

Dao Viet Dam	Chief
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### Huu Nghi Customs Checkpoint (Land Border with China)

Vu Tuan Binh	Chief
Vu Van Toan	Deputy Chief

Dong Dang Customs Checkpoint (Land Border with China)

Be Thai Hung Deputy Chief

Tan Son Nhat International Airport Customs Office (Ho Chi Minh City)

Le Tuan Binh Deputy Manager

Pham Tri Dung Deputy Manager

Nguyen Duc Khanh Deputy Manager

Sai Gon Port 1<sup>st</sup> District Customs Office (Cat Lai / Ho Chi Minh City)

Pham Minh Le Chief

Nguyen Thi Bong Deputy Chief

Moc Bai Customs Checkpoint (Land Border with Cambodia)

Do Quoc Khanh Chief

Ng. T. Kim Anh Deputy Chief

Fpt Information System

Duong Dung Trieu President & CEO

Tran The Hien Managing Director

Nguyen Van Ba Director, IT Consultancy and Service Center

Tran Tuan Hai Director, FSE Software Solution Centre

Ngo Tuan Khiem Vice Director, IT Infrastructure Services Center

Nguyen Thi Phuong Mai Partner Management Executive, Business Partner Group,  
Global Business Development Center

NTT DATA VIETNAM COMPANY LIMITED

Masahiro Yanagawa General Director

Kazuhiro Kuroda Manager

Pham Thi Huong Duyen Secretary & Business Planning Section

Noriyuki Miwa Manager, MNC Sales, Global Business Unit, Global  
Business Sector, NTT DATA CORPORATION (Japan)

NTT Communications (Vietnam) Ltd.

Masato Goto President & CEO

Koichiro Otaki Deputy General Director

Global Data Service Joint Stock Company

Koichiro Otaki	General Director
Osamu Yoshida	Director, Data Center

NEC Solutions Vietnam Co., Ltd.

Takashi Kasai	General Director
Hideya Narita	General Manager, 1 <sup>st</sup> System Integration Division
Kazuo Kogo	General Manager, 2 <sup>nd</sup> System Integration Division
Hoang Manh Chinh	Team Leader, 1 <sup>st</sup> System Integration Division
Do Thi Minh Nguyet	Business Manager, 2 <sup>nd</sup> System Integration Division

MOL Logistics (Vietnam) Inc.

Yoshitomi Hirano	General Director
Katsuya Endo	Manager, Sales Department
Ton Nu Minh Thu	General Manager

Dragon Logistics Co., Ltd.

Kenji Iki	General Director
Yoshihisa Hayashi	Manager, Marketing Department
Takashi Konakamura	Manager, Marketing Department
Hayato Takeuchi	Marketing Manager

Embassy of Japan in Viet Nam

Junji Kuyama	First Secretary
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Japan International Cooperation Agency (JICA) Vietnam Office

Motonori Tsuno	Chief Representative
Naomichi Murooka	Representative

## APPENDIX-4 Minutes of Discussions

### (1) Preparatory Survey

**Minutes of Discussions  
on the Preparatory Survey  
of the Project for E-Customs and National Single Window  
for Customs Modernization**

In response to the request from the Socialist Republic of Vietnam (hereinafter referred to as "Vietnam"), the Japan International Cooperation Agency (hereinafter referred to as "JICA"), in consultation with the Government of Japan, decided to conduct a Preparatory Survey on the Project for E-Customs and National Single Window for Customs Modernization (hereinafter referred to as "the Project").

JICA sent to Vietnam, the Preparatory Survey Team (hereinafter referred to as "the Team"), headed by Mr. Makoto Yamashita, Deputy Director General of Southeast Asia and Pacific Department, JICA. It is scheduled to stay in the country from October 4th to October 21st, 2011.

The Team held discussions with the officials concerned of the Government of Vietnam and conducted a field survey.

In the course of discussions and field survey, both parties confirmed the main items described on the attached sheets.

The Team will proceed to further work and prepare the Preparatory Survey Report.

Hanoi, October 7th, 2011

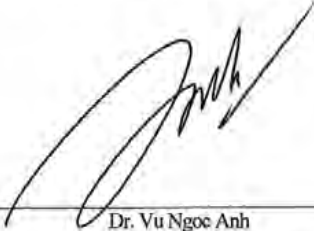
  
Mr. Makoto Yamashita

Leader

Preparatory Survey Team

Japan International Cooperation Agency

Japan

  
Dr. Vu Ngoc Anh

Deputy Director General

General Department of Vietnam Customs

Ministry of Finance

Socialist Republic of Vietnam

## ATTACHMENT

### 1. Objective of the Project

The objective of the Project is to modernize customs administration including introducing E-customs and national single window by establishing new comprehensive customs information management system based on the technology of Japan's Nippon Automated Cargo and Port Consolidated System (NACCS) and Customs Intelligence Database System (CIS) (hereinafter referred to as "the System").

### 2. Project Site

The Project site is Hanoi as the venue for development of the System.

### 3. Responsible and Implementing Agency

3-1. The Responsible Agency is the Ministry of Finance.

3-2. The Implementing Agency is the General Department of Vietnam Customs, Ministry of Finance (hereinafter referred to as "GDVC").

### 4. Items requested by the Vietnamese side as a scope of the Project

Based on the Record of Discussion mutually agreed between Japanese Customs Bureau and GDVC related to the Project, the Vietnamese side requested following items as a scope of the Project.

#### (1) Software Development

- 1) e-Declaration: This module will help a customs administration and stakeholders related to cross-border transactions (e.g., import, export and transit) to conduct and fulfill relevant laws, regulations and procedures for customs clearance and release. This module is also helpful to connect Vietnam's National Single Window with ASEAN Single Window.
- 2) e-Manifest: This module will help a customs administration and stakeholders related to international transport to conduct and fulfill relevant laws, regulations and procedures for customs clearance and release.
- 3) e-Invoice: This module will help stakeholders related to cross-border transactions to utilize electronic commercial invoice for customs clearance and release.
- 4) Selectivity: This module will help a customs administration to make decisions on customs examination (e.g.,



immediate release/ document check and physical examination) based on risk profile/risk criteria.

- 5) e-Payment: This module will help a customs administration and stakeholders related to cross-border transactions to utilize electronic payment of relevant taxes and duties. It also helps a customs administration to manage and control the payment of customs taxes and duties.
- 6) e-C/O: This module will help a customs administration and stakeholders related to cross-border transactions to utilize electronic Certificate of Origin.
- 7) Risk profile/risk criteria management (within CIS): This module will help a customs administration to issue and manage risk profile/risk criteria for customs clearance and release as well as for compliance management.
- 8) Importer/exporter management (within CIS): This module will help a customs administration to manage importers/exporters/customs brokers and users of the systems nationwide.
- 9) Customs Clearance and Release (within CIS): This module will help a customs administration to make decisions on customs clearance and release.
- 10) Supervision and Control: This module will help system administrators and authorized persons to supervise and control the utilization and accession in the system.
- 11) Operation of system tests/acceptance tests, content of training courses for system users in the customs administration, and content of technical support and system maintenance.

## (2) Hardware Development

Procurement of hardware, operating system, and middle ware which are necessary for properly operating software mentioned above.

Upon the receipt of the Brief Design which stipulates more detailed design under the scope above, the Team will review it and develop technical design as well as estimate the cost of the Project.

Referring to Article 1 above, the Vietnamese side showed its expectation that the System is to be developed with the same program structure and logic as well as the same source code as those of Japan's NACCS and CIS in order to develop the System with securing the same level of efficiency and stability of Japan's NACCS and CIS within their expected timeframe.

In order to materialize this issue, the GDVC, as an implementing agency, is expecting single-source method for the



selection of contractor to conduct software development in Vietnam and is asking for approval from relevant ministries and will submit the result to JICA. Upon the request from GDVC, the Team will share technical view point on this matter with GDVC.


#### **5. Undertakings taken by the Vietnamese side**

The Vietnamese side confirmed that Vietnamese side will finance the following components that will not be covered by a Japanese Grant Aid but are essential for proper and effective operation of the new system:

- Significant customization of the system beyond the standard specification of e-Customs and NACCS;
- Any change in technical specifications after the detail design phase;
- Development of systems of agencies other than Vietnam Customs;
- Modification of the existing systems to be connected to the new system;
- Transition from the legacy system to the new system, including transfer of data and information;
- Any change of the system after the system transfer, due to changes of system environment such as the upgrade of O/S and middle ware;
- Update of data such as the user list and the internal nomenclature (e.g., tariff and commodity nomenclature);
- System maintenance since the System transfer;
- Construction of a new customs datacenter and a backup datacenter;
- Providing the computer terminal for any system users including system users of Vietnam Customs;
- Technical design for security, firing prevention, WAN (Wide Area Network), and LAN; and
- Procurement for terminals and firing prevention equipments;

Both sides confirmed that the Vietnamese side is ready to take their undertakings as stipulated in the Chapter 17 of the Brief Design, as a detailed breakdown of the description above.

Both sides confirmed that the Vietnamese side will complete construction of new datacenter including utility, security and network which would be necessary environment for operating the System properly, before September, 2012. In this regard, the Vietnamese side informed that GDVC has draft technical design available for data center. To ensure compatibility with the future system, the Vietnamese side requested Japanese side to assist consultant to make revision and give relevant consultancy on the technical design of data center. The Japanese side noted and will have internal discussion on this request and will inform the Vietnamese side later.





The Team will consider the contents of operation and maintenance which is to be borne by the Vietnamese side after official release of the System and estimate its annual cost so that the Vietnamese side can execute their responsibility to secure necessary budget for operation and maintenance.

#### **6. Japan's Grant Aid Scheme**

6-1. The Vietnamese side understands the Japan's Grant Aid Scheme explained by the Team, as described in Annex 1.

6-2. The Vietnamese side will take the necessary measures, as described in Annex 2, for smooth implementation of the Project, as a condition for the Japanese Grant Aid to be implemented in addition to Vietnamese undertakings mentioned in the Article 5 above.

#### **7. Submission of final brief design**

The Vietnamese side agreed to prepare for the final brief design and submit to the Team before the middle of November, 2011 for smooth implementation of the preparatory survey.

#### **8. Schedule of the Survey**

Both sides confirmed about the schedule of the Survey as stipulated in Annex 3.

8-1. The consultants will proceed to further studies in Vietnam until 21st October, 2011.

8-2. JICA will prepare the draft report in English and dispatch a mission in order to explain its contents in February 2012. Due to the time constraints, relevant stakeholders among the Japanese side will proceed to determine the detailed scope and cost of the Project before dispatching such mission. The Vietnamese side agreed that any modification and suggestion related to the brief design shall be made and mutually agreed before submitting the final one.

8-3. Both sides confirmed that the Team will share with GDVC tentative cost estimation and other relevant information of the Project before the end of December, 2011. In addition, both sides confirmed that they will make mutual consultation on the respective draft report for smooth appraisal process in each country.

8-4. In case that the contents of the report are accepted in principle by the Government of Japan and Vietnam, JICA will complete the final report and send it to the Government of Vietnam by March 2012.



8-5. The both sides will take necessary preparatory measures for signing of E/N and G/A as soon as possible, which would be the important factor for developing the System on scheduled timeline. The Team will convey to Japanese relevant agencies the request from GDVC that the Japanese side will share the draft E/N and G/A as soon as possible after the cabinet approval on the Project.

**9. Other relevant issues**

- 9-1. It is inevitable to facilitate preparatory work, such as reviewing the legal framework and customs business processes and procedures in line with the System. The Vietnamese side takes continuous efforts so that customs administration will be effectively made using the System after its installation.
- 9-2. In order to facilitate activities mentioned above, the Vietnamese side is considering proposing request on technical cooperation to the Government of Japan. The Team understood its importance and necessity and suggested that the Vietnamese side proceed with further consideration for submission of official request at its earliest convenience so that the Japanese side can appraise it in a timely manner. As for the contents and concrete needs on this technical cooperation, the GDVC will consult with the Team and other Japanese relevant agencies.

Annex 1. Japan's Grant Aid

Annex 2. Major Undertakings to be taken by the both sides

Annex 3. Tentative Schedule during the Preparatory Survey until March, 2012



## Annex-1 Japan's Grant Aid

The Government of Japan (hereinafter referred to as "the GOJ") is implementing the organizational reforms to improve the quality of ODA operations, and as a part of this realignment, a new JICA law was entered into effect on October 1, 2008. Based on the law and the decision of the GOJ, JICA has become the executing agency of the Grant Aid for General Projects, for Fisheries and for Cultural Cooperation, etc.

The Grant Aid is non-reimbursable fund to a recipient country to procure the facilities, equipment and services (engineering services and transportation of the products, etc.) for economic and social development of the country under principles in accordance with the relevant laws and regulations of Japan. The Grant Aid is not supplied through the donation of materials as such.

### 1. Grant Aid Procedures

The Japanese Grant Aid is conducted as follows-

- Preparatory Survey (hereinafter referred to as "the Survey")
  - The Survey conducted by JICA
- Appraisal & Approval
  - Appraisal by The GOJ and Approval by the Japanese Cabinet
- Determination of Implementation
  - The Notes exchanged between the GOJ and a recipient country
- Grant Agreement (hereinafter referred to as "the G/A")
  - Agreement concluded between JICA and a recipient country
- Implementation
  - Implementation of the Project on the basis of the G/A

### 2. Preparatory Survey

#### (1) Contents of the Survey

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

- Confirmation of the background, objectives, and benefits of the Project and also institutional capacity of agencies concerned of the recipient country necessary for the implementation of the Project.
- Evaluation of the appropriateness of the Project to be implemented under the Grant Aid Scheme from a technical, financial, social and economic point of view.
- Confirmation of items agreed on by both parties concerning the basic concept of the Project.



- Preparation of a basic design of the Project.
- Estimation of costs of the Project.

The contents of the original request by the recipient country are not necessarily approved in their initial form as the contents of the Grant Aid project. The Basic Design of the Project is confirmed considering the guidelines of the Japan's Grant Aid scheme.

JICA requests the Government of the recipient country to take whatever measures are necessary to ensure 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 organization in the recipient country actually implementing the Project. Therefore, the implementation of the Project is confirmed by all relevant organizations of the recipient country through the Minutes of Discussions.

#### (2) Selection of Consultants

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

#### (3) Result of the Survey

The Report on the Survey is reviewed by JICA, and after the appropriateness of the Project is confirmed, JICA recommends the GOJ to appraise the implementation of the Project.

### 3. Japan's Grant Aid Scheme

#### (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 signed between the GOJ and the Government of the recipient country to make a pledge for assistance, which is followed by the conclusion of the G/A between JICA and the Government of the recipient country to define the necessary articles to implement the Project, such as payment conditions, responsibilities of the Government of the recipient country, and procurement conditions.

#### (2) Selection of Consultants

The consultant firm(s) used for the Survey will be recommended by JICA to the recipient country to also work on the Project's implementation after the E/N and the G/A, in order to maintain technical consistency.

(3) Eligible source country

Under the Japanese Grant Aid, in principle, Japanese products and services including transport or those of the recipient country are to be purchased. When JICA and the Government of the recipient country or its designated authority deem it necessary, the Grant Aid may be used for the purchase of the products or services of a third country. However, the prime contractors, namely, constructing and procurement firms, and the prime consulting firm are limited to "Japanese nationals".

(4) Necessity of "Verification"

The Government of the recipient country or its designated authority will conclude contracts denominated in Japanese yen with Japanese nationals. Those contracts shall be verified by JICA. This "Verification" is deemed necessary to secure accountability to Japanese taxpayers.

(5) Major undertakings to be taken by the Government of the Recipient Country

In the implementation of the Grant Aid Project, the recipient country is required to undertake such necessary measures as Annex-2.

(6) "Proper Use"

The Government of the recipient country is required to maintain and use the facilities constructed and the equipment purchased under the Grant Aid properly and effectively and to assign staff necessary for this operation and maintenance as well as to bear all the expenses other than those covered by the Grant Aid.

(7) "Export and Re-export"

The products purchased under the Grant Aid should not be exported or re-exported from the recipient country.

(8) Banking Arrangements (B/A)

- a) The Government of the recipient country or its designated authority should open an account in the name of the Government of the recipient country in a bank in Japan (hereinafter referred to as "the Bank"). JICA will execute the Grant Aid by making payments in Japanese yen to cover the obligations incurred by the Government of the recipient country or its designated authority under the Verified Contracts.
- b) The payments will be made when payment requests are presented by the Bank to JICA under an Authorization to Pay (A/P) issued by the Government of the recipient country or its designated authority.


(9) Authorization to Pay (A/P)



The Government of the recipient country should bear an advising commission of an Authorization to Pay and payment commissions to the Bank.

(10) Social and Environmental Considerations

A recipient country must ensure the social and environmental considerations for the Project and must follow the environmental regulation of the recipient country and JICA socio-environmental guideline.



## Annex 2

## Major undertakings to be taken by the both sides

No.	Items	To be covered by Grant Aid	To be covered by Recipient Side
1	To ensure prompt unloading and customs clearance of the products at ports of disembarkation in the recipient country and to assist internal transportation of the products		
	1) Marine (Air) transportation of the Products from Japan to the recipient country	●	
	2) Tax exemption and custom clearance of the Products at the port of disembarkation		●
	3) Internal transportation from the port of disembarkation to the project site	●	
2	To ensure that customs duties, internal taxes and other fiscal levies which may be imposed in the recipient country with respect to the purchase of the products and the services be exempted		●
3	To accord Japanese nationals whose services may be required in connection with the supply of the products and services such facilitation and arrangements as may be necessary for their entry into the recipient country and stay therein for the performance of their work		●
4	To ensure that the facilities and equipment be maintained and used properly and effectively under the Project		●
5	To bear the expenses, other than those covered by the Grant, necessary for the implementation of the Project such as preparation of infrastructures		●
6	To bear the following commissions paid to the Japanese bank for banking services based upon the B/A		
	1) Advising commission of A/P		●
	2) Payment commissions		●
7	To give due environmental and social consideration in the implementation of the Project		●

(B/A : Banking Arrangement, A/P : Authorization to Pay)

Annex 3  
 Tentative Schedule during the Preparatory Survey until March, 2012

	Oct. 2011	Nov. 2011	Dec. 2011	Jan. 2012	Feb. 2012	Mar. 2012
Ministry of Foreign Affairs, Japan		Report on the progress		Meeting between MOF and MOF	Cabinet approval	Signing of E/N
JICA	Reporting of the result of field survey	Submission of draft report	Assessment of the design and cost	Submission of the outline report	2nd field survey to explain about the outline report	
Preparatory Survey Team	1st field survey	Submission of draft report	Study in Japan (Designing, Estimation)	Submission of the draft outline report	Preparatory meeting for the 2nd survey	
Working Group (both Japan and Vietnam)	Submission of draft report	Submission of final draft design	Activities of Working Group	Submission of 1/3 report to MOF	Approval by MOF	
GDVC and relevant governmental agencies in Vietnam	Preparation for deployment of 1st report	Sharing tentative list, application and requests of the respective reports to MOF		Consideration by MOF and internal consultation among relevant entities		Preparation for signing of E/N

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## (2) Explanation of Draft Report

**Minutes of Discussions  
on the Preparatory Survey  
of the Project for E-Customs and National Single Window  
for Customs Modernization  
(Explanation on the Draft Report)**

The Japan International Cooperation Agency (hereinafter referred to as "JICA") dispatched the Preparatory Survey team on the Project for the "E-Customs and National Single Window for Customs Modernization" (hereinafter referred to as "the Project") in October 2011, and through discussions, field survey and technical examination in Japan, JICA prepared a draft report of the Preparatory Survey.

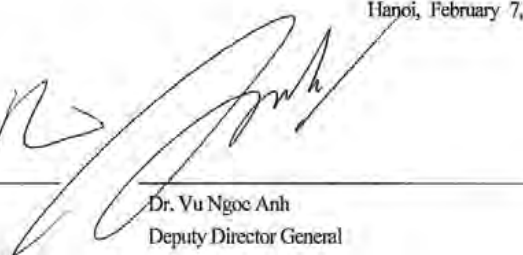
In order to explain and to consult with concerned officials of the Government of Vietnam on the components of the draft report of the Project, JICA sent to Vietnam the Preparatory Survey Team (hereinafter referred to as "the Team"), which is headed by Mr. Motonori Tanaka, Deputy Director General, Industrial Development and Public Policy Department, JICA, from February 6 to 7, 2012.

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

Hanoi, February 7, 2012



Mr. Motonori Tanaka  
Leader  
Preparatory Survey Team  
Japan International Cooperation Agency  
Japan



Dr. Vu Ngoc Anh  
Deputy Director General  
General Department of Vietnam Customs  
Ministry of Finance  
Socialist Republic of Vietnam



## ATTACHMENT

### 1. Components of the Draft Report

The General Department of Vietnam Customs, Ministry of Finance (hereinafter referred to as "GDVC") agreed and accepted the components of the Draft Report (as shown in Annex 1) that was explained by the Team. As for the component of digital signature, GDVC will consider its relevance and necessity and answer the result to Japanese side before the end of March, 2012.

### 2. The Specification of the Equipment and the Project Cost Estimate

#### 2-1. The Specification of the Equipment

Both sides agreed that the draft specification is confidential and should never be duplicated or released to any outside parties until issuing tendering documents of hardware component.

#### 2-2. The Project Cost Estimate

Both sides agreed that the any cost estimate other than the total Project cost is confidential and should never be duplicated or released to any outside parties until the conclusion of all contracts. Both sides agreed that the Project cost estimate which was shared as an appendix of the Draft Report will be used for appraisal process of each government. The team informed that the Project cost estimate is not final and is subject to change and the Vietnamese side acknowledged it.

### 3. Undertakings by the Vietnamese side

Both sides reconfirmed that the Vietnamese side would take necessary measures including allocating necessary budget for undertakings which was described especially in the table 2-7, chapter 3 and 5 of the Draft Report to be conducted in a timely manner.

### 4. Schedule

The Draft Report will be submitted to the Japanese cabinet for its approval in February, 2012.

Both sides agreed to make necessary procedures for the Exchange of Notes and the Grant Agreement which would be signed around March, 2012.

Annex 1. Draft Report

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16

## APPENDIX-5 References

No	Title	Issuing Agent	Contents
1	Brief Design of the Project on E-Customs and National Single Window for Customs Modernization in Viet Nam (Version 1.3)	GDVC	A basic design of VNACCS/VCIS (2011)
2	Answers to the Questionnaire for GDVC	GDVC	A set of answers to the questions raised by the Preparatory Survey Team (2011)
3	Approving Customs Development Strategy up to 2020 (No. 448/QD-TTg)	Prime Minister's Decision	A strategic plan to modernize Vietnam Customs (2011)
4	Decision 48 of PM on SW (No. 48/2011/QD-TTg)	Prime Minister's Decision	A decision on implementing National Single Window (2011)
5	Viet Nam Customs Reform and Modernization Plan 2011-2015 (No. 1514/QD-BTC)	Ministry of Finance	A plan to reform and modernize Vietnam Customs (2011)
6	Decision on Expenditure Budget for Customs (No.915/QD-TCHQ)	GDVC	A decision on the process, assessment, assignment and control of Customs budget (2008)
7	Law on Tendering (No. 61-2005-QH11)	The National Assembly of the Socialist Republic of Viet Nam	The law regulating tendering activities in Viet Nam (2005)
8	Law Amending and Supplementing a Number of Articles of the Laws Concerning Capital Construction Investment (No. 38/2009/QH12)	The National Assembly of the Socialist Republic of Viet Nam	The law on revising some articles of the laws concerning capital construction investment (2009)
9	Guiding the Bidding Law and the Selection of Construction Contractors Under the Construction Law (No. 85/2009/ND-CP)	The Government of the Socialist Republic of Viet Nam	The decree on guiding implementation of the Bidding Law and the Construction Law (2009)
10	Design Drawings of Data Center	Sacidelta Joint Venture Co.,Ltd.	Design drawings of new data center for VNACCS/VCIS (2010, 2011)



