Directorate General of Sea Transportation
Ministry of Transportation (DGST)
Republic of Indonesia

THE PROJECT
ON
PORT EDI ENHANCEMENT STRATEGY
IN
THE REPUBLIC OF INDONESIA

FINAL REPORT

APRIL 2019

Japan International Cooperation Agency (JICA)

The Overseas Coastal Area Development Institute of Japan (OCDI)

Mitsubishi Research Institute (MRI)

Table of Contents

Abbreviations

ADSL	Asymmetric Digital Subscriber Line
ASEAN	Association of South East Asian Nations
BMBB	Approval of Loading and Unloading of Dangerous Cargo
BUNKER	Approval of Filling Fuel
BUP	Port Business Entity
CIQ	Customs Immigration Quarantine
DGST	Directorate General of Sea Transportation
DLKR	Port Activity Area
DWT	Dead Weight Tonnage
EDI	Electrical Data Exchange
FAL	Facilitation of International Maritime Traffic Convention
GOI	Government of Indonesia
GT	Gross Tonnage
HM	Harbour Master
ICT	Information and Communication Technology
INAPORTNET	Indonesian Port EDI System
INSA	Indonesia National Ship owner's Association
INSW	Indonesian National Single Window
ITIL	Information Technology Infrastructure Library
ITR	Interim Report
JCC	Joint Coordination Committee
JICA	Japan International Cooperation Agency
KP	Approval of Berth Shift
KSOP	Harbour Master and Port Authority Office
LAB	Report of Discharging Cargo from Port
LK3	Report of Vessel Arrival and Departure
LKK	Notice of Vessel Departure
LPI	Logistics Performance Index
MOT	Ministry of Transportation
MRI	Mitsubishi Research Institute
MT	Request for Extension of Berthing Period
NSW	National Single Window
OA	Office Automation
O&M	Operation and Maintenance
OCDI	The Overseas Coastal Development Area Institute of Japan
OD	Origin Destination
PA	Port Authority
PBM	Stevedoring Company
PENGELASAN	Permission of Welding Works
PKK	Notice of Vessel Arrival
PPI	Port Performance Indicators
PPK	Decision of Vessel Berthing
PUSTIKOM	Information and Communication Technology Center, Secretariat General, Ministry of Transportation
RD	Record of Discussions
RKBM	Submission of Loading and Unloading Activity Plan
RPK/RO	Ships Binding Plan / Operations Plan
SHSOP	Report of Ship to Ship Cargo Shift to PA
SHSSB	Report of Ship to Ship Cargo Shift to HM

SIMLALA	Public Application System of Directorate of Sea Traffic and Sea Transportation
SIMPADU	Integrated Information System for Port Authority
SIMPONI	Tax Collection System of Ministry of Finance
SIT	System Integration Testing
SLA	Service Level Agreement
SOA	Service-oriented Architecture
SPB	Approval of Departure from Port
SPK	Work Order
SPKBM	Statement of Work Stevedoring
SPM	Port Entry Approval
SPOG	Approval of Vessel Move in the Port
SPS	Special Package for Harbour Master.
TFPM	Task Force for Project Management
TOT	Training of Trainee
VPN	Virtual Private Network
VTS	Vessel Traffic System
WG	Working Group

I. Project Implementation

I-1 Outline of the Project

I-1-1 Objectives and Goal of the Project

The purpose of the Project is to speed up and simplify the port-related procedures in Indonesia with the use of INAPORTNET by solving operational issues of the port EDI system and by enhancing management and operation structure. Expected outcomes of the Project are as follows;

1) increased utilization of INAPORTNET for vessel entry and departure in the Pilot Port

2) formulation of Improvement Plan for expansion of INAPORTNET to connect other relevant organizations and/or agencies

And through technology transfer, the following is also expected;

3) increase in knowledge and awareness within DGST to leverage above achievements

However, it should be noted that 3) above is not directly described in RD but it is related to 1) and 2) and required by DGST. An overview of the Project Goals is illustrated in Figure I-1-1

Goal: Port-related procedures in Indonesia will be expedited and simplified with the use of the port EDI system		
Activity1) Increase the utilization of INAPORTNET for vessel entry and departure in the Pilot Port	Activity 2) Formulate improvement Plan for expansion of INAPORTNET to connect other relevant organizations and/or agencies	Activity 3) Increase knowledge and awareness within DGST to leverage 1) and 2)

Figure I-1-1 Overview of the Project Goals

I-1-2 Pilot Port

It was agreed in the Record of Discussions that two ports among four main ports shall be selected as Pilot Ports at the 1st JCC meeting.

At the time when the 1st JCC meeting was held, INAPORTNET had been implemented at all main ports. INAPORTNET for port-related procedures was launched on 1st /July 2016 at Belawan Port, on 11th November 2016 at Tanjung Priok Port, on 2nd November 2016 at Tanjung Perak Port and on 1st June 2016 at Makassar Port. These four ports were candidate Pilot Ports. The stage that INAPORTNET was launched is named as 'Go-Live.'

JCC selected Tanjung Priok Port and Makassar Port as the Pilot Ports of the Project for the following reasons:

- Tanjung Priok Port is the biggest port in Indonesia. Therefore useful information for identifying challenges with the present INAPORTNET, expanding INAPORTNET to other target ports and improving INAPORTNET toward the future can be obtained through activities at the port in the Project as various types of vessels use the port;

- Makassar Port was the first port to implement INAPORTNET. Accordingly, its experience and accumulated data will be helpful for expanding INAPORTNET to other target ports.

I-1-3 Project Implementation Structure

I-1-3-1 Basic Structure

This Project will be conducted at the headquarters of the DGST in Jakarta, and the port authorities of the two designated Pilot Ports. A short-term plan will be formulated for the sixteen ports including

the four major ports (the two Pilot Ports and the other two major ports) and the twelve other ports stipulated by the PM 192.

Reaching a consensus among DGST and port authorities is essential for the implementation of the Project. The establishment of the JCC (Joint Coordinating Committee) and its members has been agreed in RD, and responsible persons of DGST and Port Authority of the Pilot Ports have been assigned in RD. The Task Force for Project Management (TFPM) and Working Group (WG) will also be established under the JCC. Efficient implementation of the Project is expected under this three-tiered management structure. The JCC will manage the overall implementation of the Project while the TFPM and WG will be responsible for outcome management and progress management respectively and be held as necessary.

Responsible persons in each Project site are designated in the RD as shown in Figure I-1-2.

GOI   JAPAN

Joint Coordinating Committee (Chaired by Project Director)	
Directors of DGST Representative of Port Authority and Harbour Master of Target Ports	JICA Indonesian Office JICA Project team Experts (Embassy of Japan) (JICA Development Policy Advisor for Indonesia)

Task Force for Project management (Chaired by Director of Directorate of Sea Traffic and Transportation)	
Representative of each Directorate of DGST Representative of Port Authority and Harbour Master of Pilot ports Representative of Port Authority other target ports(as necessary)	JICA Project team Experts

Working group Head of Port Authority of the Pilot Port manages the activities at Pilot Ports including supervision of working group member	
Staff of Port Authority of the Pilot Port Persons of relevant parties (as necessary)	JICA Project team Experts

Figure I-1-2 Implementation Structure

Table I-1-1 Roles of Relevant Officials

Project Director:	
Director General of DGST	Responsible for overall administration and implementation of the Project.
Project Manager in DGST	
Director of Sea Traffic & Sea Transportation, DGST	Responsible for the administration of the Project component related to DGST.
Project Manager in Port Authority of Pilot Ports	
Head of Port Authority	Responsible for the administration of the Project component related to Pilot Ports.
Project Members	
Relevant officials in DGST, Port Authority of Pilot Ports	Responsible for the operational matters of the Project.

I-1-3-2 Joint Coordination Committee (JCC)

The Joint Coordination Committee (JCC) was established in order to facilitate inter-organizational coordination. JCC meetings are held whenever it is deemed necessary. The structure of JCC was decided at the first JCC meeting. JCC is chaired by the Directorate General of Sea Transportation, Ministry of Transportation, Republic of Indonesia (DGST). Members of Indonesian and Japanese sides are shown in Table I-1-2. Persons who are invited by the Chairperson may also attend the meeting. Responsible persons of the Project are:

Table I-1-2 Members of JCC

Government of Indonesia Side	Japanese Side
• Director General of DGST (Chairperson) • Director of Directorate of Sea Traffic and Transportation, DGST • Director of Directorate of Port, DGST • Director of Directorate of Shipping and Seafarer, DGST • Director of Directorate of navigation, DGST • Director of Directorate of Sea and Coast Guard Contingent, DGST • Head of Port Authority of Tanjung Priok Port • Head of Port Authority of Makassar Port • Head of Harbour Master of Tanjung Priok Port • Head of Harbour Master of Makassar Port • Project Members (Appointed personnel in DGST, Tanjung Priok Port and Makassar Port	• Chief Representative of JICA Indonesian Office • JICA Development Policy Advisor for Indonesia • Representative of JICA project team • Officials of the Embassy of Japan may attend the Meeting of JCC.

I-1-3-3 Tanjung Priok Port Authority

Tanjung Priok Port is one of the Pilot Ports of the Project. The port is located in the capital city of Indonesia. The date of the soft launch is 17th September, 2016 and that of Go-Live is 11th November, 2016. The port is the biggest port in Indonesia and many types of vessels use the port. Useful information for understanding INAPORTNET may be obtained through the Project. This is why the port was selected as one of the Pilot Ports.

Activities such as workshops are conducted under the Head of Port Authority of Tanjung Priok Port who is appointed as the Project Manager in Tanjung Priok Port. Officials of Port Authority and Harbour Master will participate in the workshops.

I-1-3-4 Makassar Port Authority

Makassar Port is the other Pilot Port. The port is located in the biggest city of Sulawesi Island. The date of the soft launch is 17th March 2016 and that of Go-Live is 1st June 2016. Makassar port was the first port to implement INAPORTNET. Accordingly, its experience and accumulated data will be helpful for expanding INAPORTNET to other targeted ports. That is the reason why the port was selected as one of the Pilot Ports.

Activities such as workshops are conducted under the Head of Port Authority of Makassar Port who is appointed as the Project Manager in Makassar Port. Officials of Port Authority and Harbour Master will participate in workshops.

I-1-3-5 JICA project team

JICA project team is composed of seven (7) experts who are shown in Table I-1-3.

Table I-1-3 JICA Project Team Member

Leader/Port Management	Tatsuyuki SHISHIDO	OCDI
Sub Leader/ICT	Takashi NAKAMURA	MRI
Port Management/Information Planning	Eiji TOMIDA	OCDI
Port Management /Instruction of Infonrmation Usage	Tadahiko KAWADA	OCDI
Port-related Procedures	Akira KOMATSU	OCDI
Operation of System (1)	Akira YAMAGUCHI	OCDI
Operation of System (2)	Gaku INOUE	OCDI

OCDI: the Overseas Coastal Area Development Institute of Japan
MRI: Mitsubishi research Institute

JICA project team members visited Indonesia to carry out each task according to the schedule shown in Figure I-1-3.

Figure I-1-3 Assignment Plan of JICA Project Team

I-2 Project Activities

I-2-1 JCC Meeting

I-2-1-1 First Meeting

The first meeting was held on 18th April 2017.

The participants were as follows:

Mr. Hengki Angkasawan: Head of Information and Communication Technology Center, Secretariat General, Ministry of Transportation;

Mr. Hernadi Tri Cahyanto: Deputy Director for Information System and Facilities of Sea Transportation, Directorate of Sea Traffic and Transportation, DGST;

Ms. Een Nuraini Saidah: Deputy Director for International Shipping, Directorate of Sea Traffic and Transportation, DGST;

Ms. Ayu Kharizsa: Head of Information System of Sea Transportation, Directorate of Sea Traffic and Transportation, DGST;

Mr. Barkah Bayu Mirajaya: Head of International Cooperation and Treaty Sub Division, Secretariat of DGST;

Mr. Wataru Sato: Deputy Director, Team 2 Transportation and ICT Group, Infrastructure and Peacebuilding Department, Japan International Cooperation Agency (JICA);

Mr. Shinichi Yoshihara: Representative, Indonesia Office, JICA;

Mr. Mitsugu Kawada JICA Development Policy Advisor for Indonesia;

Mr. Tatsuyuki Shishido: Senior Director for Research, the Overseas Coastal Area Development

Institute of Japan (OCDI);

Mr. Eiji Tomida: President, OCDI;

Mr. Akira Komatsu Advisor, OCDI;

Mr. Gaku Inoue Chief Researcher, OCDI; and

Mr. Akira Yamaguchi Senior Researcher, OCDI.

Following the presentations on the Inception Report by the JICA project team and present situation of INAPORTNET by DGST, discussions on agenda items were held. The main outcomes of the discussions points were as follows:

- Work Plan of the Project: The committee approved the work plan of the Project. The draft Inception Report shall be finalized reflecting the discussions at the meeting;

- Pilot Ports: Both sides agreed that Tanjung Priok Port and Makassar Port shall be selected as the Pilot Ports;

- Project Implementation Structure: The committee agreed to the Project implementation structure and the composition of JCC was decided;

- Inputs and Undertakings of DGST: DGST pledged to provide Input by DGST and to take necessary measures. Both are indicated in the RD of 2016 November;

- Promotion of Public Support: Both sides agreed to introduce the activities of the Project on their homepages in order to increase support for the Project; and

- Next JCC Meeting: The committee agreed to hold the next JCC meeting in December 2017, to discuss the Interim Report and other important matters.

I-2-1-2 Second Meeting

The Second meeting was held on 9th April 2018.

The participants were as follows:

Mr. Dwi Budi Sutrisno: Director of Directorate of Sea Traffic and Transportation, DGST;

Mr. Hernadi Tri Cahyanto : Deputy Director for Information System and Facilities of Sea Transportation, Directorate of Sea Traffic and Transportation, DGST;

Ms. Ayu Kharizsa: Head of Information System of Sea Transportation, Directorate of Sea Traffic and Transportation, DGST;

Mr. Herwindo Danevianta: Staff of International Cooperation and Treaty Sub Dvision, Secretariat of DGST;

Ms. Siti Musrina: Staff of Directorate Sea Traffic and Transportation;

Mr. Bambang   : Staff of Directorate Sea Traffic and Transportation;

Mr. Taufik: Staff of Directorate Sea Traffic and Transportation;

Mr. Eddy M.: Staff of Directorate Sea and Coast Guard Contingent;

Mr. Ibang: Staff of Public Relations and Organization Division, Secretariat of DGST;

Mr. R. Rachmat Herwanuri : Head of Sub Division Program and Plan of Technology Information and Communication;

Mr. Zulfikar T. : Head of Division Program, Planning and Policy, ICT Center of Ministry of Transportation;

Mr. Dandi: Staff Computer Regulation;

Mr. Arif Thoha : Head of Tanjung Priok Port Authority;

Ms. RSW Irianti : Head of Section of Sea Traffic and Transportation, Tanjung Priok Port Authority;

Mr. Lister MG : Staff of Sea Traffic and Transportation, TanjungPriok Port Authority;

Mr. Stephanus R.: Officer of Tanjung Priok Harbour Master;

Mr. Rickson F. Marisitua: Staff of Tanjung Priok Harbour Master;

Mr. Sukirno Dwi Susilo: Head of Division of Sea Traffic and Transportation, Operation and Business Development, Makassar Port Authority;

Mr. Capt. Syaiful : Officer of Makassar Harbour Mastert;

Mr. Irfan Syamsul: Staff of Makassar Harbour Mastert;

Ms. Nurbaya: Staff of Makassar Harbour Master;

Mr. Tomoyuki Kawabata: Senior Representative, JICA Indonesia Office;

Mr. Shinichi Yoshihara: Representative, JICA Indonesia Office;

JICA PROJECT TEAM (OCDI):

Mr. Tatsuyuki Shishido   : Senior Director for Research, OCDI;

Mr. Eiji Tomida: President, OCDI; and

Mr. Tadahiko Kawada: Deputy Director, Research Division, OCDI.

   Following the presentations on the Interim Report by the JICA project team and present situation of INAPORTNET by DGST, discussions on agenda items were held. The main outcomes of the discussions points were as follows:

1)   Interim Report

      A leader of the JICA project team, made a slide presentation on the key elements of the Draft Interim Report of the Project. Following the presentation, the Committee noted the following:

      It should be noted that the result of analysis on process time applies only to the document flow.

      Finally, the Committee approved the Interim Report.

2)   Work plan in 2018

      The team leader of the JICA project made a brief presentation on the Work Plan in 2018, after which the work plan was approved by the Committee.

3) DGST's Policy on the Improvement of INAPORTNET

Mr. Hernadi Tri Cahyanto, DGST, made a slide presentation entitled "DGST INAPORTNET Implementation" which describes the basic regulations of INAPORTNET, plan of Phase 2 INAPORTNET and Infrastructure.

4) Next JCC meeting

The committee agreed to hold the next JCC meeting in December 2018, to discuss the Draft Final Report of the Project

I-2-1-3 Third Meeting

The third meeting was held on 24th January 2019.

The participants were as follows:

Mr. Wisnu Handoko : Director of Directorate of Sea Traffic and Transportation, DGST;

Ms. Jece Julita Piris : Head of Belawan Port Authority;

Mr. Sukirno Dwi Susilo : Deputy Director for Information System and Facilities of Sea Transportation, DGST;

Ms. Chairiyah Chair : Head of Business Development and Services Section, Tanjung Priok Port Authority;

Ms. Faisyah : Head of Sea Traffic and Transportation Section, Makassar Port Authority;

Mr. Panuju D. Sasongko : Head of Sub Division of Development of Application and Database;

Ms. Ayu Kharizsa : Head of Information System of Sea Transportation, Directorate of Sea Traffic and Transportation, DGST;

Mr. Hendry Setiadi : Staff of ICT Center of MOT;

Ms. Murni H. Sitinjak : Staff of International Cooperation and Treaty Sub Division, Secretariat of DGST;

Ms. Maria Nusmese : Staff of International Cooperation and Treaty Sub Division, Secretariat of DGST;

Mr. Yerro H. : Staff of Public Relation and Organization Division, Secretariat of DGST;

Ms. Yordan Margaret : Staff of International Shipping, Directorate of Sea Traffic and Transportation;

Mr. Wayan K. Kedel : Staff of International Shipping, Directorate of Sea Traffic and Transportation;

Ms. Siti Musrina : Staff of Information System of Sea Transportation, Directorate of Sea Traffic and Transportation;

Ms. Desi Febriana : Staff of Information System of Sea Transportation, Directorate of Sea Traffic and Transportation;

Mr. Kristanto M. : Staff of Information System of Sea Transportation, Directorate of Sea Traffic and Transportation;

Mr. Heri Susanto : Staff of Information System of Sea Transportation, Directorate of Sea Traffic and Transportation;

Mr. Nurman Y. : Staff of Information System of Sea Transportation, Directorate of Sea Traffic and Transportation;

Mr. Ari Wibowo : Staff of Directorate of Shipping and Seafarer, DGST;

Ms. Sri Sukarni : Staff of Directorate of Shipping and Seafarer, DGST;

Mr. Kornelius Barus : Staff of Belawan Harbour Master;

Mr. Mohd. Kendeka : Staff of Belawan Port Authority;

Mr. Sindak : Staff of Tanjung Priok Port Authority

Mr. JF Bastanta Lubis : Staff of Tanjung Priok Harbour Master;

Mr. Anjar Pamungkas : Staff of Tanjung Perak Port Authority;

Ms. Nurbaya : Staff of Makassar Harbor Master;

Mr. Irfan Syamsul : Staff of Makassar Harbor Master;

Mr. Andarias Allopan : Staff of Makassar Port Authority;

Mr. Naoki Otani: Representative, JICA Headquarters;

Mr. Tomoyuki Kawabata: Senior Representative, JICA Indonesia Office;

Mr. Kazuo Uezumi: Representative, JICA Indonesia Office;

JICA PROJECT TEAM (OCDI):

Mr. Tatsuyuki Shishido : Senior Director for Research, OCDI; and

Mr. Akira Komatsu : Advisor, OCDI.

Following the presentation on the Essence of the Draft Final Report by the JICA project team, discussions on agenda items were held.

1) Acceptance of the Draft Final Report

Responding to the presentation, there were some questions and answers concerning the usage of INAPORTNET data, the PPI analysis and the improvement of SPB procedures.

Finally, the Committee basically accepted the contents of the Draft Final Report. DGST shall send written comments on the Draft Final Report by 28th of February. The JICA project team will prepare the Final Report in the light of the comments. JICA will send the Final Report within three (3) months after the receipt of the comments.

DGST and JICA agreed to publicize the Final Report at JICA website.

2) DGST's Action Plan

Responding to the recommendations shown in the presentation, DGST indicated to consider the action plan which is recommended in the Draft Final Report in practice:

-To improve the home page of INAPORTNET;

-To establish an institution on reporting Usage Condition of INAPORTNET from Port Authority to DGST;

-To make public announcement of port activities based on analysis results of INAPORTNET data;

-To set up Port Performance Indicators (PPIs) to conduct port management by making use of the PPIs; and

-To enhance the organizations in charge of INAPORTNET Implementation.

1-2-2 Activities

I-2-2-1 First Assignment

The term of the first assignment is from 9th April to 1st June 2017. All team members worked in Indonesia during this period.

Main tasks in the term of the first assignment were:

-Coordination with DGST regarding the Project implementation;

-Arrangement and holding of the first JCC meeting;

-Grasping the latest situation of INAPORTNET; and

-Commencement of the Project.

Some members visited Tanjung Priok Port and Makassar Port to grasp the latest situation of INAPORTNET at the ports and to exchange views on INAPORTNET implementation with persons in charge.

The first JCC meeting was held and necessary matters for commencement of the Project were discussed and decided. Tanjung Priok Port and Makassar Port were selected as the Pilot Ports.

I-2-2-2 Second Assignment

The term of the second assignment is from 13th July to 9th September 2017. Five team members (Tatsuyuki SHISHIDO, Takashi NAKAMURA, Tadahiko KAWADA, Akira KOMATSU and Akira YAMAGUCHI) worked in Indonesia during this period.

Main tasks in the term of the second assignment were:

-Collecting information on INAPORTNET implementation including interview survey to stakeholders;

-Arrangement and holding of the workshops at the Pilot Ports; and

-Study on the characteristics of INAPORTNET data and analysis on port activities through compiling INAPORTNET data.

The first workshop at Makassar Port which introduced Japan's experience of Port EDI and Port Performance Indicators was held on 10th August 2017. Twenty-nine (29) officials from the Port Authority and Harbour Master of Makassar Port participated in the workshop. Officials of KSOP of Bitung Port and KSOP of Pare-pare Port also attended. The first workshop at Tanjung Priok Port was held on 17th August 2017 and covered the same subjects. Twenty-five (25) officials from the Port Authority and Harbour Master of Tanjung Priok Port participated in the workshop.

Some project team members visited relevant agencies including PUSTIKOM to collect information. In addition, analysis on conditions of INAPORTNET implementation and port activities of Pilot Ports were carried out based on INAPORTNET data.

I-2-2-3 Third Assignment

The term of the third assignment is from 11th October to 10th November 2017. Four team members (Tatsuyuki SHISHIDO, Tadahiko KAWADA, Akira KOMATSU and Gaku INOUE) worked in Indonesia during this period.

Main tasks in the term of the third assignment were:

-Additional information collection on INAPORTNET implementation

-Holding workshops at the Pilot Ports; and

-Study on INAPORTNET data and analysis on port activities based on INAPORTNET data.

The second workshop at Makassar Port which focused on Port Performance Indicators analyzed by INAPORTNET data was held on 3rd November 2017. Twenty-two (22) officials from the Port Authority and Harbour Master of Makassar Port participated in the workshop. The second workshop at Tanjung Priok Port was held on 16th October 2017. The subjects of this workshop were Port Performance Indicators analyzed by INAPORTNET data and international trends on the port EDI system. Twenty-five (25) officials from the Port Authority and Harbour Master of Tanjung Priok Port participated in the workshop.

Some members visited relevant agencies including a system vender, PELINDO 2 and PELINDO 4 to collect information on the system. In addition, analysis of INAPORTNET data was conducted to examine port performance indicators at the Pilot Ports.

I-2-2-4 Fourth Assignment

The term of the fourth assignment is from 9th January to 10th February 2018. Five team members (Tatsuyuki SHISHIDO, Takashi NAKAMURA, Akira KOMATSU, Akira YAMAGUCHI and Gaku INOUE) worked in Indonesia during this period.

Main tasks in the term of the fourth assignment are:

- Arrangement and holding of the 1st Seminar;

- The INAPORTNET Seminar was held on 24th January 2018; and

-Preparing the Interim Report and discussion on the report with DGST.

I-2-2-5 Fifth Assignment

The term of the fifth assignment is from 3rd April to 15th May 2018. Six team members (Tatsuyuki SHISHIDO, Takashi NAKAMURA, Eiji TOMIDA, Tadahiko KAWADA, Akira KOMATSU and Akira YAMAGUCHI) worked in Indonesia during this period.

Main tasks in the term of the fifth assignment were:

-Arrangement and holding of the second JCC meeting;

-Holding workshops at the Pilot Ports;

-Holding joint meetings at Tanjung Perak Port and Belawan Port;

-Additional information collection on INAPORTNET implementation;

-Study on INAPORTNET data and analysis on port activities based on INAPORTNET data; and

-Collecting information on the latest situation of INSW.

The third workshop at Tanjung Priok Port which focused on the Urgent Technical Improvement Plan and Port Performance Indicators analyzed by INAPORTNET data (Part 2) was held on 19th April 2018. Thirty (30) officials from the Port Authority and Harbour Master of Tanjung Priok Port participated in the workshop. The third workshop at Makassar Port was held on 30th April 2018. The subjects of this workshop were the Urgent Technical Improvement Plan, Port Performance Indicators analyzed by INAPORTNET data (Part 2), and international trends on the port EDI systems. Thirty-five (35) officials from the Port Authority and Harbour Master of Makassar Port participated in the workshop.

The joint meeting at Tanjung Perak Port was held on 2nd May 2018 with 26 participants from the Port Authority and Harbour Master of Tanjung Perak Port, PELINDO 3 and 2 Terminals. Also the joint meeting at Belawan Port was held on 7th May 2018 with 14 participants from the Port Authority and Harbour Master of Belawan Port, PELINDO 1 and the Belawan branch of INSA(Indonesia National Ship owner's Association). The purposes of the meetings are to grasp the situation of INAPORTNET

implementation on the main ports other than the Pilot Ports, and to discuss the use of the system with the stakeholders.

Some members visited relevant agencies including PUSTIKOM, the system vender and INSW Operating Agency to collect information on INAPORTNET and INSW. In addition, analysis on conditions of INAPORTNET implementation and port activities of the main 4 ports was carried out based on INAPORTNET data.

I-2-2-6 Sixth Assignment

The term of the sixth assignment is from 3rd July to 6th August 2018. Two team members (Tatsuyuki SHISHIDO and Gaku INOUE) worked in Indonesia and other ASEAN countries during this period.

Main tasks in the term of the ninth assignment are:

-Preparing the technical visits to ASEAN countries and conducting the visit; and

- Collecting information on the latest situation of INSW.

I-2-2-7 Seventh Assignment

The term of the seventh assignment is from 9th September to 19th Octorber 2018. Three team members (Tatsuyuki SHISHIDO, Tadahiko KAWADA and Akira KOMATSU) worked in Indonesia during this period.

Main tasks in the term of the third assignment were:

-Additional information collection on INAPORTNET implementation

-Holding workshops at the Pilot Ports

-Study on INAPORTNET data and analysis on port activities based on INAPORTNET data; and

-Making a presentation on data and analysis in the Project at the meeting INAPORTNET held at Bali.

The forth workshop at Makassar Port was held on 1st October 2018. Thirteen (13) officials from the Port Authority and Harbour Master of Makassar Port participated in the workshop. The forth workshop at Tanjung Priok Port was held on 4th October 2018. Nineteen (19) officials from the Port Authority and Harbour Master of Tanjung Priok Port participated in the workshop. The subjects of these workshops were Detail Explanation of Analysis Method of INAPORTNET and Instruction of How to Use Excel for INAPORTNET Data Analysis..

In the term of the assignment, the meeting on INAPORTNET was held by DGST on 17-18 October 2018 at Bali. In response of DGST's invitation, one member joined the meeting and made a presentation titled "Analysis of INAPORTNET data and Utilization".

I-2-2-8 Eighth Assignment

The term of the eighth assignment is from 7th November to 11st December 2018. Five team members (Tatsuyuki SHISHIDO, Tadashi NAKAMURA, Eiji TOMODA, Akira Yamaguchi and Gaku INOUE) worked in Indonesia during this period.

The main task in the term of the eighth assignment is:

-Preparing the Draft Final Report and discussion on the report with DGST.

I-2-2-9 Ninth Assignment

The term of the ninth assignment is from 10th January to 30th January 2019. Three team members (Tatsuyuki SHISHIDO, Akira KOMATSU and Akira YAMAGUCHI) worked in Indonesia during this period.

Main tasks in the term of the ninth assignment are:

- Arrangement and holding of the 2nd Seminar;

- The INAPORTNET Seminar was held on 22th January 2019;

-Arrangement and holding of the third JCC meeting; and

-Preparing the Draft Final Report and discussion on the report with DGST.

I-2-3 Enhancing Knowledge on Port EDI

In order to promote the use of INAPORTNET, it is expected that persons in charge of INAPORTNET at the Port Authority and Harbour Master at each port shall enhance their knowledge of INAPORNET and port-related Procedures. In addition, the Port Authority and Harbour Master and INAPORTNET users are expected to change their mindsets regarding informatization.

In order for them to raise their knowledge and change their mindset, subjects such as port-related procedures, Japanese experience on Port EDI, international trends of informatization and simplification of port-related procedures in the world were discussed at several workshops at Makassar Port and Tanjung Priok Port.

In addition, port activities of the pilot ports were analyzed using INAPORTNET data. The results of analysis provide helpful information for understanding port activities of the port. By compiling the results of analysis on each port, characteristics of each port can be identified and nationwide port activities in Indonesia may be grasped.

Ten (10) trainees studied Port EDI of Japan and the surrounding conditions through lectures, site visits to terminals/ports and relevant organizations through training in Japan. Also, Fourteen (14) trainees studied Port EDI of ASEAN countries and the surrounding conditions through lectures, site visits to terminals/ports and relevant organizations through training in ASEAN.

I-2-3-1 INAPORTNET Seminar

(1)Outline of the Seminar

INAPORTNET Seminar was held on 24th January 2018 as outlined below.

Date and Time: 9:00 – 15:30 on 24th January 2018	
Venue: Sari Pan pacific Hotel (Jakarta)	
Program	
Registration	
Report	**Mr. Dwi Budi Sutrisno** Director of Directorate of Sea traffic & Transportation
Opening Remarks	**Mr. Tomoyuki Kawabata** , Senior Representative of JICA Indonesia Office
	HE Budi Karya Sumadi, Minister of Transportation
Implementation of INAPORTNET	**Mr. Dwi Budi Sutrisno** Director of Directorate of Sea traffic & Transportation
Outline of the Project	**Mr. Takashi NAKAMURA**, Expert of ICT, sub Leader of JICA Project Team.
Port Activities Grasped by INAPORTNET Data	**Mr. Arif Thoha**, Head of Tanjung Priok Port Authority
	Mr. Rahmatullah, Head of Makassar Port Authority
Japanese Experience regarding Port EDI	**Mr. Akira Komatsu**, Expert of Port-related Procedures, JCA project team
Overview of Tomakomai Port	**Mr. Hideo Sasaki,** Executive Vice President,

Management Support System	Tomakomai Port Authority,
Port Performance Indicator	**Mr. Gaku Inoue**, Expert of System Operation of JICA Project Team.
Discussion	Moderator: **Mr. Tastuyuki SHISHIDO**, Leader of JICA Project Team.
Closing Remarks	**Mr. Dwi Budi** Sutrisno Director of Directorate of Sea traffic & Transportation

Participants 211
   DGST: 17, Ministry of Transportation: 11, Port Authority: 16, Harbour Master: 7, PELINDO: 9,
   Customs: 1, Quarantine: 3, Maritime Coordination: 2, INSW: 4, Shipping Company/ Agent: 72,
   Stevedoring Company: 42, Forwarding Company: 11, Others: 16

Materials
  Implementation of INAPORTNET
  Outline of the Project
  Port Activities Grasped by Inaportnet Data
  Japanese Experience regarding Port EDI
  Overview of Tomakomai Port Management Support System
  Port Performance Indicator

(2)Remarks and Presentation by Lecturers

The seminar began with a report by Mr.Dwi Budi Sutrisno Director of Directorate of Sea traffic & Transportation. After the report, Senior Representative of JICA Indonesia Office Mr. Tomoyuki Kawabata and the Minister of Transportation HE Budi Karya Sumadi made opening remarks.

After the Photo session, Mr. Dwi Budi Sutrisno Director of Directorate of Sea traffic & Transportation, introduced the present situation and future direction of INAPORTNET with the material of Collaboration system, the implementation of INAPORTNET. The contents are: Scope of INAPORTNET; Preparation for implementation; Benefits of implementation; Implementation; Dashboard; Procedure for vessel entry; Procedure for vessel departure; Improvement of INAPORTNET; Unload/ Import; Load/ Export; and Network infrastructure.

The second presenter was Mr. Takashi NAKAMURA, Expert of ICT, sub Leader of JICA Project Team. He outlined the project to show Background of the Project, Project Goals, Project Work Items and Project Schedule.

Following introduction of the Project, Mr. Arif Thoha, Head of Tanjung Priok Port Authority introduced the situation of INAPORTNET at Tanjung Priok Port: Layout of the port; Outline of INAPORTNET implementation; Number of Applications; Status of Vessels; Distribution of Submission Time; Ship Call; Size of Calling Vessels;; Type of Calling Vessels; Ocean-Going/ Domestic; Flag of calling Vessel; Arrival and Departure of Calling Vessels; Port Staying Time; and Connection with other ports.

Mr. Rahmatullah, Head of Makassar Port Authority showed Goal of INAPORTNET implementation, Benefits of INAPORTNET implementation and Way of forward. In addition, he also introduced the situation of INAPORTNET at Makassar Port.

Next speaker was Mr. Akira Komatsu, Expert of Port-related Procedures, JCA project team. He made presentation on Japanese experience of history and operation at present of Port EDI in Japan: Background of the construction of the Port EDI system in Japan; Issues regarding the port-related procedures of Japan and two approaches to them －Simplification and Digitization－; History of the construction of the Port EDI system in Japan; The usage performance and effects of introducing the Port EDI system and Problems of the introduction of the Port EDI system and responses.

Mr. Hideo Sasaki, Executive Vice President, Tomakomai Port Authority, followed him to introduce the actual usage conditions of Port EDI system of Tomakomai port authority in Japan. He explained Outline of Tomakomai Port and gave presentation focusing on Purpose of introducing the Tomakomai port system, Different port background leads different port system, Operation flow and actual work flow(mooring): and High rate of utilization of NACCS at Tomakomai port.

Finally, Mr. Gaku Inoue, Expert of System Operation, showed significant of Port performance Indicators and some cases of trials on Port Performance Indicators. The contents of his presentation are: Approach for Measurement of Port Efficiency; Measurement of Port Performance Indicators (PPIs); Some Application Examples of PPIs (Australian Case, African Case); Superiority of INAPORTNET from Viewpoints of implementation of PPIs; and Test Calculations of PPIs (Contextual Indicators and Port Productivity Indicator) for Tanjung Priok and Makassar.

(3)Discussions

Questions or comments were given from the floor after each presentation and at the discussion session.

1. Some participants from private companies made comments and questions on current INAPORTNET implementation status including:

    ● As INAPORTNET users, they ask the DGST to provide clear guidance regarding what they should address with irregular situations such as service suspension and delay in delivery of the preceded permissions such as PKKA for further smooth operation of INAPORTNET.
    ● They welcome the project in cooperation with the JICA and the DGST. Formulation of an urgent technical improvement plan for INAPORTNET is very important, but the plan should cover broader issues related to social circumstances other than technical matters.

2. Some participants from private companies made questions on the difference in current operation status of the Port EDI between in Indonesia and in Japan.
3. Some participants made comments and questions on Port Performance Indicators including:

    ● The measurement of port performance is quite important for improving efficiency and productivities at the ports. The Port Performance Indicators would be a great tool of communication between users and marine terminal operators for improving operations at the ports.
    ● A participant asked the JICA project team why Indonesia has some advantages over other countries in terms of data collection. The team pointed out that Indonesia has successfully implemented INAPORTNET through which all the necessary data including arrival/departure time of vessel callings can be technically acquired. In general, various kinds of stakeholders are involved in port activities, which will make it quite difficult to share their own data and information in other countries.

4. Following comments and discussions mentioned above, the Director of Directorate of Sea Traffic and Transportation, DGST pointed out the following issues as a concluding remark:

    ● INAPORTNET has successfully been implemented, but is not yet perfect.
    ● Specifically, the mindset of INAPORTNET users towards informatization and efficient manner in port-related procedures still needs to be changed. Good understanding for necessary procedures is very important for smooth operation of INAPORTNET. Through close communication with the INAPORTNET users, the DGST continues to improve its performance and enhance efficiency of activities in the ports with assistant of the JICA.

Figure I-2-1 INAPORTNET Seminar

(Left: Opening Remark by Transport Minister, Budi Karya Sumadi, Right: Participants)

I-2-3-2 Second Seminar

(1)Outline of the Seminar

Second Seminar was held on 22nd January 2019 as outlined below.

Date and Time: 8:50 – 12:00 on 22nd January 2019	
Venue: Le Meridien Hotel (Jakarta)	
Program	
Registration	
Report	**Mr. Wisnu Handoko,** Director of Directorate of Sea traffic & Transportation
Opening Remarks	**Mr. Tomoyuki Kawabata** , Senior Representative of JICA Indonesia Office
	Mr. Ir. R. Agus H. Purnomo, Director General of Sea Transportation
Development of INAPORTNET	**Mr. Wisnu Handoko,** Director of Directorate of Sea traffic & Transportation
Summary of the project	**Mr. Naoki Otani**, Representative of JICA Headquarters
Situation Surrounding Port EDI and INAPORTNET	**Mr. Tastuyuki Shishido**, Leader of JICA Project Team.
Discussion	Moderator: **Ms. Rinintha Pradiza**
Closing Remarks	**Mr. Wisnu Handoko,** Director of Directorate of Sea traffic & Transportation

Participants   177
DGST: 31, Ministry of Transportation: 3, Port Authority: 9, Harbour Master: 6, PELINDO: 2, INSW: 3, Associations; 3, Private Company; 110, Others: 10
Materials
  Development of INAPORTNET
  The Project of Port EDI Enhancement Strategy in Republic of Indonesia
  Situation surrounding Port EDI and INAPORTNET

(2)Remarks and Presentation by Lecturers

The seminar began with a report by Mr. Wisnu Handoko, Director of Directorate of Sea traffic and transportation. After his report, the opening remarks were made by Senior Representative of JICA

Indonesia office, Mr. Tomoyuki Kawabata and Mr. Ir. R. Agus H. Purnomo, Director General of Sea transportation.

After the Photo session, Mr. Wisnu Handoko made a presentation regarding the future development direction of INAPORTNET. The contents are: Basic laws, Ship and cargo service, Progress of INAPORTNET, Goals, Digital collaboration with MOT, Digital collaboration with DGST, Collaboration scheme of DO online INAPORTNET, Data exchange, Examples of ASEAN, Proposed port/ logistic community system application, Target ports in 2019.

The second presentation was made by Mr. Naoki Otani, Representative of JICA Headquarters. He outlined the project to show the activities, such as the workshops at the pilot ports, the technical visits of ASEAN, the 1st seminar and the short term implementation plan.

The last presenter was Mr. Tatsuyuki Shishido, the leader of the JICA Project Team. He explained from two points. Firstly from the view point of the situation surrounding the Port EDIs, he lectured the Port EDIs in ASEAN and in JAPAN, and the international movements. Secondly he summarized the usage situation of INAPORTNET and stressed the importance of the use of INAPORTNET data, following the introduction of several samples of analysis results based on the INAPORTNET data.

(3)Discussions

After the moderator, Ms. Rinintha Pradiza summarized the three presentations, she requested questions, comments or opinions from the floor. Main comments, questions and answers were as follows.

1. There were practical problems and improvement requests from staff of HM and PA. Also, regarding the future use of cargo information by INAPORTNET, opinions based on Japanese experience were requested. The project team commented that a caution is necessary for management of cargo information, since the cargo manifest data is private business information.

2. It was pointed out from a private user that the information required for application of port entry and exit procedures is different from the IMO standard. For this reason, it was requested DGST to simplify the procedures further.

3. PA made the following comment. In the deployment of INAPORTNET at the 13 ports scheduled for 2019, since it is assumed that a situation is different from the past 16 ports, more flexible response is desired to DGST.

Figure I-2-2   2nd INAPORTNET Semina

(Left: Opening Remark by Director General, Ir. R. Agus H. Purnomo, Right: Participants)

I-2-3-3 Workshops

(1)Workshop at Makassar Port

Workshops were held four times at Makassar Port in this project. The outline of each workshop is shown below.

(a)First workshop

Date and Time: 9:00 – 12:00 on 10th August 2017
Venue: Makassar Port Authority
Theme
1. Japanese Experience regarding Port EDI System
2. Port Performance Indicators
Discussion
Participants
   Officials of Makassar Port Authority and Makassar Harbour Master
   Officials of Bitung KSOP and Pare-pare KSOP
   Personnel of PELIND IV
   JICA project team members
Materials
1. Japanese Experience of Introducing and Expanding Port EDI System
2. Port Performance Indicators(PPI)

(b)Second workshop

Date and Time: 13:00-16:00 on 3rd November 2017
Venue: Makassar Port Authority
Theme
1. PPI Analysis Using INAPORTNET Data
Discussion
Participants
   Officials of Makassar Port Authority and Makassar Harbour Master
   JICA project team members
Materials
1-1. Port Performance Indicators from the Data Analysis of INAPORTNET
1-2-1. Situation of INAPORTNET Implementation
1-2-2. Monitoring INAPORTNET

(c)Third workshop

Date and Time: 9:00-12:00 on 30th April 2018
Venue: Makassar Port Authority
Theme
1. Outline of the Urgent Technical Improvement Plan
2.Port Performance Indicators from the Data Analysis of INAPORTNET, Part-2
3-1. International trend of Informatization of Port-related Procedures
3-2. Introduction of Port Community Systems in Europe
Discussion
Participants
   Officials of Makassar Port Authority and Makassar Harbour Master
   JICA project team members
Materials
1. Outline of the Urgent Technical Improvement Plan
2.Port Performance Indicators from the Data Analysis of INAPORTNET, Part-2
3-1-1. International trend of Informatization of Port-related Procedures (Summary)
3-1-2. International trend of Informatization of Port-related Procedures
3-2. Introduction of Port Community Systems in Europe

(d)Fourth workshop

Date and Time: 13:45-16:30 on 1st October 2018
Venue: Makassar Port Authority

> **Theme**
> 1. Detail Explanation of Analysis Method of INAPORTNET Data
> 2. Instruction of How to Use Excel for INAPORTNET Data Analysis
> Discussion
> **Participants**
> Officials of Makassar Port Authority and Makassar Harbour Master
> JICA project team members
> **Materials**
> 1. Detail Explanation of Analysis Method of INAPORTNET Data
> 2. Instruction of How to Use Excel for INAPORTNET Data Analysis

(2)Workshop at Tanjung Priok Port

Workshops were held four times at Tanjung Port in this project. The outline of each workshop is show below.

(a)First workshop

> **Date and Time**: 9:00 – 12:00 on 17th August 2017
> **Venue**: Tanjung Priok Port Authority
> **Theme**
> 1. Japanese Experience regarding Port EDI System
> 2. Port Performance Indicators
> Discussion
> **Participants**
> Officials of Tanjung Priok Port Authority and Tanjung Priok Harbour Master
> An official of DGST
> JICA project team members
> **Materials**
> 1. Japanese Experience of Introducing and Expanding Port EDI System
> 2. Port Performance Indicators (PPI)

(b)Second workshop

> **Date and Time**:09:00-12:00 on 16th October 2017
> **Venue**: Tanjung Priok Port Authority
> **Theme**
> 1. PPI Analysis using INAPORTNET data
> 2. International Trend of Informatization of Port-related Procedures
> 3. Introduction of Port Community Systems in Europe
> Discussion
> **Participants**
> Officials of Tanjung Priok Port Authority and Tanjung Priok Harbour Master
> Officials of DGST
> JICA project team members
> **Materials**
> 1-1. Port Performance Indicators from the Data Analysis of INAPORTNET
> 1-2-1. Situation of INAPORTNET Implementation
> 1-2-2. Monitoring INAPORTNET
> 2-1. International trend of Informatization of Port-related Procedures (Summary)
> 2-2. International trend of Informatization of Port-related Procedures
> 3. Introduction of Port Community Systems in Europe

(c)Third workshop

Date and Time: 9:15-11:45 on 19th April 2018
Venue: Tanjung Priok Port Authority
Theme
1. Outline of the Urgent Technical Improvement Plan
2.Port Performance Indicators from the Data Analysis of INAPORTNET, Part-2
Discussion
Participants
    Officials of Tanjung Priok Port Authority and Tanjung Priok Harbour Master
    Officials of DGST
    JICA project team members
Materials
1. Outline of the Urgent Technical Improvement Plan
2.Port Performance Indicators from the Data Analysis of INAPORTNET, Part-2

(d)Fourth workshop

Date and Time: 9:15-11:15 on 4th October 2018
Venue: Tanjung Priok Port Authority (at the temporary office due to the rebuilding)
Theme
1. Detail Explanation of Analysis method of INAPORTNET Data
2.Instruction of How to Use Excel for I NAPORTNET Data Analysis
Discussion
Participants
    Officials of Tanjung Priok Port Authority and Tanjung Priok Harbour Master
    An Official of DGST
    JICA project team members
Materials
1. Detail Explanation of Analysis method of INAPORTNET Data
2.Instruction of How to Use Excel for I NAPORTNET Data Analysis

(3)Lectures and Discussions at Workshops

(a)Japanese Experience regarding Port EDI

Japanese experience regarding Port EDI was introduced through lectures. The following items were included in presentations.

-Background of the development of the Port EDI system in Japan

-Issues regarding the port-related procedures in Japan

-History of the development of the Port EDI system in Japan

-Measures for improving convenience of applicants and administrative agencies

-The usage conditions and effects of introduction of Port EDI

-Problems in introduction of the Port EDI and measures

Officials of both ports indicated that it is impossible to omit the confirmation of the original certificates in the port-related procedures. However, if procedures were digitized, they acknowledge that the current procedures would be improved.

(b)International Movement of Informatization of Ports

International movement of informatization of ports in the world was introduced through lectures. The following subjects were included in presentations.

-Social needs for efficient physical distribution

-Exchange of information among stakeholders

-Service to Global Business/Shipping business and Ports

-FAL convention / FAL Committee

-Port EDI of ASEAN countries and ASEAN Single Window

There were not any particular questions or comments. It is thought that the immediate task for the staff of PA or HM is to establish INAPORTNET and thus they are not looking too far ahead.

(c)Port Community System in Europe

Advanced computerized port management and operations at the ports in Europe were introduced. Major ports in Europe such as Hamburg Port, Rotterdam Port and Antwerp Port have introduced a system called the port community system. Port community system is a neutral and open electronic platform enabling intelligent and secure exchange of information between public and private stakeholders in order to improve the competitive position of the sea and air ports' communities. It aims to optimize, manage and automate port and logistics processes through a single submission of data and connecting transport and logistics chains.

There were not any particular questions or comments at Makassar port. Although it was discussed at only Tanjung Priok port, there was a question as to whether data management is integrated into unified database or not in the related ports in Europe.

(d)INAPORTNET Data

Information required in port-related procedures is digitized under INAPORTNET implementation. Port activities can be easily analyzed by using the digital data from INAPORTNET. Results of analysis on port activities at Tanjung Priok Port and Makassar Port were introduced. The indicators of number of calling vessels, number of calling vessels by type, vessel size distribution by type, number of vessels by flag, last port and next port, arrival and departure time, port staying time; number of weekly passengers, unloaded and loaded cargo volume by type, unloaded /loaded container volume and others were calculated. The results of the analysis provided with DGST, Port Authority and Harbour Master will be useful for carrying out their tasks. However, the data about cargo often contain incredible values. Methods of data compiling and analysis were introduced through lectures.

Usage conditions of INAPORTNET are shown in the website of Monitoring INAPORTNET. Trends of numbers of applications and applicants, and process time by document were analyzed and Port Authority and Harbour Master reviewed their tasks on INAPORTNET based on the outputs. After the second JCC, the team prepared a manual on how to compile and analyze the data of Monitoring INAPORTNET. Also the manual was instructed at the final workshops.

At each port, the motivation toward analyzing INAPORTNET data is well maintained.

At Makassar port, the response time between the time of application and approval was discussed. PA officials thought that the maximum time was 40 minutes. HM officials commented that they believe that it is not reasonable for shipping agents to submit applications two or three days in advance, taking into consideration the inspection time.

(e)Urgent Technical Improvement Plan

The Urgent Technical Implementation Plan of Present INAPORTNET System, which was authorized by the second JCC meeting, was explained briefly at the third workshops.

At Tanjung Priok Port, there was an opinion that to accumulate and analyze the inquiries in order to deal with the procedures swiftly might be efficient.

At Makassar Port, there was an opinion that to know the status of applications would be convenient for PA staff. Also a person expressed that it would be a good idea to take notes on inquiries and the solutions.

I-2-3-4 Training in Japan

(1)Outline of the Training

(a)Purpose

A training course in Japan is designed with the purpose of learning the subjects shown in Table I-2-1.

Table I-2-1 Subjects of Training in Japan

Items	Subject
Port Policy	-Japanese Long-Term Policy "Port 2030" -Informatization Policy in Japanese Ports and Harbours
-Current status and trend of information technology -International efforts to increase the efficiency of vessels entry and departure	-Introduction to the EDI system -Japanese Single Window System and EDI system -Vessel Arrival/Departure Procedures by Each Country -Experience in Developing Tool of Port Informatization
-Understanding the significance and importance of informatization of port-related procedures -Raising awareness of the benefits of using Port EDI	-Vessel Arrival/Departure Procedures and VTS -Overview of Tomokomai Port and its vessel entrance/departure procedures -Technical Visit to Port of Yokohama(Yokohama International Container Terminal) -Technical Visit to Port of Tokyo(Tokyo International Container Terminal)

(b)Duration

The training is carried out from 5th to 13rd December 2017.

(c)Participants

Ten (10) persons from DGST, Port Authority and Harbour Master of two Pilot Ports (See Table I-2-2) were invited to participate in the course.

Table I-2-2 Participants

NAME	POSITION
Mr. Hernani Tri Cathyanto	Deputy Director for Information System and Facilities of Sea Transportation, Directorate of Sea Traffic and Transportation
Ms. R. Sri Wahyu Irianti	Head of Sea Traffic and Transportation Section, Tanjung Priok Port Authority
Ms. Faisyah	Head of Program and Planning Section. Makassar Port Authority
Ms. Magdalena Alaida	Head of Liner Section, Sub Directorate of Domestic Sea Transportation, Directorate of Sea Traffic and Transportation
Ms. Siti Musrina	Staff of Sub Directorate of Information System and Facilities of Sea Transportation, Directorate of Sea Traffic and Transportation
Ms. Yordan Margaret	Staff of Sub Directorate of International Sea Transportation, Directorate of Sea Traffic and Transportation
Mr. Lister Martupa Gurning	Staff of Tanjung Priok Port Authority

Mr. Hadi Wiranata	Staff of Makassar Port Authority
Mr. Rickson Fryadi Marisitua	Staff of Tanjung Priok Harbour Master
Ms. Nurbaya	Staff of Makassar Harbour Master

(2)Program

The training is carried out under the program shown in Table I-2-3. Lectures on Japanese port policies about long-term development and informatization, Japanese single window, port EDI system, terminal operation system, vessel arrival/departure procedures, international trends related to port EDI were given to the trainees. In addition, the trainees visited the ports of Yokohama, Tokyo and Tomakomai in order to understand actual situations of Japanese ports and exchange views on port EDI.

Table I-2-3 Schedule

The Project on Port EDI Enhancement Strategy in the Republic of Indonesia Program of Training Course in Japan				
Date	Time		Subject	Name of Lectures	Accomidation
12/5 (Tue)	10:00 ～ 12:00	L	Introduction to the EDI system	Ms. Satoda MRI	JICA Tokyo International Center
	13:00 ～ 14:30	L	Japanese Long-Term Policy "Port 2030"	Mr. Sakai MLIT	
	15:00 ～ 16:30	L	Informatization Policy in Japanese Ports and Harbors	Mr. Matsuda MLIT	
12/6 (Wed)	10:00 ～ 12:00	L	Program Orientation	Mr. Inoue OCDI	JICA Tokyo International Center
	14:00 ～ 16:00	O	Vessel Arrival/Departure Procedures and VTS	Ms. Kurioka TST Corporation	
12/7 (Thu)	10:00 ～ 12:00	L	Japanese Single Window System and EDI system	Mr. Takahashi Mr. Kase	Nippon Automated Cargo and Port Consolidated System Inc. (NACCS)	Tomakomai, Hokkaido
	13:30 ～ 15:30	L	Vessel Arrival/Departure Procedures by Each Country	Mr. Iida	National Institute for Land and Infrastructure Management(NILIM)	
			Move to Tomakomai Port		
12/8 (Fri)	10:00 ～ 12:00	L	Overview of Tomokakomai Port and its vessel entrance/departure procedures	Mr. Hayasaka	Tomakomai Port Authority	Tomakomai, Hokkaido
	13:00 ～ 16:00	O	Technical Visit to Tomakomai Port	Mr. Azimura	Tomakomai International Container Terminal	
12/9 (Sat)			Move Back to Tokyo		JICA Tokyo International Center
12/10 (Sun)			Holiday		JICA Tokyo International Center
12/11 (Mon)	10:00 ～ 12:00	L	Experience in Developing Tool of Port Informatization	Mr. Fukazawa	Mitsui Engineering and Shipbuilding Co.	JICA Tokyo International Center
	14:00 ～ 16:30	O	Technical Visit to Port of Yokohama(Yokohama International Container Terminal)	Mr. Fukuchi YICT Utoku Co.	
12/12 (Tue)	10:00 ～ 11:30	L/O	Overview of Tokyo International Container Terminal and Business of Ship Agents and Forwarding Companies	Mr. Iguchi TICT Utoku Co.	JICA Tokyo International Center
	13:30 ～ 14:45	O	Visit to Tokyo port by ship	Mr. Shibata Tokyo Metropolitan Government	
	15:00 ～ 16:00	L/O	Overview of Tokyo port and measures for congestion	Mr. Zamami Tokyo Port Terminal Co.	
12/13 (Wed)	9:00 ～ 12:00	P	Prepare for Your Report	OCDI	JICA Tokyo International Center
	13:00 ～ 17:00	P	Presentation of Your Report	OCDI	
12/14 (Thu)			Return Back to Indonesia		

* L: Lecture, O: Observation, P: Preparing paper

(3)Outputs of the Training

Output of the training is summarized as follows:

1. All of the ten participants from the DGST, Port Authority and Harbour Master have deepened their understanding and knowledge of the current status and trends in information and communication technologies with examples of their applications in the real world.

2. All of the ten participants have acquired related knowledge and learned varieties of lessons from the cases that have been already implemented in Japan including Port-EDI as part of a single window system, advanced technologies and applications which have addressed operation and management challenges at port(s) including port congestion and streamlining movements of cargoes and so on.

3. All of the ten participants have raised their awareness regarding the benefits and importance of informatization for better port operation and management including using Port-EDI system and custom clearance system.

I-2-3-5 Technical Visit to ASEAN Countries

(1)Outline of the Training

 (a)Purpose

A training course in ASEAN countries including Myanmar, Thailand and Vietnam is designed with the purpose of learning the subjects shown in Table I-2-4.

Table I-2-4 Subjects of Training in ASEAN countries

Countries	Subject
Myanmar	-Meeting for Exchange of Information and Ideas on Port EDI
Thailand	Brief on the Port Authority of Thailand's General Information Discussion on Port EDI system - Information on Thailand's laws and regulations related to ship clearance formality procedures - Efforts and current situation of introduction of Port EDI system in Thailand, including advanced E-port system - Some technical specifications of Port EDI system including E-manifest and E-Gate -On-visit observation at Bangkok Port
Vietnam	-Information on Vietnamese laws and regulations related to ship clearance formality procedures; -Efforts and current situation of introduction of Port EDI system in Vietnam; and -Visit Haipong port for Port EDI operation-site observation

 (b)Duration

The training is carried out from 15th to 25th July 2018.

 (c)Participants

Fourteen (14) persons from DGST, Port Authority and Harbour Master of two Pilot Ports (See Table I-2-5) were invited to the course.

Table I-2-5 Participants

NAME	POSITION
Ferdy Trisanto Kurniawan	Deputy Director for Information System and Facilities of Sea Transportation, Directorate of Sea Traffic and Transportation
Ayu Kharizsa	Head of Section of Information System of Sea Transportation, Directorate of Sea Traffic and Transportation
Siti Musrina	Sub Directorate of Information System and Facilities of Sea Transportation, Directorate of Sea Traffic and Transportation
Rachelia Christina Enny Mariaty	Sub Directorate of International Shipping Officer, Directorate of Sea Traffic and Transportation
Zainal Abdul Rahman	Sub Directorate of Port Business and Services Officer, Directorate of Port
Hendry Setiadi	Information and Communication Center Officer
Hotman Sijabat	Head of Sea Traffic and Transportation, Port Business and Operation Division, Port Authority of Tanjung Priok
Iwan Setiawan	Harbour Master of Tanjung Priok Officer
Guntur Immanuel Parulian	Harbour Master of Tanjung Perak Officer
Anjar Pamungkas	Port Authority of Tanjung Perak Officer
Liston Andy Saputra Butar-Butar	Harbour Master of Belawan Officer
Rezwaldi Zulmi Rangkuti	Port Authority of Belawan Officer
Nurbaya	Harbour Master of Makassar Officer
Ahmad Fathoni	Port Authority of Makassar Officer

(2)Program

The training is carried out under the program shown in Table I-2-6. The participants have acquired knowledge on implementation of Port EDI and other informatization technologies for ensuring smooth port logistics in respective countries. In addition, the participants visited the port of Yangon, the port of Bangkok and the port of Haipong and exchange views on port EDI.

Table I-2-6 Schedule

		Theme	Organization to visit
15-Jul	Sun	Move to Yangon, Myanmar (TG434 12:35/16:05 TG305 17:50/18:45)	
16	Mon	Observation of Construction Site at Thilawa port	Thilawa Port
17	Tue	-Information on laws and regulations related to ship clearance formality procedures; -Efforts and current situation of introduction of Port EDI system in Myanmar	Myanma Port Authority
18	Wed	Move to Bangkok, Thailand (TG304 9:50/11:45)	
19	Thu	-Information on Thailand's laws and regulations related to ship clearance formality procedures; -Efforts and current situation of introduction of Port EDI system in Thailand, including advanced E-port system	Port Authority of Thailand
20	Fri	- Port EDI system operation-site observation	-Bangkok Port
21	Sat	Report Writing	
22	Sun	Move to Hanoi, Vietnam (TG564 17:50/19:40)	
23	Mon	-Information on Vietnamese laws and regulations related to ship clearance formality procedures; -Efforts and current situation of introduction of Port EDI system in Vietnam	Vinamarine, Hanoi
24	Tue	- Port EDI system operation-site observation	Hai Phong Port
25	Wed	Move to Jakarta (TG561 10:35/12:35 TG435 14:20/17:35)	

(3)Outputs of the Training

The participants understood differences in system/implementation features between INAPORTNET and port EDI system adopted by the other ASEAN countries as follows:

- The Myanmar Port EDI system, which was financed and installed by the Japanese ODA scheme, has function compiling port statistics and 28 port performance indicators (PPIs) automatically, which should be employed in INAPORTNET when full-fledged revision is made in future;

- The Thailand Port EDI system employs feature which can track container movement between Bangkok port and Hakata port(Japan), which will be helpful for implementing the second stage of the INAPORTNET; and

- The Vietnam Port EDI system, a part of Vietnam National Window(VNACCS), does not employ function compiling port statistics. In such situation, electric shipping procedure declaration system is still in operating at Hai Phong port. This implies that a competent

ministry in charge of shipping and port administration should be involved in design of national single window which will be implemented near future in Indonesia.

I-2-3-6 Joint Meeting

A meeting among the Port Authority and Harbour Master and relative parties was held in order to grasp the state of entry and departure procedures and EDI usage status.

(1)Joint Meeting at Tanjung Perak Port

Date and Time: 9:00 – 11:30 on 2nd May 2018
Venue: Tanjung Perak Port Authority
Theme
1. Outline of the JICA Project
2. Information grasped by the webpage data of Monitoring INAPORTNET
3. Port activities grasped by INAPORTNET data
4. Japanese experience regarding Port EDI
Participants
    Officials of Tanjung Perak Port Authority and Tanjung Perak Harbour Master
    PELINDO 3, Surabaya Container Terminal Operator, Teluk Lamong Terminal Operator,
    JICA project team members
  Materials
1. Outline of the JICA Project
2. Information grasped by the webpage data of Monitoring INAPORTNET
3. Port activities grasped by INAPORTNET data
4. Japanese experience regarding Port EDI

(2)Joint Meeting at Belawan Port

Date and Time: 9:30 – 12:30 on 7th May 2018
Venue: Belawan Port Authority
Theme
1. Outline of the JICA Project
2. Information grasped by the webpage data of Monitoring INAPORTNET
3. Port activities grasped by INAPORTNET data
4. Japanese experience regarding Port EDI
Participants
    Officials of Belawan Port Authority and Belawan Harbour Master
    PELINDO 1, INSA Belawan, JICA project team members
  Materials
1. Outline of the JICA Project
2. Information grasped by the webpage data of Monitoring INAPORTNET
3. Port activities grasped by INAPORTNET data
4. Japanese experience regarding Port EDI

I-2-3-7 Technical Gudance Activities Enhancement of IT and Communication Skills

The meeting on INAPORTNET was held on 17-18 OCTOBER 2018 at Bali. A JICA team was invited to make presentation on data analysis in the Project. JICA team member gave a presentation "Analysis of INAPORTNET data and Utilization". The presentation consists of five (5) parts: INAPORTNET data, Grasping INAPORTNET service; Analysis of Port Activities; Port Performance Indicators and Issues/Challenges.

Moderator summarized the presentation by Shishido as follows:

1. Regarding data analysis. there is so many data that could be analyzed from INAPORTNET. Characteristics of ports could be found from the analysis results.

2. There is issue that wrong inputted data is included.

3. It is necessary to take care that data handled in INAPORTNET includes confidential one.

4. Comparing to Japan, INSW is not effective enough yet. There is issues regarding budgeting, human resources, and infrastructure.

5. We could gain other port experience and build communication between stakeholder and government step by step.

6. We hope to be able to enhance implementation and to prepare a master plan.

7. Characteristic of Port EDI in Thailand, Myanmar, Vietnam Ports are different from INAPORTNET.

8. INAPORTNET in Indonesia, designed in cooperation with Port Business Body, handles not only information on formality but operation. Integrated use of date of will be quite useful.

TECHINCAL GUIDANCE ACTIVITIES ENHANCEMENT OF IT AND COMMUNICATION SKILLS

Date 17-18 OCTOBER 2018   **Place** Bali

Opening

Report of Head Sub Directorate   (Head of Sub Directorate)

Greetings, Remarks, and Guidance (Director of Sea Traffic and Transportation)

OSS Material (Directorate of Sea Traffic and Transportation)

INAPORTNET Material (Directorate of Sea Traffic and Transportation)

PMKU Online (Directorate of Sea Traffic and Transportation)

PWMS Filling (Directorate of Sea Traffic and Transportation)

INAPORTNET Data Analyzing   (JICA Study Team)

New Module from SIMLALA (Directorate of Sea Traffic and Transportation)

Closing

II. Current Status of INAPORTNET

II-1 Framework of INAPORTNET

II-1-1 Institutional Framework

II-1-1-1 Relevant Laws and Regulations

Government Regulation PP No. 61(2009) stipulated informatization of port-related procedures. According to the provision, the system for port-related procedures shall be applied by Port Authority or Port Management Unit according to the guidelines prepared by the Minister.

Government Regulation PP No.61, year 2009 concerning Port

Article 62

The Port Authority or the Port Management Units are required to ensure the smooth flow of goods at the port referring to in Article 42 paragraph (2) letter h and Article 44 paragraph (3) letter f:

a. to set up systems and procedures for port service based on guidelines established by the Minister;
b. to maintain smoothness and order on ships and goods and services of others activities in accordance with the systems and procedures of port service that has been established;
c. to supervise the loading and unloading of goods;
d. to apply technology of unified information and communications system for smooth flow of goods; and
e. to coordinate with related parties for smooth flow of goods.

With respect to the implementation of INAPORTNET, the Minister for Transportation's Regulation No. 157 concerning "Application of INAPORTNET to ships and goods at ports" was enacted in October 2015, and efforts based on it were in progress. In December of that year, the number of target ports was revised from 6 ports (Belawan, Tanjung Priok, Tanjung Perak, Makassar, Tanjung Emas, Bitung) to 16 ports (Minister for Transportation's Regulation No. PM192).

INAPORTNET is defined as a single electronic information system based on internet/web to integrate the standard port information system in order to serve vessel and cargo physically from all relevant institutions and stakeholders in the ports." in these ministerial regulations.

In addition, regarding the establishment of the system for digitalization of port-related procedures, the Regulation of DGST No.HK.103 / 3/11 / DJPL-15 which stipulates port-related procedures by using INAPORTNET was enacted in September 2015. The Circular of DGST was issued in November 2016 with the aim of guaranteeing the certainty of the use of INAPORTNET (Circular Letter of DGST No UM003/87/17/DJPL-16 concerning SLS Using INAPORTNET for Ships and Goods Services in Ports).

The main laws and regulations concerning digitalization of port related procedures are listed in Table II-1-1.

Table II-1-1 Main Laws and Regulations concerning Digitalization of Port Procedures

Laws / Regulations		Outline
UU Nomor 17 Tahun 2008 tentang Pelayaran	Law No. 17 year 2008 concerning Shipping	shipping law
Peraturan Pemerintah Nomor 61 Tahun 2009 tentang Kepelabuhanan sebagaimana telah diubah dengan Peraturan Pemerintah Nomor 64 Tahun 2015	Government Regulation No. 61 of 2009 concerning Port as amended by Government Regulation No. 64 year 2015	Governmental regulation concerning ports
Peraturan Pemerintah Nomor 20	Government Regulation No. 20	Water Transport

Tahun 2010 tentang Angkutan di Perairan sebagaimana telah diubah dengan Peraturan Pemerintah Nomor 22 Tahun 2011	year 2010 as amended by Government Regulation No. 22 year 2011	
Peraturan Menteri Perhubungan Nomor KM 62 Tahun 2010 tentang Organisasi dan Tata Kerja Kantor Unit Penyelenggara Pelabuhan sebagaimana telah diubah dengan Peraturan Menteri Perhubungan Nomor PM 44 Tahun 2011, Peraturan Menteri Perhubungan Nomor PM 130 Tahun 2015, dan PM 77 Tahun 2018	Minister For Transportation's Regulation No. KM 62 year 2010 concerning Organization and Administration of the Port Organizer Unit Office as amended by Minister for Transportation's Regulation PM 44 year 2011, PM 130 year 2015 and PM 77 year 2018	Concerning the organization of Port Organizer Unit
Peraturan Menteri Perhubungan Nomor PM 34 Tahun 2012 tentang Organisasi dan Tata Kerja Kantor Kesyahbandaran Utama	Minister For Transportation's Regulation No. PM 34 year 2012 concerning Organization and Administration of the Office of Main Harbour Master	Concerning the organization of Harbour Master
Peraturan Menteri Perhubungan Nomor PM 35 Tahun 2012 tentang Organisasi dan Tata Kerja Kantor Otoritas Pelabuhan Utama	Minister For Transportation's Regulation No. PM 35 year 2012 concerning Organization and Administration of the Office of Main Port Authority	Concerning the organization of Port Authority
Peraturan Menteri Perhubungan Nomor PM 36 Tahun 2012 tentang Organisasi dan Tata Kerja Kantor Kesyahbandaran dan Otoritas Pelabuhan sebagaimana telah diubah dengan Peraturan Menteri Perhubungan Nomor PM 135 Tahun 2015 dan PM 76 Tahun 2018	Minister For Transportation's Regulation No. PM 36 year 2012 concerning Organization and Administration of the Office of Harbor Master and Port Authority as amended by Minister For Transportation's Regulation No. PM 135 year 2015 and PM 76 year 2018	Concerning the organization of Harbour Master and Port Authority Office (KSOP)
Peraturan Menteri Perhubungan Nomor PM 93 Tahun 2013 tentang Penyelenggaraan dan Pengusahaan Angkutan Laut sebagaimana telah diubah dengan Peraturan Menteri Perhubungan Nomor PM 74 Tahun 2016	Minister For Transportation's Regulation No. PM 93 year 2013 concerning Management and Organization of Sea Transportation as amended by Minister for Transportation's Regulation No. PM 74 year 2016	Concerning management of the business of sea transportation
Peraturan Menteri Perhubungan Nomor PM 82 Tahun 2014 tentangTata Cara Penerbitan Surat Persetujuan Berlayar	Minister For Transportation's Regulation No. PM 82 year 2014 concerning Procedure for the Issuance of Sailing Approval	Concerning the issuance of sailing approval by Harbour Master
Peraturan Menteri Perhubungan Nomor PM 154 Tahun 2015 tentang Pelayanan Surat Persetujuan Syahbandar Secara Online.	Minister For Transportation's Regulation No. PM 154 year 2015 concerning Online Approval Services of Harbour Master	Concerning the online services of Harbour Master
Peraturan Menteri Perhubungan	Minister For Transportation's	Concerning the

Nomor PM 157 Tahun 2015 tentang Penerapan INAPORTNET Untuk Pelayanan Kapal dan Barang di Pelabuhan sebagaimana telah diubah dengan Peraturan Menteri Perhubungan Nomor PM 192 Tahun 2015	Regulation No. PM 157 year 2015 concerning Implementation of INAPORTNET Servicing Ships and Goods in Ports as amended by Minister For Transportation's Regulation No. 192 year 2015	implementation of INAPORTNET
Peraturan Menteri Perhubungan Nomor PM 11 Tahun 2016 tentang Penyelenggaraan dan Pengusahaan Keagenan Kapal Dengan Rahmat Tuhan Yang Maha Esa	Minister For Transportation's Regulation No. PM 11 year 2016 concerning Organization and Business of Shipping Agent	Concerning the business of shipping agent
Peraturan Menteri Perhubungan Nomor PM 152 Tahun 2016 tentang Penyelenggaraan dan Pengusahaan Bongkar Muat Barang dari dan ke Kapal	Minister For Transportation's Regulation No. PM 152 year 2016 concerning Organization and Business of Goods Loading and Unloading from and to Ships	Concerning the business of stevedoring company
Peraturan Menteri Perhubungan Nomor PM 120 Tahun 2017 tentang Pelayanan Pengiriman Pesanan Secara Elektronik (Delivery Order Online) Untuk Barang Impor di Pelabuhan	Minister For Transportation's Regulation No. PM 120 year 2017 concerning Electronic Order Shipping Services (Delivery Order Online) for Imported Goods in Ports	Implementation of DO Online
Instruksi Menteri Perhubungan Nomor IM 13 Tahun 2016 tentang Penerapan INAPORTNET Untuk Pelayanan Kapal dan Barang di Pelabuhan Utama Makassar, Belawan, Tanjung Perak, dan Tanjung Priok	Minister For Transportation's Instruction No. IM 13 year 2016 concerning Implementation of INAPORTNET in Makassar, Belawan, Tanjung Perak and Tanjung Priok	Concerning instruction to implement INAPORTNET in 4 main ports
Peraturan Direktur Jenderal Perhubungan Laut Nomor HK.103/3/11/DJPL-15 tentang Tata Cara Pelayanan Kapal dan Barang Menggunakan INAPORTNET di Pelabuhan	Director General for Sea Transportation's Regulation No. HK.103/3/11/DJPL-15 concerning Procedure for Vessel and Goods Service in Port Using INAPORTNET	Concerning the procedures for the use of INAPORTNET
Peraturan Direktur Jenderal Perhubungan Laut Nomor UM.008/41/10/DJPL-16 tentang Pelayanan Publik Bidang Lalu Lintas Angkutan Laut dengan Sistem Online	Director General for Sea Transportation's Regulation No. UM.008/41/10/DJPL-16 concerning Public Service of Sea Traffic and Transportation with Online System;	Concerning the online services of Sea Traffic and Transportation (SIMLALA)
Surat Edaran Direktur Jenderal Perhubungan Laut Nomor PR.101/146/13/DA-2016 tentang Pemberlakuan Quick Respon (QR) Code Pada Hasil Layanan Publik Bidang Lalu Lintas dan Angkutan Laut melalui Aplikasi SIMLALA	Circular Letter of Director General for Sea Transportation No. PR.101/146/13/DA-2016 concerning Implementation of Quick Response (QR) Code on Results of Public Service of Sea Traffic and Transportation Field	Concerning the use of QR code in SIMLALA

	through SIMLALA Application	
Surat Edaran Direktur Jenderal Perhubungan Laut Nomor UM.003/87/17/DJPL-16 tentang Acuan Standar Pelayanan (Service Level Standard/SLS) Menggunakan Inaportnet Untuk Pelayanan Kapal dan Barang di Pelabuahn	Circular Letter of Director General for Sea Transportation No. UM.003 / 87/17 / DJPL-16 concerning Service Level Standards (SLS) Using Inaportnet For Ship and Goods Services in Ports	Concerning SLS in the use of INAPORTNET

Source: DGST

(1)HK.103/3/11/DJPL-15

No.HK.103 / 3/11 / DJPL – 15 stipulates the outline of ship entry/exit procedures by INAPORTNET. The main provisions are shown below.

HK.103/3/11/DJPL-15 (Extract)

CHAPTER V   PROCEDURES OF SERVICE FOR SHIP AND GOODS USING *INAPORTNET*
Part 1.   Procedures for Ships Entry and Unloading / loading Operations

Article 9
(1) At the time not later than 1 X 24 hours before the ship arrives, national sea transport companies PKK delivered with attached documents such as RPK / PKKA / PPKM / PK, Health Document Vessel, Manifest, List of Hazardous Freight, Document quarantine animals / fish / plant, and SP2 to *Inaportnet*, then proceed to the SPS Portal Online for publishing approval letter entry (SPM)ship into port

(2) In the case of a voyage of less than 1 X 24 hours, PKK as referred to in paragraph (1) shall be submitted at the time the ship will leave the port of origin to port of destination, and then proceed to the Portal SPS Online for issuance of approval letter sign (SPM) ship to the port.

(3) At the time no later than 1 X 24 hours before the ship arrives, the Company Stevedoring (PBM) delivered filing SPKBM by enclosing a letter of appointment PBM and Statement of Work Stevedoring (SPKBM) of national sea transport companies to the Port Authority Office Home or Office Kesyahbandaran and the Port Authority through *Inaportnet;*

(4) Each of government agencies corresponding duties and functions further provide a response in the form of notification to *Inaportnet* simultaneously with the following conditions :
ａ．Ships for Sailing Abroad
1) Notification of the Office Kesyahbandaran Kesyahbandaran Home or Office and Port Authority to respond to Inaportnet SPM no later than five (5) hours of the request being received SPM;
2) Notifications from the Port Authority Main Office or Office Kesyahbandaran and Port Authority give PKK and RPKBM response to *Inaportnet* no later than five (5) hours since the PKK received;
3) Notification of Health and Port no later than five (5) hours since the PKK attachments received;
4) Notification by the Office of the Fish Quarantine Fish quarantine later than five (5) hours since the PKK attachments received;
5) Notification of Agriculture Quarantine by the Office of the Agricultural Quarantine no later than 5 (five) hours since the PKK attachments received;
6) Notification of Customs and Excise in the form BC 1.1 later than five (5) hours since the PKK attachments received;
7) Notification of the Immigration Office in the form of immigration permit no later than five (5) hours since the PKK attachment is received.
ｂ．Ships for Sailing within the country
1) Notification of the Kesyahbandaran Main Office or Office Kesyahbandaran and Port Authority to give SPM response to *Inaportnet* no later than five (5) hours since the SPM request received;
2) Notification of the Port Authority Main or Kesyahbandaran and Port Authority responded to *Inaportnet* PKK and RPKBM no later than five (5) hours since the PKK received;

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3) Notification of Health and Port no later than five (5) hours since the PKK attachments received;
4) Notification of Quarantine Fish quarantine fish by the Office no later than five (5) hours since the PKK attachments received;
5) Notification of Agriculture Quarantine by the Agricultural Quarantine Office not later than five (5) hours since the PKK attachments received.

(5) *Inaportnet* will forward the notification from the office of the Port Authority of Home or Office Kesyahbandaran and Port Authority as mentioned in paragraph (5) to BUP order processing PPKB which became part of the determination and calculation of ship docking port services.

(6) BUP, PBM and national sea transport companies jointly plan and develop Ships Binding Plan / Operations Plan (RPK / RO) for ships that will dock mooring in particular.

(7) Port Authority Main Office or Office Kesyahbandaran and Port Authority make the determination of ships (PPK) against Ships Binding Plan / Operations Plan (RPK / RO) referred to in paragraph (6) through *Inaportnet* .

(8) The determination of vessel service (PPK) as referred to in the article (7) is done by creating a schedule of activities for the determination by OP/KSOP and can do more than 1(one) time .

(9) Issuance of Work Order (SPK) implementation of pilotage and ship tows issued by BUP and known by Port Authority Main Office, Harbour Master Main Office and Kesyahbandaran and Port Authority office no later than 30 (thirty) minutes after the determination of ship service (PPK) published

(10) Harbour Master Main Office or Keshahbandaran and Port Authority issues SPOG no later than 1 (one) hour since the Letter of Work Order (SPK) of implementation of pilotage and tows of ships published.

(11) BUP reports the realization of pilotage and tows to *Inaportnet* after each pilotage.

(12) PBM conducting loading / unloading and shall report the Daily Report and Time Sheet to the Port Authority Main Office or Office Kesyahbandaran and Port Authority through Inaportnet after loading and unloading activities completed.

(13) If PBM is not reporting the Daily Report and Time Sheet until the time of switching the first work shift ends, then Inaportnet notify Port Authority Main Office or KSOP.

(14) Port Authority Main Office or Office Kesyahbandaran and Port Authority supervise the performance of the activities of loading and unloading.

(15) Procedures for Ships Service Entrance / Mooring and Service Level Agreement (SLA) as contained in Appendix IIa and II b and an integral-part of this Regulation.

Part 2.   Expenditures and Receiving

Article 10
(1) BUP submits activity reports receipts and expenditures to Inaportnet after complete document processing activities carried out by the owner of the goods.

(2) Based on the report in paragraph (1) national sea transport companies / Services arrangement of Transport / Sea Cargo Ship submit Goods Transportation Report (LAB) to be known by the Port Authority Main Office or Office Kesyahbandaran and Port Authority.

(3) For imported goods, Goods Transportation Report (LAB) enclosed with the Letter of Goods Approval (SPPB) of the Customs.

(4) For export goods, Goods Transportation Report (LAB) enclosed with NPE, Quarantine Document, Packing List, Shipping Instruction and Bay Plan / Stowage Plan.

Part 3.   Procedures of Services for Ships departure

Article 11
(1) Based on the Determination of Ship Services (PPK) as in Article 9 paragraph (7), within a period of 6 (six) hours prior to ship departure the national sea transport companies to submit application ship

departure to *Inaportnet* then proceed to the Portal SPS Online for publishing letter of Port Clearance (SPB);

(2) Based on the application in paragraph (1) which is equipped with a document each agency based on the duties and subsequently responds field (processing) through Inaportnet as follows:

a. Ships for Sailing Abroad
1)Simultaneously (parallel) implemented by these agencies below:
a) Issuance of medical certificates to sail from the Port Health Office at a maximum of 1 (one) hour after the applications received ship out.

b) Issuance of (exit permit) crew list by Immigration at a maximum of 1 (one) hour after the applications received ship out.

2)National sea transport companies deliver Outward Manifest to *Inaportnet* at a maximum of 1 (one) hour after finished unloading activities.

3)Customs and Excise submitted a notification Outward Manifest in the form of a number of BC 1.1 to *Inaportnet* at a maximum of 1 (one) hour after Outward Manifest received from Shipping Company ·:

4)Kesyahbandaran Main Office or Office Kesyahbandaran and Port Authority publishing Letter of Port Clearance (SPB) at a maximum of 1 (one) hour after all the notifications in paragraph (2) number 1 and number 3 are met.

5)Issuance of Work Order (SPK) implementation of pilotage and ship tows incurred by BUP and known by Kesyahbandaran Main Office, Port Authority Main Office and KSOP at least 1 (one) hour since the Letter of Approval Sail (SPB) was published..

6)Kesyahbandaran Main Office or Office Kesyahbandaran and Port Authority published a SPOG at least 1 (one) hour from the Work Order (SPK) implementation and delays ship pilotage published

b. Ships for Sailing within the country

1)The issuance of medical certificates to sail from the Port Health Office no later than one (1) hour after the applications ships departure received.

2)Kesyahbandaran Main Office or Office Kesyahbandaran and Port Authority issuing the Letter of Approval Sail (SPB) at a maximum of 1 (one) hour after SIKB published.

3)Issuance of Work Order (SPK) implementation of pilotage and ship delays incurred by BUP and known to the Port Authority Office Home or KSOP least 1 (one) hour since the Letter of Approval Sail (SPB) issued.

4)Kesyahbandaran Main Office or Office Kesyahbandaran and Port Authority issuing SPOG no later than 1 (one) hour from the Work Order (SPK)·implementation pilotage and ship tows published

5)Procedures for Ships Out Services and Service Level Agreement (SLA) in detail listed in Annex III to this Regulation.

Part 4.   Procedures of Services for Extension of Mooring Period

Article 12

(1) In the event of force majeure constraint, loading and unloading equipment damage, delays in trucking and others based on the evaluation of Port Authority Main Office or Office Kesyahbandaran and Port Authority can do extension of mooring by seeing the preparedness for berthing.

(2) If the loading and unloading activities do not meet the performance standards set by the Port Authority Office or Office Kesyahbandaran, Port Authority reserves the right to terminate the activities and to immediately expel from their moorings.

(3) The extension of mooring period referred to in paragraph (1) shall be submitted by the shipping

companies at the latest four (4) hours before the expiration of the mooring specified in Determination of Ship Services (PPK) to *Inaportnet*.

(4) At the time no later than one (1) hour after the submission of the extension of the mooring referred to in paragraph (3), BUP submit a revised RPK / RO to *Inaportnet*.

(5) At the time no later than 1 (one) hour since the revision RPK / OP referred to in paragraph (4) is received by *Inaportnet*, Port Authority Main Office or Office Kesyahbandaran and Port Authority issues Determination Vessel Services (PPK).

(6) Procedures of Services for Extension of Period Mooring and Service Level Agreement (SLA) in detail are listed in Annex IV to this regulation.

Part 5. Procedure of Services for Ships Moving

Article 13

(1) The national sea transport companies to submit application for ships moving / shifting to the Port Authority Main Office or Office Kesyahbandaran and Port Authority within a period of four (4) hours before the ship moves to *Inaportnet*.

(2) Port Authority Main Office or KSOP and BUP responding (processing) a request to move the mooring / shifting of national sea transport companies through Inaportnet according to the task and their respective fields as follows:

a. At the time no later than one (1) hour after reviewing mooring period referred to in paragraph (2), BUP submit a revised RPK / RO move mooring / shifting to *Inaportnet*.

b. At the time no later than 1 (one) hour since the revision RPK / RO referred to in paragraph (2) (a) received by *Inaportnet*, Port Authority Main Office or Office Kesyahbandaran and Port Authority issues Determination Vessel Services (PPK) .

c. Issuance of SPK pilotage, delays and mooring by PUB at a maximum of 1/2 (half) hours since Determination Vessel Services (PPK) was published as specified in paragraph (2) (b).

d. Issuance of SPOG by Kesyahbandaran Main Office or Office Kesyahbandaran and Port Authority at a maximum of 1 (one) hour since SPK pilotage, delays and mooring published.

(3) Procedure of ships moving also applies to ships - ships that do anchor / moored in the port activity area (DLKR).

(4) Procedures for Ship Moving Services and Service Level Agreement (SLA) in detail are listed in Annex V of this Regulation.

(2)No. PM 154 year 2015 concerning Online Approval Service of Harbour Master

The Minister for Transportation's Regulation (No.PM 154 year 2015) also provides for the online services by Harbour Master. Although there is no term of INAPORTNET in this regulation, it stipulates that electronic application is required for port entry approval (SPM), port movement procedure (SPOG) and port departure permit (SPB).

No. PM154 year 2015   concerning Online Harbour Master Approval Services (Extract)

CHAPTER III   SERVICES FOR SHIP ENTERING PORT APPROVAL

Article 11

(1) Any ship will enter port shall have a Ship Entering Port Approval issued by Harbour Master.
(2) To obtain the Ship Entering Port Approval as intended in paragraph (1), the national sea transportation company, the special sea transportation operator, the general agent and/or sub agent shall deliver the ship arrival report along with the ship certificates and documents to Harbour Master in the form of Electronic Documents through Harbour Master Portal of http://syahbandar.dephub.go.id.
(3) Electronic Documents as intended in paragraph (2) shall be submitted no later than 24

(twenty-four) hours before the ship arrives at the port.

(4) In case of the voyage time is less than 24 (twenty-four) hours, the Electronic Documents as intended in paragraph (2) shall be delivered at the time the ship will leave the port of origin.

Article 12

(1) Harbour Master after receiving the Ship Report with the ship certificates and documents as intended in Article 11 shall perform verification relating to:

a. status and legality of a national sea transportation company, a special sea transportation operator, general agent and/or sub agent; and

b. legality, validity period and completeness of ship arrival information along with ship certificates and documents.

(2) In case based on the verification result as intended in paragraph (1) is complete and correct, Harbour Master shall issue the Ship Entering Port Approval in the form of electronic document.

Article 13

Standard Operating Procedures of Ship Entering Port Approval services as intended in Article 12 shall be executed in the following manner and stages:

A. a national sea transportation company, a special sea transportation operator, a general agent, and/or sub agent shall submit application for validation of the agency to Harbour Master electronically in the following manner:

1. login http://syahbandar.dephub.go.id with webs browser;
2. enter the Access rights already owned (username and password);
3. select the SPM menu;
4. fill out an available SPM application form with the following data:
a) the name of the company; and
b) SIUPAL/SIOPSUS/SIUPER number.

B. Harbour Master after receiving the agency validation application to verify the agency data in the following manner:

1. login http://syahbandar.dephub.go.id;
2. verify agency status; and
3. if valid, then given approval.

C. National sea transportation company, special sea transportation operator, general agent, and/or sub agent after receiving agency approval to apply for SPM in the following manner:

1. select the SPM menu;
2. fill out the available Ship Report form with the following data:
a) ship's data,
b) ship's operational data (owners, operators and routes);
c) validity data of ship certificates and documents;
d) crew data;
e) passenger data;
f) cargoes data;
g) dangerous goods data;
h) bunker and pollution data; and
i) ship departure data from the port of origin.
3. uploading ship certificates and documents including:
a) measurement certificate;
b) ship's nationality certificate;
c) safety certificates;
d) a cargo limit certificate;
e) ship crew certificate;
f) document of cargo/manifest;
g) the manifest of dangerous goods;
h) a special list of dangerous goods;
i) shipper declaration of dangerous goods;
j) document of compliance for carriage of dangerous goods;

k) passenger list;

l) certificate of disposal; and

m) Port Clearance from port of origin.

D. Harbour Master after receiving the application of SPM to verify the completeness and correctness of filling of Ship Report as well as the validity of the ship certificates and documents by:

1. login http://syahbandar.dephub.go.id;

2. if data are complete and certificates and documents are valid, then receipt of SPM application can be sent; and

3. make a full SPM copy with the SPM service number or code.

E. National sea transportation company, special sea transportation operator, general agent, and/or sub agent after receiving SPM service number or code to print a copy of SPM by:

1. select the SPM menu; and

2. print a copy of SPM and SPM number.

Article 14

Service Level Agreement of Ship Entering Port Approval Services as intended in Article 12 is as follows:

A. the completion process of Ship Entering Port Approval services is 60 (sixty) minutes, with details as follows:

1. process in the Administration:

a) the process of receiving documents is 10 (ten) minutes; and

b) the process of submitting the Ship Entering Port Approval is 5 (five) minutes.

2. process in the examiner:

a) examination or validation process is 30 (thirty) minutes;

b) the process of issuance of a copy of the Ship Entering Port Approval and the Ship Entering Port Approval number is 5 (five) minutes; and

c) the process of issuance of the original Ship Entering Port Approval is 5 (five) minutes.

3. Harbour Master approval process is 5 (five) minutes.

B. the services charge of the Ship Entering Port Approval is not charge; and

C. the services of Ship Entering Port Approval is 24 (twenty-four) hours.

CHAPTER IV   SERVICES OF SHIP MANEUVERING AT THE PORT APPROVAL

Article 15

(1) Any ship will do maneuvering at the port with the assistance of a guide shall have an Approval for the Ship Maneuvering at the Port issued by Harbour Master.

(2) The Approval for the Ship Maneuvering at the Port as intended in paragraph (1) shall not apply to:

a. directly berthing ships and/or ships operating under a window system; and

b. ships that have obtained Port Clearance to leave the port.

(3) To obtain a Ship Maneuvering at the Port Approval as intended in paragraph (1), a national sea transportation company, a special sea transportation operator, general agent and/or sub agent shall apply to Harbour Master in the form of an Electronic Document through Harbour Master Portal of http://syahbandar.dephub.go.id.

(4) Harbour Master after receiving Electronic Document as intended in paragraph (3) is required to verify the completeness and validity of documents.

(5) In case of the verification result as intended in paragraph (4) is complete and correct; Harbour Master shall issue the Maneuvering Approval in the form of Electronic Document.

Article 16

(1) The national sea transportation company, the special sea transportation operator, the general agent, and/or sub agent shall deliver the original ship's certificates and documents and a copy of the Approval of the Ship to enter Port to Harbour Master no later than 12 (two) hours after arrival and/or berthing of the ship at the port.

(2) Harbour Master after receiving the ship certificates and documents as intended in paragraph (1) shall make a receipt (memorandum) in triple (3), with the following arrangement:

a. first sheet, for Master;

b. second sheet, for agent; and

c. third sheet, for file at Harbour Master.

(3) The Memorandum as intended in paragraph (2) shall be submitted together with the original Approval of the Ship to enter Port to be forwarded to the Master and kept on board.

Article 17
Standard Operating Procedures of the Ship Maneuvering at the Port Approval Services as intended in Article 15 shall be carried out in the following ways and stages:
a. national sea transportation company, special sea transportation operator, general agent, and/or sub agent submit SPOG applications to Harbour Master electronically, in the following manner:
1. login http://syahbandar.dephub.go.id with webs browser;
2. enter the Access Rights already owned (username and password);
3. select SPOG menu;
4. fill out the available SPOG application form, with the following data:
a) the name of the location of the ship Maneuvering plan (to and from);
b) time of ship Maneuvering; and
c) name of guiding officer.
5. upload Guiding Work Order.
b. Harbour Master after receiving SPOG application, must verify SPOG status in the following manner:
1. login http://syahbandar.dephub.go.id;
2. if the data are valid and complete, then give approval;
3. create SPOG complete with SPOG service number or code; and
4. print SPOG.
c. National sea transportation company, special sea transportation operator, general agent, and/or sub agent after receiving SPOG service number or code to shall print SPOG by:
1. choose SPOG menu; and
2. print SPOG and SPOG number.

Article 18
The Service Level Agreement of the Ship Maneuvering at the Port Approval Services as intended in Article 15 as follows:
a. the completion process of the Ship Maneuvering at the Port Approval services is 60 (sixty) minutes, with details as follows:
1. process in the Administration:
a) the process of receiving documents is 15 (five) minutes; and
b) the process of sending or delivering of Ship Maneuvering at the Port Approval is 5 (five) minutes.
2. process in the Harbour Master examiner:
a) the process of examination and validation is 30 (thirty) minutes; and
b) the process of issuing and printing of the Ship Maneuvering at the Port Approval is 5 (five) minutes.
3. Harbour Master approval process is 5 (five) minutes.
b. the services fee of the Ship Maneuvering at the Port Approval is not charged; and
c. the services for the Ship Maneuvering at the Port Approval is 24 (twenty-four) hours.

CHAPTER V   PORT CLEARANCE SERVICES
Article 19
(1) Every ship will leave port shall have Port Clearance issued by Harbour Master after the ship meets the ship goodness requirements and other obligations.
(2) The fulfillment of the ship goodness requirements and other obligations as intended in paragraph (1) shall be proven by:
a. ship certificates and documents;
b. the Master Sailing Declaration;
c. proof of payment of port services;
d. proof of payment of navigational services;
e. proof of payment of shipping cost; and
f. approval of Customs Immigration Quarantine (CIQ).

Article 20

(1) To obtain Port Clearance as intended in Article 19, national sea transportation company, special sea transportation operator, general agent and/or sub agent shall apply for Port Clearance to Harbour Master in the form of an Electronic Document through Harbour Master Portal of http://syahbandar.dephub.go.id.

(2) Harbour Master after receiving Electronic Document as intended in paragraph (1) shall verify the completeness and validity of documents.

(3) If the result of verification as intended in paragraph (2) is complete and correct, Harbour Master shall issue Port Clearance in the form of electronic document.

Article 21

(1) The Port Clearance as intended in Article 20 paragraph (3) shall be valid for 24 (twenty-four) hours since its issuance and may only be used for a single voyage to the port of destination.

(2) In case of the ship has not sailed leaving the port within 24 (twenty-four) hours since the issuance of the Port Clearance, the national sea transportation company, the special sea transportation operator, the general agent and/or sub agent shall reapply the Port Clearance to Harbour Master.

Article 22

Standard Operating Procedures of the Port Clearance services as intended in Article 19 shall be executed in the following ways and stages:

a. national sea transportation company, special sea transportation operator, general agent, and/or sub agent apply for SPB to Harbour Master electronically, in the following manner:

1. login http://syahbandar.dephub.go.id with webs browser;
2. enter the access rights already owned (username and password);
3. select SPB menu;
4. fill out the available ship departure information form, with the following data:
a) crew data;
b) passenger data;
c) cargoes data;
d) data of dangerous goods; and
e) bunker and pollutant data.
5. upload documents of evidence of fulfillment of other obligations which include:
a) receipt of payment of navigational services;
b) receipt of payment of shipping cost;
c) approval/clearance from CIQ;
d) passenger list;
e) manifest;
f) special manifest of dangerous goods;
g) shipper declaration of dangerous goods;
h) document of compliance for the carriage of dangerous goods;
i) disposal certificate.

b. Harbour Master after receiving SPB application to review and verify SPB status in the following way:

1. login http://syahbandar.dephub.go.id;
2. if the data is valid and complete, then give approval;
3. make SPB complete with SPB service number or code; and
4. print SPB.

c. national sea transportation company, special sea transportation operator, general agent, and/or sub agent after receiving SPB service number or code shall print copy of SPB by:

1. select SPB menu; and
2. print copy of SPB and SPB number.

d. after copy of SPB is received, the national sea transportation company, special sea transportation operator, general agent, and/or sub agent may receive back original certificates and documents kept at Harbour Master.

Article 23

Service Level Agreement for Port Clearance as intended in Article 19 as follows:

a. time of completion of Port Clearance services is 60 (sixty) minutes, with details as follows:

1. process in the Administration:
a) the process of receiving documents is 10 (ten) minutes; and
b) the delivery of the original Port Clearance is 5 (five) minutes.
2. process to the examiner:
a) examination and validation process is 30 (thirty) minutes; and
b) the process of issuing and printing of Port Clearance is 10 (ten) minutes.
3. Harbour Master approval process is 5 (five) minutes.
b. The cost of Port Clearance services is not charged; and
c. Port Clearance services is 24 (twenty-four) hours.

(3)UM.003/87/17/DPJL-16

The procedure flow under use of INAPORTNET is shown in DGST circular UM.003 / 87/17 / DPJL-16 (Fig. II-1-1, II-1-2). According to it, the notification of port entry (Warta Kedatangan Kapal) is simultaneously transmitted to the Port Authority and Harbour Master in the system. This letter stipulates service level standard of Inaportnet implementation in every stage and dispensation for manual services in case of force majeur events for more than 3 hours.

Vessel Entry

Vessel Departure
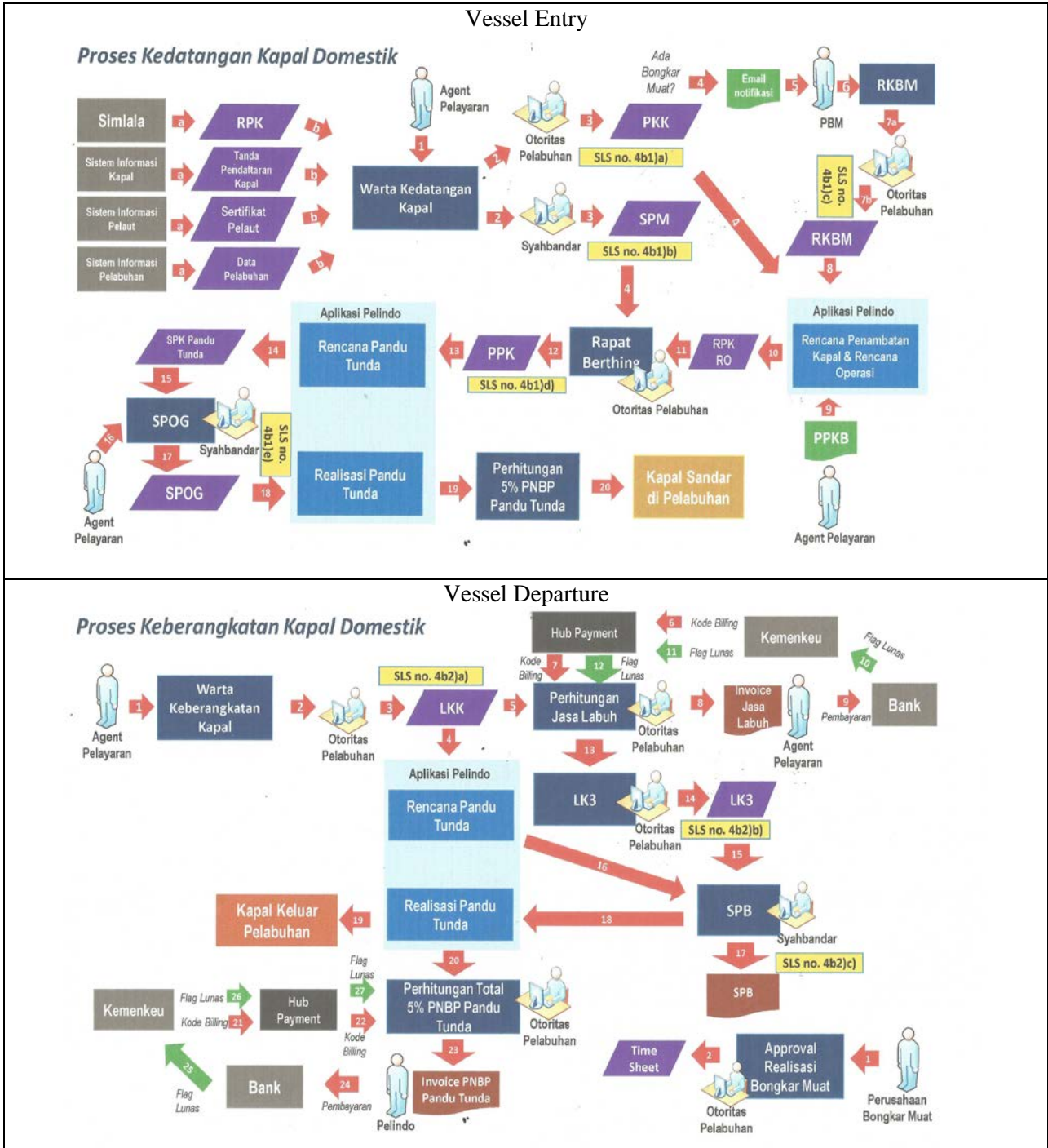
Source: DGST Circular UM.003/87/17/DGPL-16

Figure II-1-1 Service Level Standard of INAPORTNET Implementation
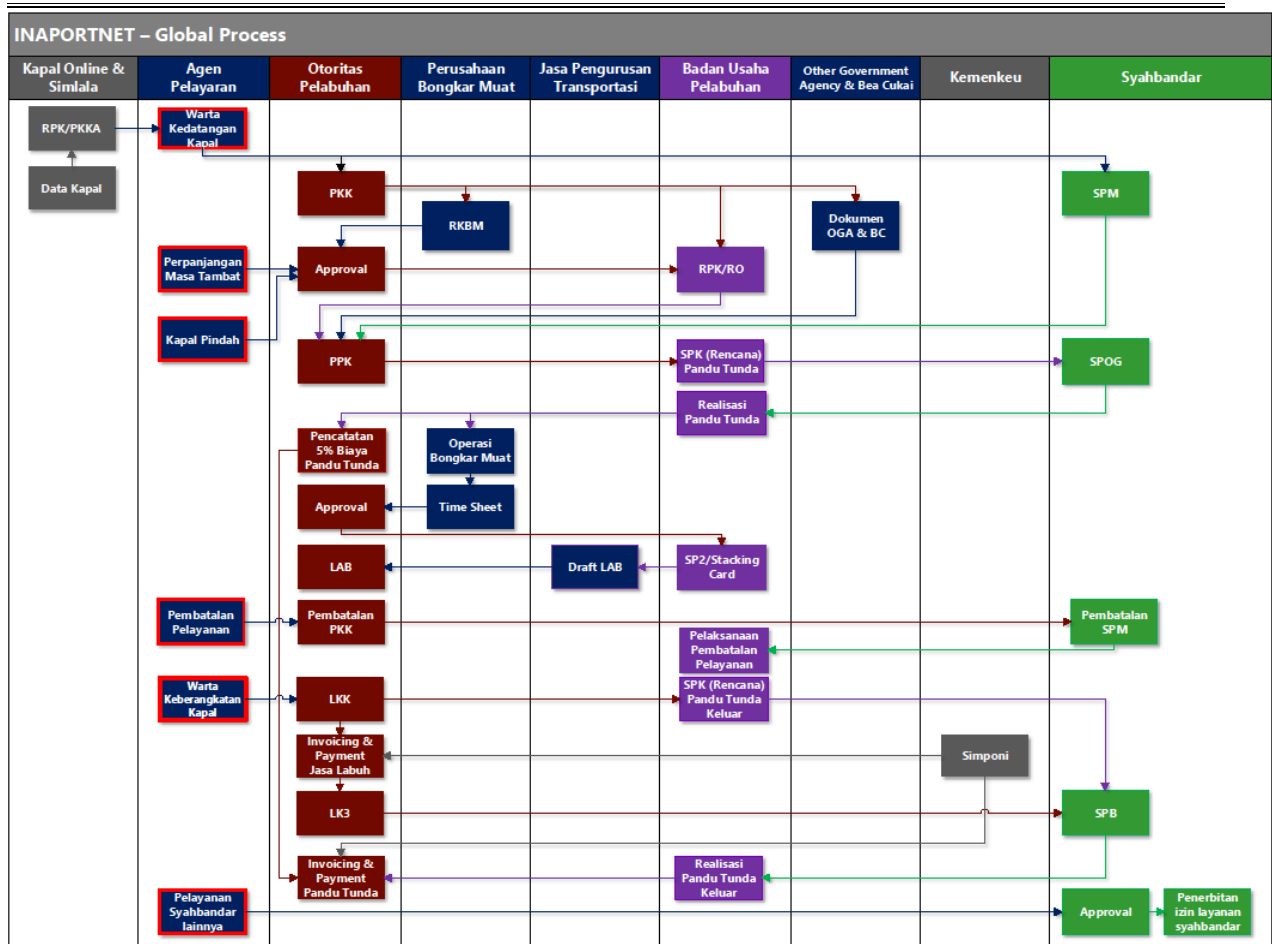
Source: DGST Circular UM.003/87/17/DGPL-16

Figure II-1-2 INAPORTNET system Global Process

II-1-1-2 Organizations

(1)DGST

Directorate General of Sea Transportation (DGST) is the responsible Department for implementation of INAPORTNET (PM157/2015 Chapter II OPERATION OF INAPORTNET Section 2 (1)). Directorate of Sea Traffic and Transportation plays a leading role regarding INAPORTNET. Data of the systems which are managed by other Directorates of DGST is used in INAPORTNET operation. Functions regarding INAPORTNET of each Directorate are shown in Table II-1-2.

Center of Technology, Information and Communication of MOT supports DGST in system building, operation and maintenance as well as supervision of INAPORTNET Implementation from the technological viewpoint.

Table II-1-2Functions Regarding INAPORTNET of Directorates of DGST

DIRECTORATE of SEA TRAFFIC & SEA TRANSPORTATION
Responsible DIRECTORIATE of INAPORTNET IMPLEMENTATION
DIRECTORATE of PORT
Managing Simkepel which provide data on port facilities
DIRECTORATE of SHIPPING & SEAFARERS
Managing KAPAL online which provide data on vessels of Indonesian Flag and Seafarer's identity
DIRECTORATE of SEA AND COASTGUARD
Supervising Harbour Master of each port

(2)Port Authority

Port Authorities at the four main ports and Harbour Master and Port Authority offices at the other twelve ports are responsible for management of INAPORTNET in respective office.

The role of the Port Authority is one of the users of INAPORTNET. Port Authority is stipulated in Law No. 17 year 2008 concerning Shipping. The organization and functions are provided by the Minister for Transportation's Regulation No. PM35-2012.

The organizational structure of Main Port Authority of the 4 major ports is shown in Figure II-1-3
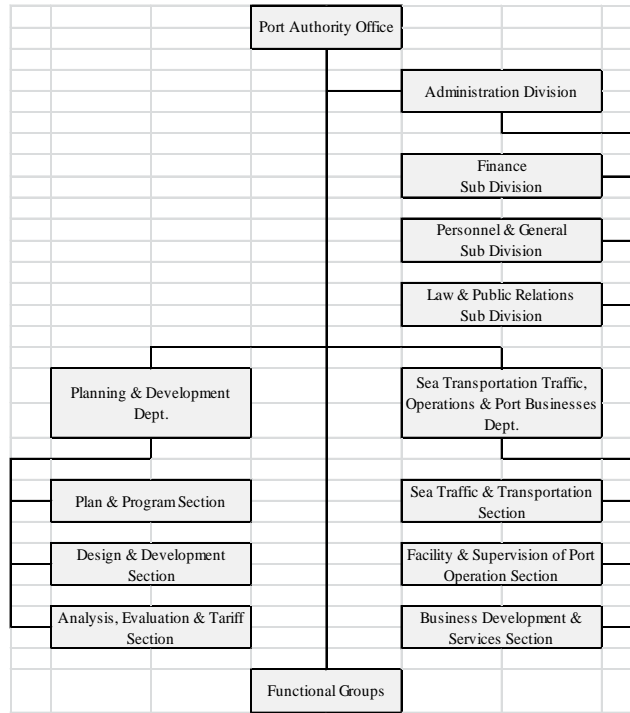
Source: Minister for Transportation's Regulation No. 35 year 2012
Figure II-1-3 Organization of Main Port Authority

The section in charge of vessel entry and departure procedures is Sea Traffic and Transportation, which is responsible for private user of INAPORTNET registration work and inquiry work.

(3)Harbour Master

Harbour Master office at each port is responsible for receiving application and giving approval/permission of clearance in, vessel movement in port, crew list and clearance out through INAPORTNET.

II-1-1-3 System Users

The users of INAPORTNET stipulated in Article 3 of DGST Regulation HK.103 / 3/11 / DJPL-15 are DGST local agencies / local governmental agencies, related administrative agencies and port users, as shown in Table II-1-3. The user registration of Monitoring INAPORTNET is classified into three types: Shipping Agent, Stevedoring Company and Forwarding Company. However, Port Authority Office, Harbour Master Office and related administrative organizations are also users of INAPORTNET.

Table II-1-3 INAPORTNET users

DGST	Main Port Authority Office
	Main Harbour Master office
	Harbour Master and Port Authority Office (KSOP)
	Port Management Unit Office
Related administrative agency	Customs Office
	Port Health Office
	Agricultural Quarantine Office
	Fish Quarantine and Fish Quality Control Office
	Immigration Office
Port users	Port Business Entity (BUP)
	Shipping companies/ Agents in the port
	Stevedoring companies in the port

Source: HK.103 / 3/11 / DJPL-15

II-1-2 INAPORTNET System

II-1-2-1 Software

(1)Scope of Software

INAPORTNET software is developed by several local system vendors due to the procurement process and operation began in June 2016. The system is developed based on initial specification (business workflows) except small modifications on some additional small process or minor changes.

INAPORTNET is mainly covering the workflow of port related procedures as below.

-Vessel Entry procedure (including loading/unloading procedure)

-Vessel Departure procedure

-Vessel Moving procedure

(2)Components and Structure of Software

INAPORTNET application software consists of the following three components.

Table II-1-4   Software component of INAPORTNET

No.	Software Components	Detail	Main Users
1	INAPORTNET (Frontend System)	Frontend System is the core part of EDI function to serve the user interface to ship agents and provide application connectivity for the system in relatives as well as SIMPADU and SPS.	Ship Agent Stevedoring Co. Tug and Barge Services Port Corporation
2	SIMPADU	SIMPADU is providing business process of port related procedure conducted by Port Authority.	Port Authority
3	SPS	SPS is providing business process of port related procedure conducted by Harbour Master.	Harbour Master

INAPORTNET application software is installed in the MOT datacenter. As shown in the Figure II-1-4, all related systems and INAPORTNET users are connected via SOA which is set on two surfaces (to inside and outside) of the INAPORTNET which provides the service oriented communication interface instead of the INAPORTNET system itself.

Internal data such as the followings are provided from mainly four internal systems or database. Internal users particularly officers of Port Authority (to SIMPADU) and Harbour Master (to SPS) , connect via this SOA also.

- ● SIMKEPEL: Port information of any kind of port in Indonesia
- ● SIMKAPAL: Certificated vessel and its data
- ● SIMPELAUT: Certificated seaman and registered data
- ● SIMLALA: Approved voyage related information such as RPK, PKKA, PPKN

PELINDO System, Other Government Agency System, and Ship Agents System are connected to the INAPORTNET via the other SOA provided outside the MOT.

It includes SIMPONI (the system to provide payment information of related fee) or INSW (Indonesian National Single Window which will provide the one-stop clearance service related to import/export and related procedures).   Ship agents and other related private sector companies will also access from this SOA.
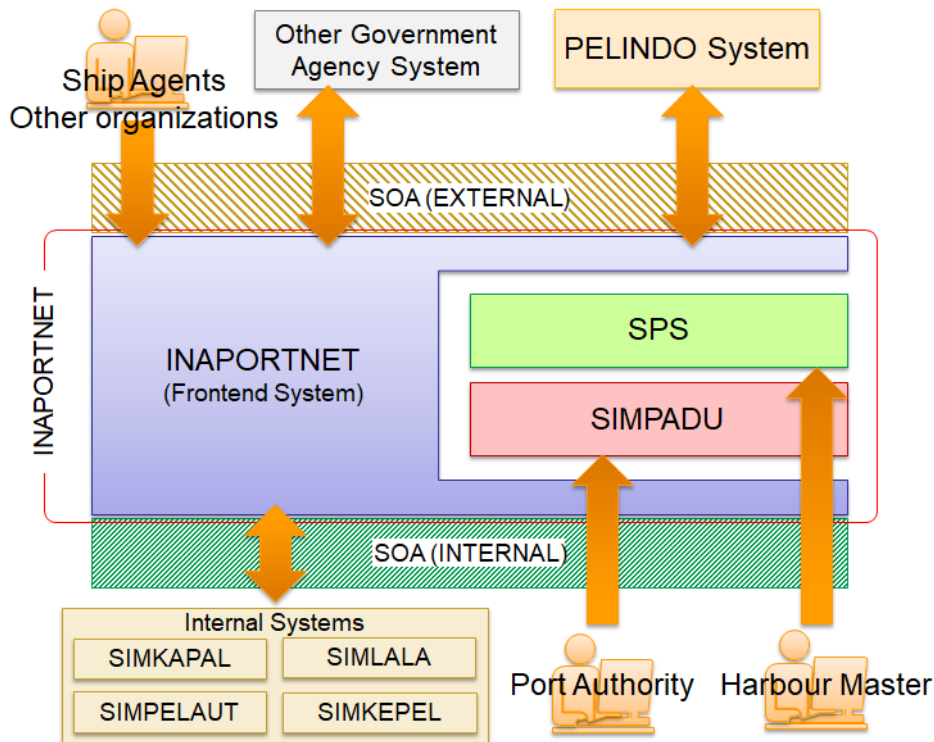
Figure II-1-4 Software structure of INAPORTNET

(3)Security and Screen features

As for security, in addition to MOT's builtin platform, INAPORTNET itself is equipped with reCAPTCHA function by Google to prevent spam and abuse as well as manage user access by ID and Password.

The basic screen of INAPORTNET consists of a menu on the left and a contents area to the right.

The basic screen for a ship agent account and Port Authority account is shown below.
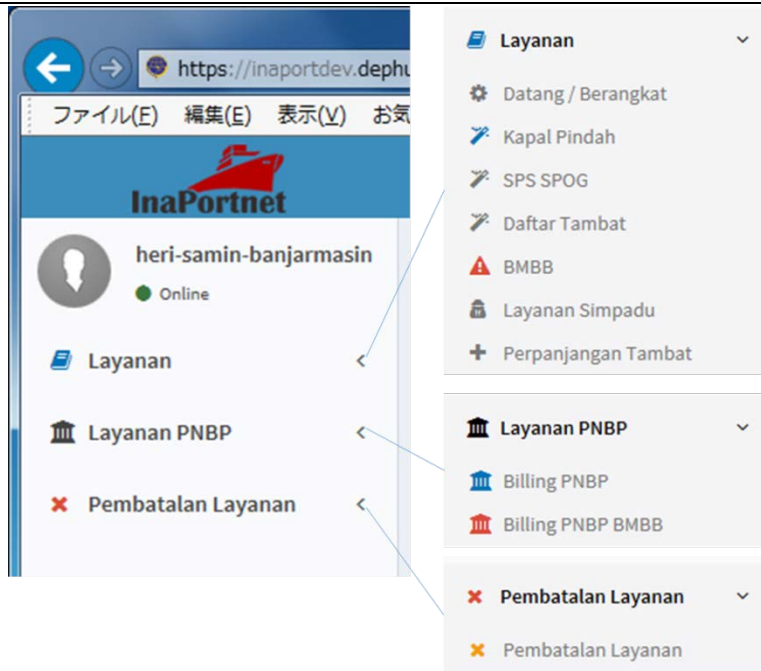
Figure II-1-5 Basic page of INAPORTNET (for Ship Agent account)
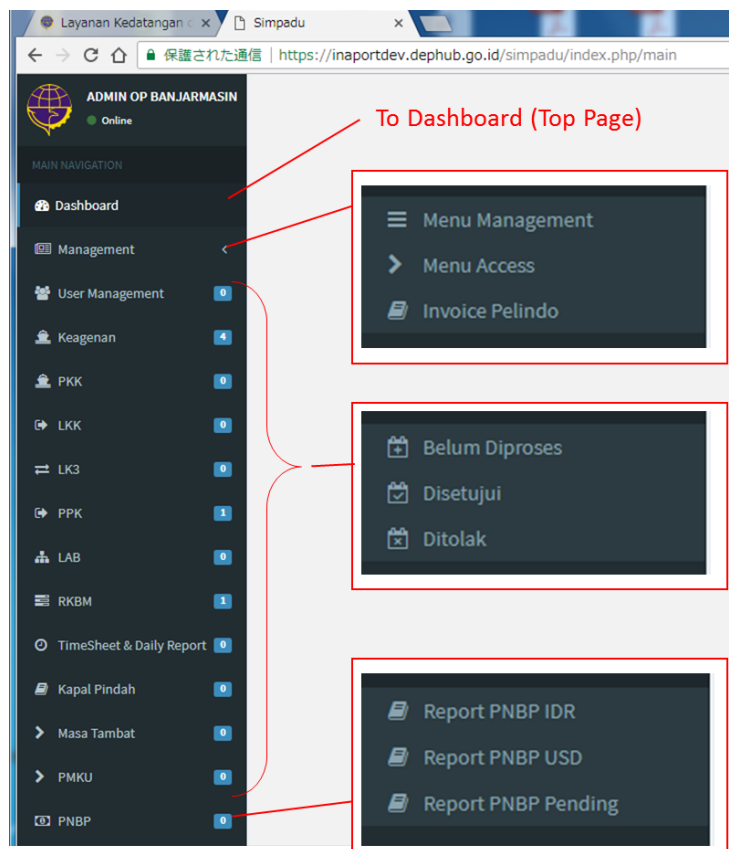
Figure II-1-6 Basic page of INAPORTNET (SIMPADU)

The frontend System (for Ship Agent) provides a selective menu and sub-menu of whole user's (ship agent's) procedures which is categorized to port arrival/departure related procedures and hazardous related procedures. The procedures in the menu are basically in order of process.

On the other hand, the processes for the Port Authority or Harbour Master, are consolidated in the menu and each has a sub-menu displaying approval status such "Unprocessed", "Approved" and "Rejected".

II-1-2-2 Infrastructure

(1)Structure of Infrastructure

System Infrastructure of INAPORTNET is built in the MOT datacenter with other MOT systems. Therefore, some of system resources such as gateways, main routers or load balancers are shared with other systems in the datacenter.

As Figure II-1-7, the INAPORTNET hardware consists of the following servers.

- Application Server: (Qty: 4) Servers which operate all INAPORTNET application services including SIMPADU and SPS
- Database Server: (Qty: 3) Servers which manage all INAPORTNET business data including application documents or attached documents
- NFS Server: (Qty: 1) Server to store files (such as attached files) in INAPORTNET

The application server will process all transactions and calculations such as to input, lookup database, update and output (on display) conducted on INAPORTNET software, so that a large access and processing load will be borne by the Application server. INAPORTNET is implemented into four application servers on load balancing architecture in the MOT datacenter.

In addition, these application servers are already clustered by virtual server technology. Therefore, it has the technical flexibility to increase or decrease server resources (and performance) in a short term.
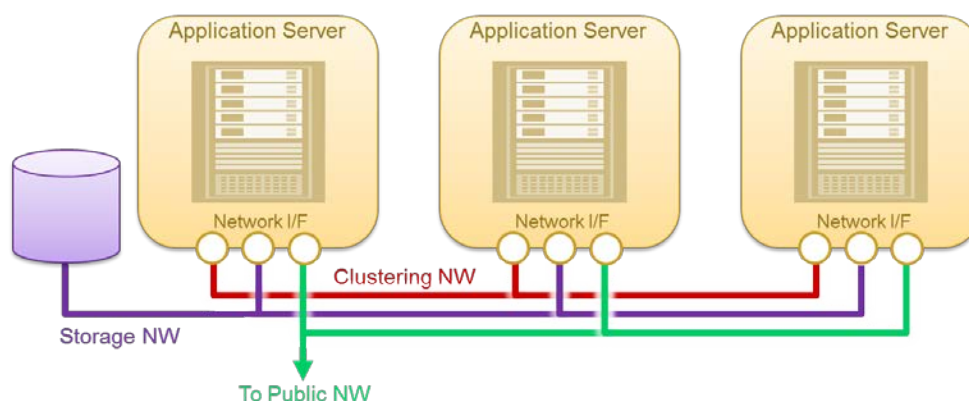
Figure II-1-7 Image of server clustering

The database server currently works in three servers, so that the all system access (search, update and output) related to those database servers. Similar to application servers, database servers have flexibility to expand in case of future resource shortage.

The datacenter of MOT is built in the datacenter platform by Telkom Indonesia and its group companies. They are also providing operation and maintenance of the infrastructure.

Users including ship agents and user organizations are connected via commercial internet access using wired (using fiber optics or ADSL) and wireless (basically using mobile network). PELINDO and other systems have been connected to INAPORTNET by using secure dedicated access such as VPN.

Routers and some network equipment are shared with other MOT systems.

DR environment is prepared for MOT ICT environment but is installed the same site, other than a remote site to prevent system shut-down in the case of a disaster. INAPORTNET servers do not have remote backups either.
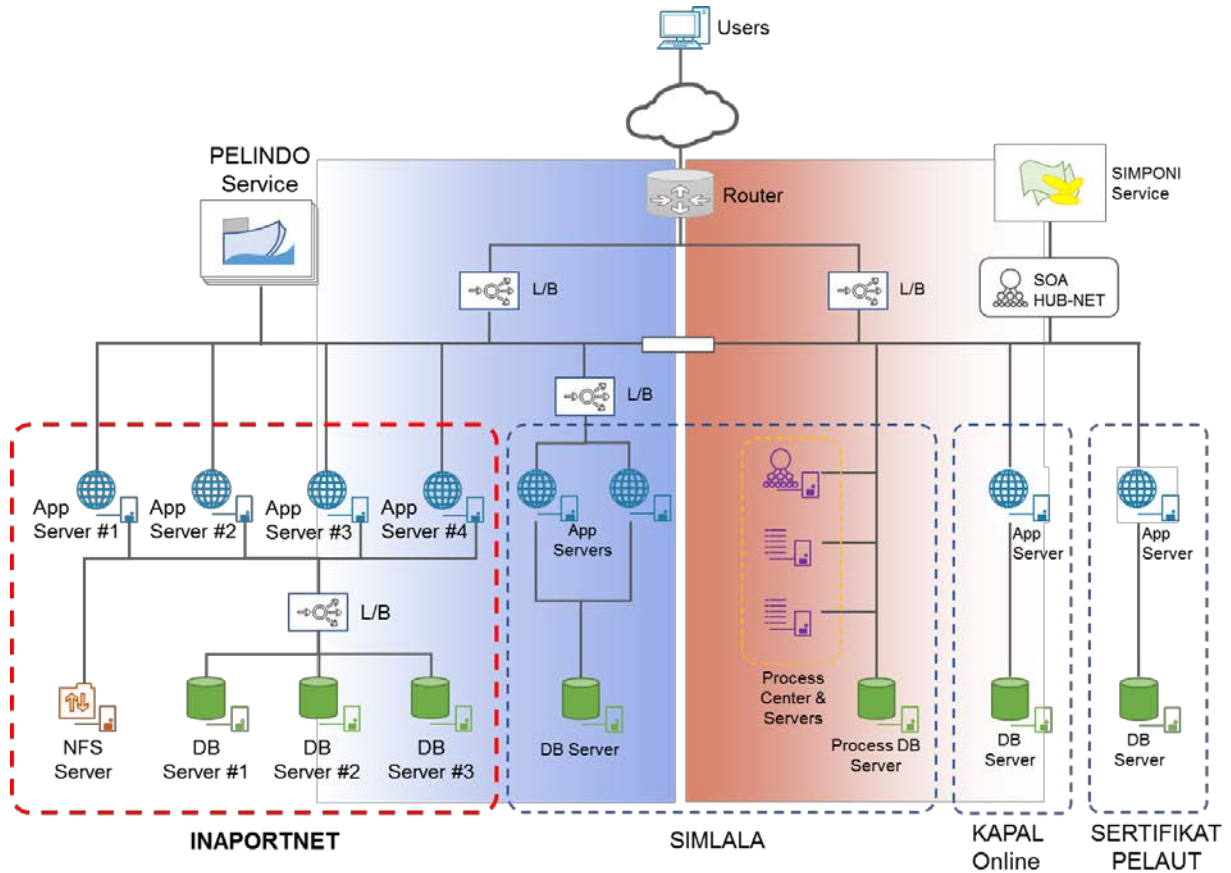
Figure II-1-8 Structure of infrastructure

II-1-2-3 Operation and Maintenance

(1)Operation and Maintenance structure (organization)

The major systems which operate under MOT are installed at the MOT datacenter. The network systems such as OA (Office Automation) including e-mail, file server and information providing services are installed at the same place.

The datacenter is collectively managed by a department under MOT, ICT Center (PUSTIKOM). PUSTIKOM will take responsibility for operation and maintenance of infrastructure related to INT Center. More specifically, PUSTIKOM outsources the technical operation and maintenance work to a private datacenter company (Telkom Indonesia Group) who provides datacenter platform include its facilities, while PUSTIKOM supervises the outsourcing project. Accordingly, INAPORTNET infrastructure is operated under the same scheme, PUSTIKOM manages operation and maintenance including a helpdesk function while a datacenter company is taking care of INAPORTNET servers.

Similar to the other system owned by other department, the budget for O&M on infrastructure is allotted from DGST to PUSTIKOM on corresponded servers.
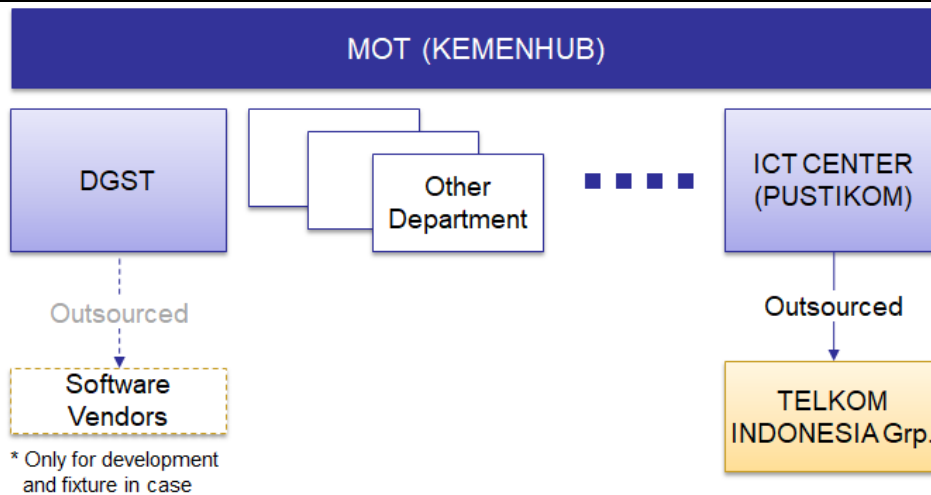
Figure II-1-9 O&M structure (organization)

For the INAPORTNET software, since each system's application software is developed by each department in charge, including DGST for INAPORTNET, the operation and maintenance for software is the responsibility of each department.

As for INAPORTNET, DGST is responsible for software operation, when there is a need for repair or modification, DGST outsources to software venders.

The overview of O&M structure is as follows.

Table II-1-5 Overview of O&M structure

		Responsibility	Execution	Budget allocation
Software	Operation	DGST		DGST
	Maintenance	DGST		DGST
Infrastructure	Operation	PUSTIKOM	datacenter Co.	DGST > PUSTIKOM > DC Co.
	Maintenance	PUSTIKOM	datacenter Co.	DGST > PUSTIKOM > DC Co.
Inquiry Response		PUSTIKOM	All relatives	MOT > PUSTIKOM

(2)Inquiry Response

Including INAPORTNET but not limited to it, primary helpdesk function (the first contact point, called "Tier 1") for the all ICT systems in the MOT datacenter is the responsibility of PUSTIKOM and no other contact point can be set by MOT's rule. Therefore, all inquiries on INAPORTNET will be casted to the MOT helpdesk (#151) operated by PUSTIKOM.

However, with the exception of inquiries on general ICT matters, most of system-specific inquiries such as questions and claims on INAPORTNET application can only be answered by specialists. Hence, the inquiry response structure for INAPORTNET is composed of the three layers shown below.
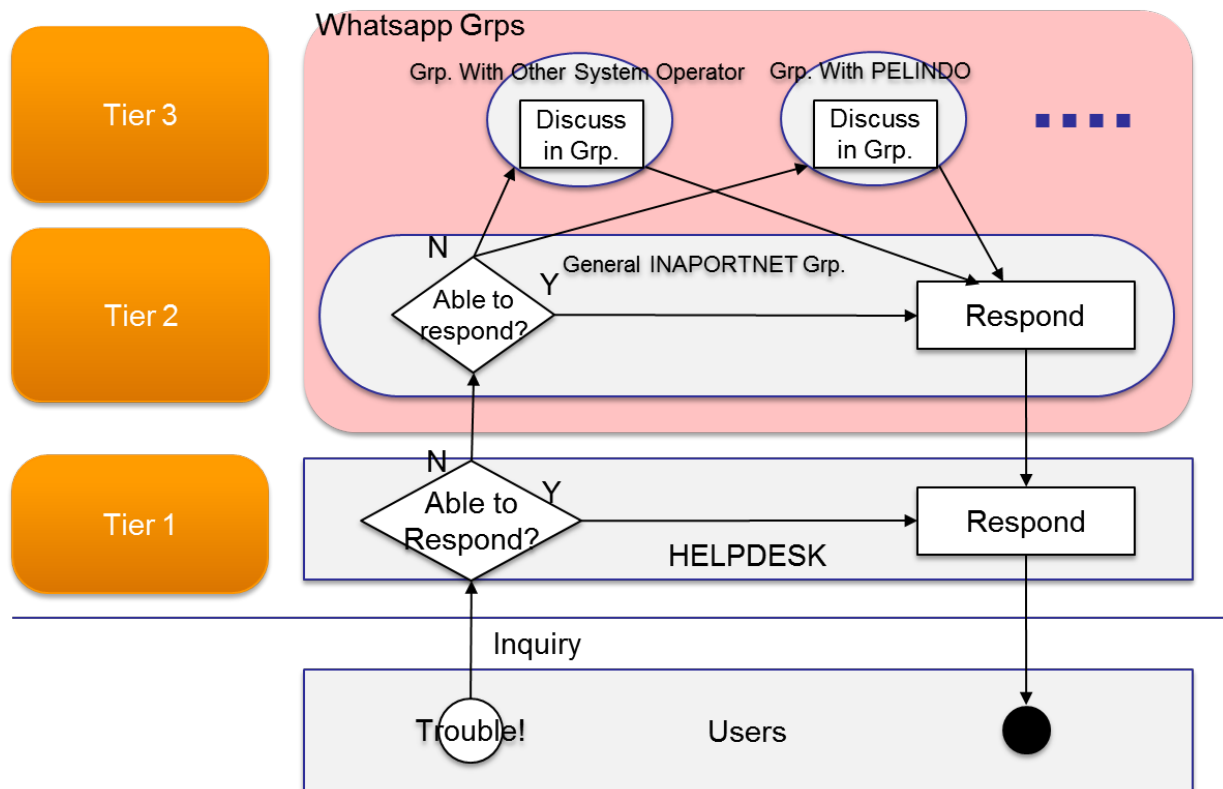
Figure II-1-10 Inquiry response structure (organization)

An inquiry that cannot be responded to by the PUSTIKOM helpdesk ("Tier 1") will be redirected to General INAPORTNET group ("Tier 2") built on Whatsapp (the famous message chat communication application provided by a US software service company). The General INAPORTNET group is organized by responsible staff from DGST and representative from related stakeholders including PUSTIKOM and the datacenter company.

Then according to the necessity of confirmation, some inquiries will directed to "Tier 3"of the Whatsapp groups of specialties such as PELINDOs or other system operators.

(3)Current Situation of O&M

INAPORTNET is operated 24 hour 365 days and it does not have a definitive peak time. Based on current monitoring of the system, the access peak time occurs anytime between 3am to 10pm any day of the week. Since expanding to 16 ports, sessions have increased up to 3,000,000 sessions per server for every three days.

The operation relatives listed in above table periodically hold a system operating meeting to discuss the current operation status. Major incidents or problems cost issues or actions to be taken are discussed at such meetings. In addition, while basic data or quantitative indicators monitored and analyzed by the datacenter company are reported at the meeting, such data is not recorded systematically (or some are monitored as a scope of all MOT datacenter ICT system not specified to INAPORTNET).

INAPORTNET system has been stopped (rebooted for resolution) three times since it's go-live probably due to a shortage of system resources against the number of access (sessions). The incident problem has not continued after restart of the system and no other major incident or problem has been identified. However, according to users, INAPORTNET is frequently inaccessible due to network instability.

II-1-3 Current Status of INAPORTNET Implementation

II-1-3-1 Approach to Go-Live

DGST has been working on development of INAPORTNET since 2007. By 2010 they had deployed the hardware to DGST headquarters, Port of Belawan, Tanjung Priok, Tanjung Perak and Tanjung Emas, and then completed the software development. However, system operation could still not be started even in 2011. DGST reviewed the problems of INAPORTNET and created a blueprint (system revitalization plan (2012 - 2015)) and has carried out efforts for implementation.

With the enactment of Ministerial Regulation of Transport PM 157 -2015 in October 2015, implementation of INAPORTNET was accelerated. In December of the same year, Minister for Transportation's Regulation was issued to expand the ports in which INAPORTNET can be used to 16 ports.

Deputy Director for Information System and Facilities of Sea Transportation is in charge of the development and implementation of INAPORTNET. In addition, Task Force on INAPORTNET was established in DGST. It supervises the activities on INAPORTNET implementation. The ICT Center (PUSTIKOM) in the Secretariat General of the Ministry of Transportation is supporting the development and operation of the system.

The system deployment to these 16 ports was conducted according to the steps shown in the box below. Makassar Port reached to Go-Live stage in June of 2016, and all scheduled ports have launched INAPORTNET when Pontianak Port and Gresik Port reached the Go-Live stage in October of 2017. Furthermore, DGST is working to improve and expand the services of the system as well as secure stable operation in the future.

Steps towards the operation of INAPORTNET at each port.

Start $\Rightarrow$ Trial of Infrastructure $\Rightarrow$ Test of the BUP System $\Rightarrow$ System Integration Testing (SIT) Approval $\Rightarrow$ Integrity Pact $\Rightarrow$ Training of Trainee (TOT) $\Rightarrow$ Socialization $\Rightarrow$ Go-Live

II-1-3-2 INAPORTNET Implementation Ports

There are sixteen (16) ports where INAPORTNET is operated for procedures of port entry and departure of vessels as of October 2017. Names of the ports and the months of starting Go-Live are shown in Figure II-1-11.

Minister For Transportation's Regulation No.PM 192 year 2015 designated 16 ports of Belawan, Tanjung Priok, Tanjung Perak, Makassar, Tamjung Emas, Bitung, Dumai, Banten, Batam, Panjang, Banjarmasin, Balikpapan, Ambon, Sorong, Mangaar, and Tanjung Uban as the INAPORTNET implementation ports. Finally in the 4 ports of Dumai, Batam, Mangaar, Tanjung Uban, INAPORTNET is not operated. Instead of these, the Port of Teluk Bayur, Palembang, Pontianak, and Gresik have been the INAPORTNET implementation ports, This is because the PELINDO's system which is indispensable for the operation of INAPORTNET was not operated in the initial 4 ports.

Makassar Port in June 2106; Belawan port in July 2016; Tanjung Perak Port in November 2016; Tanjung Priok Port in November 2016; Bitung Port in August 2017; Ambon Port in August 2017; Tanjung Emas Port in August 2017; Banjarmasin Port in September 2017; Teluk Bayur in October 2017; Palembang Port in October 2017; Balikpapan Port in September 2017; Panjang Port in September 2017; Sorong Port in October 2017; Banten Port in October 2017; Pontianak Port in October 2017; and Gresik Port in October 2017.

Implementation Port		2016										2017									
		3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10
BELAWAN	1																				
TANJUNG PRIOK	2																				
TANJUNG PERAK	3																				
MAKASSAR	4																				
BITUNG	5																				
TANJUNG EMAS	6																				
AMBON	7																				
BANJARMASIN	8																				
TELUK BAYUR	9																				
PALEMBANG	10																				
PONTIANAK	11																				
BALIKPAPAN	12																				
PANJANG	13																				
SORONG	14																				
GRESIK	15																				
BANTEN	16																				

Source: **DGST**

Figure II-1-11 Ports under INAPORTNET Implementation

II-1-3-3 Procedures Covered by INAPORTNET

INAPORTNET covers sixteen (16) procedures (documents) for entry to, departure from and movement in ports as shown in Table II-1-7. Fourteen documents are submitted to the Port Authority and two(2) documents to the Harbour Master.

Among fourteen (14) documents except for RKBM which is submitted by stevedoring companies and LAB by forwarding companies are submitted by shipping lines/shipping agents. Four (4) documents of SPM, SPOG, SPB and SHSSB are submitted to the Harbour Master. The other ten (10) applications are submitted to the Port Authority.

Table II-1-6 Procedures (Documents) covered by INAPORTNET

Procedures (Documents)	(Indonesia)	(English)	Submission by	by
PKK	Pemberitahuan Kedatangan Kapal	Notice of Vessel Arrival	SA	PA
SPM	Surat Persetujuan Masuk	Approval for Port Entry	SA	HM
RKBM	Rencana Kegiatan Bongkat Muat	Submission of Loading and Unloading Activity Plan	StdC	PA
PPK	Penetapan Penyandaran Kapal	Decision of Vessel Berthing	TO	PA
SPOG	Surat Persetujuan Olah Gerak	Approval of Vessel Move in the Port	SA	HM
KP	Kapal Pindah	Approval of Berth Shift	SA	PA
MT	Perpanjang Masa Tambat	Request for Extension of Berthing Period	SA	PA
LKK	Laporan Keberangkatan Kapal	Notice of Vessel Departure	SA	PA
LK3	Laporan Kedatangan dan Keberangkatan Kapal	Report of Vessel Arrival and Departure	SA	PA
SPB	Surat Persetujuan Berlayar	Approval of Departure from Port	SA	HM
LAB	Laporan Angkutan Barang	Report of Discharging Cargo from Port	FrdC	PA
BMBB	Bongkar Muat Barang Berbahaya	Approval of Loading and Unloading of Dangerous Cargo	SA	PA
BUNKER	Pengisian Bahan Bakar	Approval of Filling Fuel	SA	PA
PENGELASAN	Pengelasan	Permission of Welding Works	SA	PA
SHSOP	Ship to Ship	Report of Ship to Ship Cargo Shift to SA	SA	PA
SHSSB	Ship to Ship	Report of Ship to Ship Cargo Shift to HM	SA	HM

Note: SA: Shipping agent, StdC: Stevedoring Company, FrdC: Forwarding Company, TO: terminal

Operator, PA: port Authority, HM: Harbour Master

II-1-3-4 Users of INAPORTNET

The companies which use INAPORTNET in applying for port entry are categorized into three groups: shipping lines/shipping agents; stevedoring companies; and forwarding companies. The companies which intend to use INAPORTNET need to submit a registration application to a Port Authority. Port Authority provides ID-number and Password. There are no registration or application fees.

Number of registered companies as of 10th October 2017 is shown in Table II-1-8. Any company which intends to carry out shipping agents, stevedoring or forwarding business can use INAPORTNET after registration.

Table II-1-7 Number of registered Companies as of 11th October 2017

	Shipping Agent		Forwarding Company		Stevedoring Company	
	Company	Individual	Company	Individual	Company	Individual
BELAWAN	69	108	95	96	58	73
Tj. PRIOK	170	240	17	6	78	117
Tj. PERAK	204	272	92	46	87	97
MAKASSAR	54	65	20	18	20	27
BITUNG	48	65	52	63	23	28
Tj. EMAS	41	67	29	12	21	27
AMBON	20	32	28	22	10	16
BANJARMASIN	104	103	53	43	44	49
TELUK BAYUR	44	63	26	26	26	42
PALEMBANG	43	51	6	2	18	16
PONTIANAK	67	98	52	49	28	35
BALIKPAPAN	65	60	5	2	24	15
PANJANG	44	66	31	31	41	51
SORONG	17	19	7	6	4	6
GRESIK	56	70	7	5	36	40
BANTEN	43	42	26	26	-	-

Source : Monitoring-INAPORTNET

II-1-3-5 Logging-In to INAPORTNET

INAPORTNET users open the following display and enter their user name and the password **approved** by the Port Authority when logging-in to INAPORTNET. After logging-in, applicants enter required information into prescribed cells.

https://inaportnet.dephub.go.id/site/login
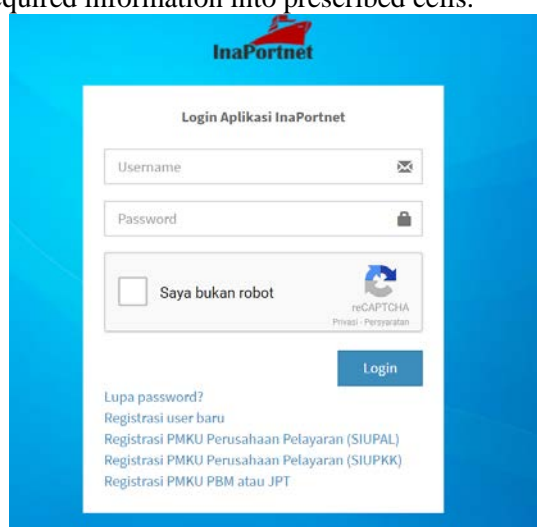
Forgot the password?
New user
Registration PMKU
Registration Shipping Company (SIUPAL)
Registration PMKU Shipping Company (SIUPKK)
Registration PMKU PBM or JPT

Figure II-1-12 Log-in Display

II-2 Usage Conditions of INAPORTNET

II-2-1 Methodology for Grasping Usage Situation

Information on usage situation of INAPORTNET is grasped by analyzing the data. Monitoring INAPORTNET data is displayed as follows.

Sixteen (16) ports where INAPORTNET is operated are displayed in the home screen of Monitoring INAPORTNET. When you click on a port, the number of applications of each document by day of the month up to the access date and the number of applications in each month up to the access

date of the year are displayed. In addition, the number of registered companies (ship agent, forwarding company and stevedoring company) and the number of registered persons are displayed.

When you click on company's button, a list of the names and addresses of each company is displayed. When you click on users' button, a list of the names and companies etc. of each user is displayed. When you click on the Detail Data button, the number of applications for each document is displayed. When you click on the document name button, the number of applications of each company for the document is displayed. When you click on the company name button, the name of vessel, application receiving time, response time is displayed. When you click on Data PNBP button, status of payment of each business operator is displayed. The data can be downloaded in MS-Excel format basically.

Numbers of applicants and applications of INAPORTNET, and processing time from submission to reply were analyzed based on data downloaded from the website of Monitoring-INAPORTNET.

Data of each month since Go-Live at each port are used for analyzing numbers of applicants and applications. The processing time is defined as the difference of a receiving time (Waktu Permohonan) and a response time (Waktu Respon) in the time analysis. Waktu Permohonan is the time when INAPORTNET System received submitting from an applicant and Waktu Respon is the time when Port Authority or Harbour Master personnel entered his/her response into INAPORTNET. We use the submission time for Waktu Permohonan and reply time for Waktu Respon in the report.

By analyzing the number of companies in each month since Go-Live and the number of each documents submitted to the Port Authority and Harbour Master, the current status of INAPORTNET and the usage situation of the vessel of the port are grasped. Based on information on the time when INAPORTNET received the application and when staff of the Port Authority and Harbour Master hit the response button of INAPORTNET, the situation of INAPORTNET operation by personnel of Port Authority and Harbour Master is grasped. Through such analysis, the status of INAPORTNET Implementation can be understood.

There are some data in which the time of response is earlier than that of data entry. It is thought to be caused by amendment of entry data. Such data was omitted in the analysis. Outputs of analysis shall be shown by graphs. Regarding processing time, a scale of time axis is selected among 6 hours, 24 hours (one day) and three days because processing time differs by case.

The result of analysis on process time is applied only to flow of document.

II-2-2 Pilot Ports

II-2-2-1 Tanjung Priok

(1)Users

Number of registered companies in Tanjung Priok Port as of September 2017 is one hundred and seventy (170) shipping lines/shipping agents, seventy eight (78) stevedoring companies and seventeen (17) forwarding companies. Numbers of individuals for each type of business are two hundred forty (240), one hundred seventeen (117) and six (6) respectively. (See table II-2-1)

Judging from the fact that the number of applications has been stable since March 2017, it is suggested that operation of INAPORTNET has been stable since the same month. In addition, at current time the number of regular users of shipping lines/shipping agents is expected to be approximately 110. This is because the number of registration for PKK whose submission is mandatory for shipping lines/shipping agents, is expected to be quite the same of the number of regular users of shipping lines/shipping agents.

Regular users of stevedoring companies are presumed to be approximately 38. Regarding forwarding companies, no company is currently using INAPORTNET as there is no record of LAB.

Table II-2-1 Number of Registered Users (Tanjung Priok Port)

| DOC | 2016 | | | 2017 | | | | | | | | |
	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
PKK	5	49	64	94	104	114	113	114	107	100	111	113
SPM	6	55	65	97	103	112	114	113	110	101	109	112
RKBM	5	36	50	51	56	58	61	56	56	56	58	56
PPK	4	46	61	94	106	116	116	120	110	106	111	115
SPOG	3	45	59	88	100	112	112	115	107	102	107	109
KP	4	28	47	72	77	92	85	97	85	86	87	85
MT	1	8	21	19	33	27	30	30	27	28	36	31
LKK	4	43	59	87	99	111	111	118	106	104	111	110
LK3	4	43	59	87	99	111	111	118	106	104	111	110
SPB	2	43	59	87	99	111	111	118	106	105	111	110
LAB	0	0	0	0	0	0	0	0	0	0	0	0
BMBB	0	7	20	28	38	44	49	54	48	46	50	52
BUNKER	0	0	0	0	0	0	0	0	0	0	0	0
PENGELASAN	0	0	0	0	0	0	0	0	0	0	0	0
SHSOP	0	0	0	0	0	0	0	0	0	0	0	0
SHSSB	0	0	0	0	0	0	0	0	0	0	0	0
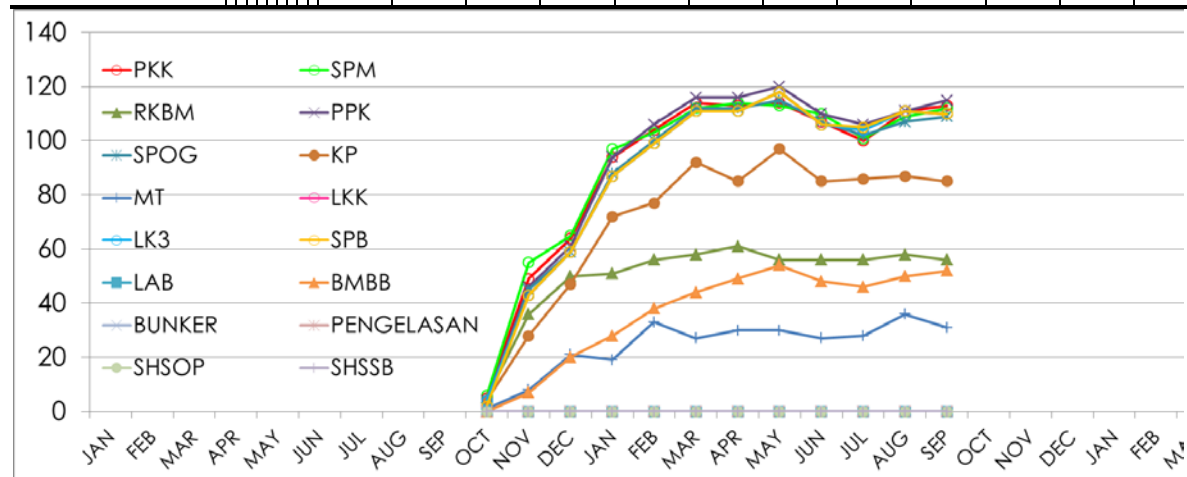
Source: Monitoring INAPORTNET

Figure II-2-1 Number of Applicants by Document at Tanjung Priok Port

(2)Number of Application

The number of applications through INAPORTNET by month since Go-Live in June 2017 is as shown in Figure II-2-2. The number of PKK, SPM, LKK, LK 3 and SPB concerning ship entry and exit ports is almost the same. It is thought that this indicates the number of calling vessels in the month. It is found that approximately 1,300 to 1,400 vessels call at Tanjung Priok Port in a month. There is no data on LAB, BUNKER, PENGELASAN, SHSOP and SESSB. It is presumed that there was no action necessary for procedures related to these documents or the procedures were carried out by paper manually.

Table II-2-2 Number of Applications by Document (Tanjung Priok Port)

DOC	2016		2017											
	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
PKK	340	673	1,057	1,067	1,357	1,294	1,384	983	1,200	1,312	1,278	1,420	1405	1,327
SPM	362	673	1,086	1,089	1,328	1,290	1,388	987	1,186	1,301	1,285	1,391	1412	1,315
RKBM	355	689	941	939	1,156	1,088	1,163	850	1,006	1,105	1,062	1,146	1095	1,110
PPK	523	1,188	1,797	1,923	2,354	2,297	2,487	1,898	2,227	2,404	2,388	2,586	2649	2,691
SPOG	423	934	1,461	1,489	1,841	1,773	1,934	1,470	1,730	1,771	1,779	1,897	1935	1,935
KP	194	403	601	636	855	774	842	682	776	779	815	903	956	1,003
MT	25	53	89	119	99	131	154	98	113	171	150	148	145	187
LKK	282	640	986	1,059	1,292	1,318	1,372	987	1,175	1,294	1,270	1,411	1389	1,334
LK3	282	640	986	1,059	1,292	1,319	1,372	987	1,175	1,294	1,270	1,409	1389	1,330
SPB	269	639	990	1,053	1,294	1,312	1,370	997	1,172	1,291	1,259	1,412	1378	1,348
LAB	0	0	0	0	0	0	0	0	0	0	0	0	0	0
BMBB	52	253	346	365	488	483	513	380	463	542	502	518	559	543
BUNKER	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PENGELA SAN	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SHSOP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SHSSB	0	0	0	0	0	0	0	0	0	0	0	0	0	0
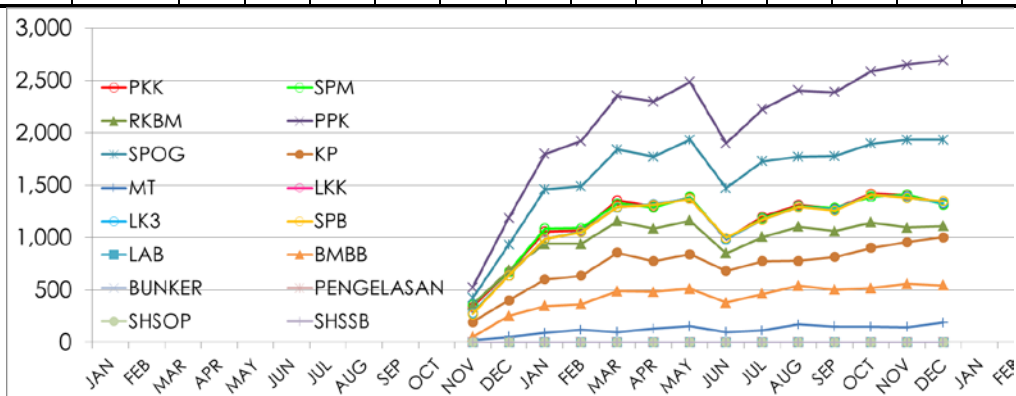
Source: Monitoring INAPORTNET

Figure II-2-2 Number of Applications through INAPORTNET at Tanjung Priok Port

(3) Submission/Reply Time and Processing Time

For the eleven (11) kinds of documents such as PKK, SPM, RKBM, PPK, SPOG, KP, MT, LKK, LK 3, SPB and BMBB that were applied through INAPORTNET at Tanjung Priok Port in September 2017, the distributions of submission time and reply time and processing time are shown below by document. Data that the submission time is later than the reply time is excluded in calculating processing time. (See Table II-2-3)

Table II-2-3 Data that submission time is later than replay time

2017-09	PKK	SPM	BKBM	PPK	SPOG	KP	MT	LKK	LK3	SPB	LAB	BMBB	BUNK	PENGE	SSHOP	SHSBB
Tj. Priok	1278	1293	1063	2470	1779	815	150	1270	1270	1259	0	502	0	0	0	0
	1065	1293	1063	2196	1620	719	139	1137	1270	1234	0	460	0	0	0	0

Note: Upper: All data, Lower: normal data/ Difference indicates number of incredible data

(a) PKK (Notice of Vessel Arrival)

The number of submissions of PKK in September 2017 was 1, 278. Submission in the daytime (12 hours from 6 o'clock to 18 o'clock) was 995 (77.9 %) and that in the late night (3 hours from

midnight to 3 o'clock) was 28 (2.2 %). The time distribution pattern shows a chevron with three a peak at 11 o'clock.

Reply in the daytime (12 hours from 6 o'clock to 18 o'clock) was 997 (78.0 %) and that in the late night (3 hours from midnight to 3 o'clock) was 26 (2.0 %). The time distribution pattern shows a chevron with a peak at 10-11 o'clock.

Analysis on processing time was carried out by using 1,065 data excluding data that submission time is later than replay time. The average processing time of PKK was 10.2 minutes. It is about 3.5 hours in the case requiring the longest time and 2 second in the case of the shortest time. More than 700 cases (68.5%) were done within 10 minutes and 94.3% was done within 30 minutes. Almost all cases (99.6%) have been completed within 2 hours and all of cases have been completed before 5 hours which is the stipulated time of reply to submission on PKK in the Article 9 of HK.103/3/11/DJPL-1.
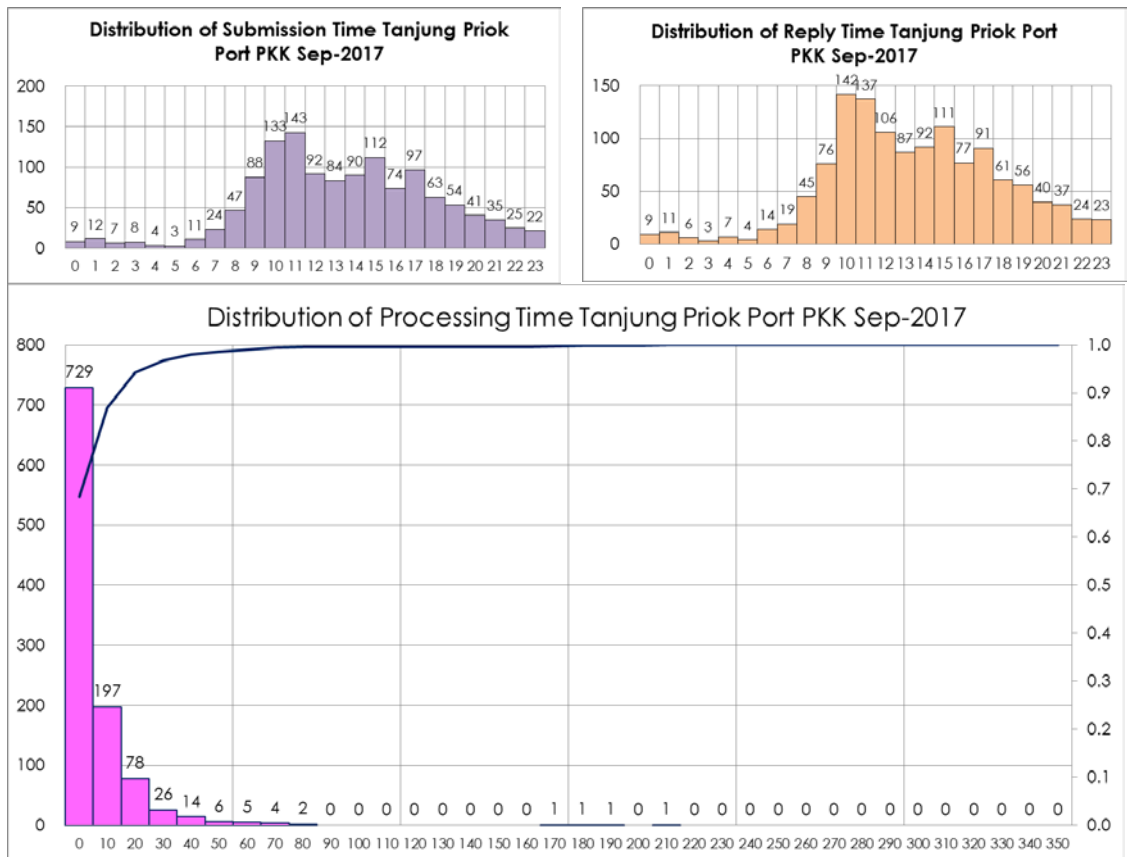
Source: Prepared by Data downloaded from Monitoring-INAPORTNET

Figure II-2-3 Distribution of Submision/Reply Time and Processing Time of PKK

(b)SPM (Port Entry Arrival)

The number of submissions of SPM in September 2017 was 1,293. Submission in the daytime (12 hours from 6 o'clock to 18 o'clock) was 1,061 (82.1 %) and that in the late night (3 hours from midnight to 3 o'clock) was 17 (1.3 %). The time distribution pattern shows a chevron with a peak at 9 o'clock.

Reply in the daytime (12 hours from 6 o'clock to 18 o'clock) was 986 (76.3 %) and that in the late night (3 hours from midnight to 3 o'clock) was 23 (1.8 %). The time distribution pattern shows a chevron with a peak at 10 o'clock.

The number of used data in analysis on processing time is 1,293. The average processing time of SPM was about 29 hours and 30 minutes. There are many cases that take more than several days. It is 6 minutes and 20 seconds in the case of the shortest time. One case was done within 10 minutes and 3.6% was done within 30 minutes. About 270 cases (27.6%) have been completed within 2 hours and about 560 cases (43.4%) have been completed before 5 hours which is the stipulated time of reply to submission on SPM in the Article 9 of HK.103/3/11/DJPL-1.
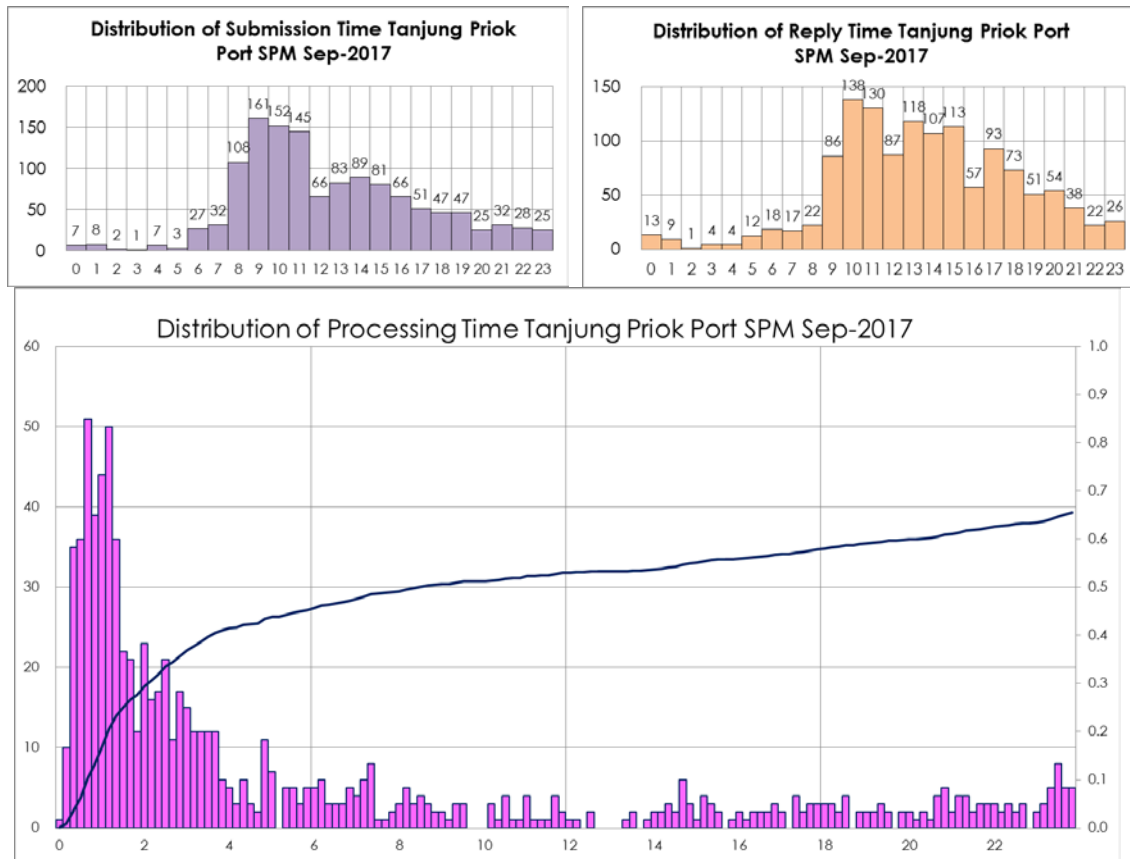
Source: Prepared by Data downloaded from Monitoring-INAPORTNET

Figure II-2-4 Distribution of Submision/Reply Time and Processing Time of SPM

(c)RKBM (Submission of Loading and Unloading Activity Plan)

The number of submissions of RKBM in September 2017 was 1, 063. Submission in the daytime (12 hours from 6 o'clock to 18 o'clock) was 848 (79.8 %) and that in the late night (3 hours from midnight to 3 o'clock) was 23 (2.3 %). The time distribution pattern shows a chevron with two peaks at 10 and 15 o'clock.

Reply in the daytime (12 hours from 6 o'clock to 18 o'clock) was 827 (77.8 %) and that in the late night (3 hours from midnight to 3 o'clock) was 24 (2.3 %). The time distribution pattern shows a chevron with two peaks at 9-11 and 15 o'clock.

The number of used data in analysis on processing time is 1,063. The average processing time of RKBM was about 22 hours 45 minutes. There are many cases that take more than one day. It is 1 minute and 44 seconds in the case of the shortest time. 9 cases (0.8%) were done within 10 minutes and 7.0% was done within 30 minutes. 302 cases (28.4%) have been completed within 2 hours and 466 cases (43.8%) have been completed before 5 hours.
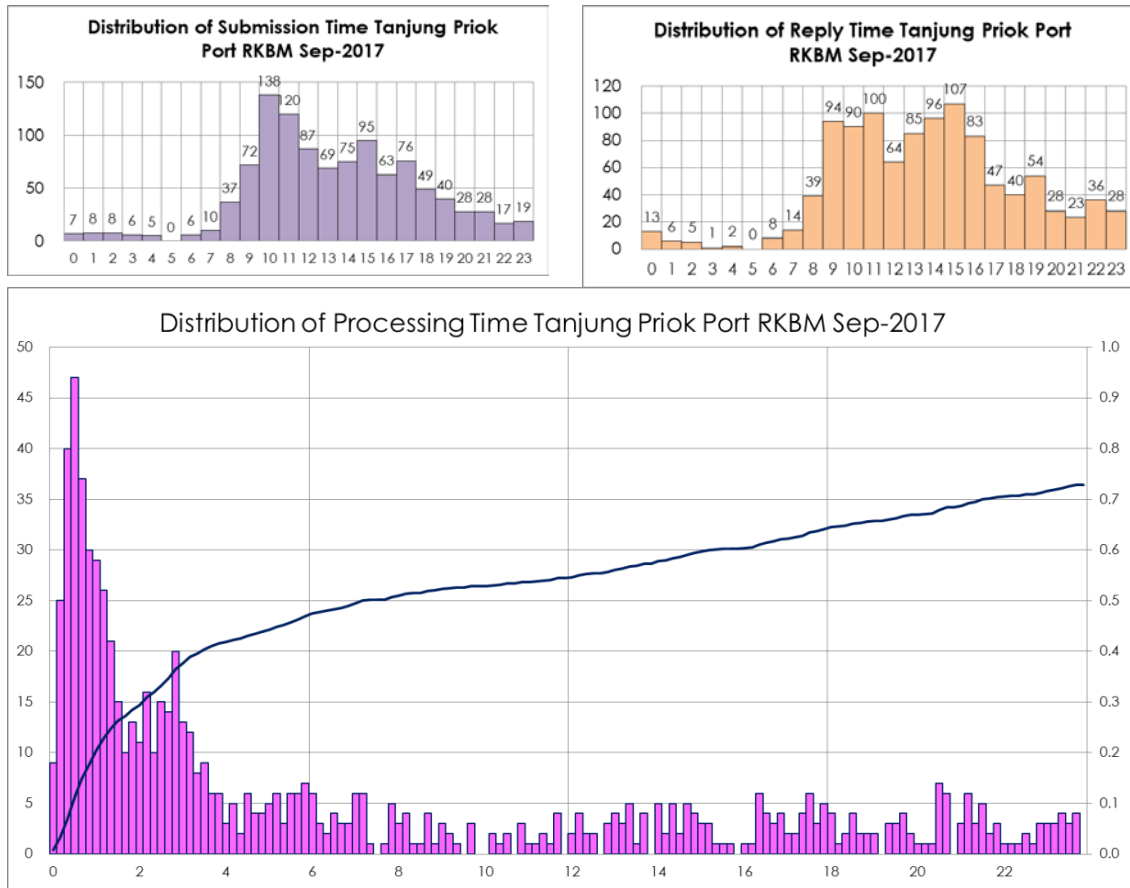
Source: Prepared by Data downloaded from Monitoring-INAPORTNET

Figure II-2-5 Distribution of Submision/Reply Time and Processing Time of RKBM

(d)PPK (Decision of Vessel Berthing)

The number of submissions of PPK in September 2017 was 2,470. Submission in the daytime (12 hours from 6 o'clock to 18 o'clock) was 1,513 (61.3 %) and that in the late night (3 hours from midnight to 3 o'clock) was 130 (5.3 %). The time distribution pattern shows a chevron with two peaks at 10 and 13-16 o'clock.

Reply in the daytime (12 hours from 6 o'clock to 18 o'clock) was 1,522 (61.6 %) and that in the late night (3 hours from midnight to 3 o'clock) was 127 (5.1 %). The time distribution pattern shows a chevron with two peaks at 10 and 16 o'clock.

The number of used data in analysis on processing time is 2,196.The average processing time of PPK was about 16 minutes. It is about 30 hours in the case requiring the longest time and 1 second in the case of the shortest time. 1,299 cases (59.2%) were done within 10 minutes and 88.7% was done within 30 minutes. Almost all cases (98.8%) have been completed within 2 hours.

Source: Prepared by Data downloaded from Monitoring-INAPORTNET

Figure II-2-6 Distribution of Submision/Reply Time and Processing Time of PPK

(e)SPOG (Approval of Vessel Move in the Port)

The number of submissions of SPOG in September 2017 was 1,779. Submission in the daytime (12 hours from 6 o'clock to 18 o'clock) was 975 (54.8 %) and that in the late night (3 hours from midnight to 3 o'clock) was 144 (8.1 %). The time distribution pattern shows a chevron with two peaks at 10 and 16 o'clock.

Reply in the daytime (12 hours from 6 o'clock to 18 o'clock) was 967 (54.4 %) and that in the late night (3 hours from midnight to 3 o'clock) was 123 (6.9 %). The time distribution pattern shows a chevron with a peak at 15-16 o'clock.

The number of used data in analysis on processing time is 1,620. The average processing time of SPOG was about 22minutess and 30 seconds. It is about 4 hours and 20 minutes in the case requiring the longest time and 2 seconds in the case of the shortest time. 707 cases (43.6%) were done within 10 minutes and 77.2% was done within 30 minutes. Almost all cases (97.8%) have been completed within 2 hours. All cases have been completed before 5 hours

Source: Prepared by Data downloaded from Monitoring-INAPORTNET

Figure II-2-7 Distribution of Submision/Reply Time and Processing Time of SPOG

(f)KP(Approval of Berth Shift)

The number of submissions of KP in September 2017 was 815. Submission in the daytime (12 hours from 6 o'clock to 18 o'clock) was 547 (67.1 %) and that in the late night (3 hours from midnight to 3 o'clock) was 44 (5.4 %). The time distribution pattern shows a chevron with a peak at 9 o'clock.

Reply in the daytime (12 hours from 6 o'clock to 18 o'clock) was 544 (66.7 %) and that in the late night (3 hours from midnight to 3 o'clock) was 40 (4.9 %). The time distribution pattern shows a chevron with two peaks at 9-10 and 15 o'clock.

The number of used data in analysis on processing time is 719.The average processing time of KP was about 22 minutes. It is about 16 hours in the case requiring the longest time. 364 cases (50.8%) were done within 10 minutes and 85.1% was done within 30 minutes. 698 cases (97.2%) have been completed within 2 hours and almost all cases (99.4%) have been completed within 5 hours.

Source: Prepared by Data downloaded from Monitoring-INAPORTNET

Figure II-2-8 Distribution of Submision/Reply Time and Processing Time of KP

(g)MT (Request for Extension of Berthing Period)

The number of submissions of MT in September 2017 was 150. Submission in the daytime (12 hours from 6 o'clock to 18 o'clock) was 94 (62.7 %) and that in the late night (3 hours from midnight to 3 o'clock) was 3 (2.0 %). The peak of time distribution appears at 20 o'clock.

Reply in the daytime (12 hours from 6 o'clock to 18 o'clock) was97 (64.7 %) and that in the late night (3 hours from midnight to 3 o'clock) was 1 (0.7 %). The peak of time distribution appears at 13 and 17 o'clock.

The number of used data in analysis on processing time is 139.The average processing time of MT was about 35 minutes and 40 seconds. It is about 9 hours 10 minutes in the case requiring the longest time and 47 seconds in the case of the shortest time. 59 cases (42.4%) were done within 10 minutes and 70.5% was done within 30 minutes. 131 cases (94.2%) have been completed within 2 hours and almost all cases (98.6%) have been completed within 5 hours.
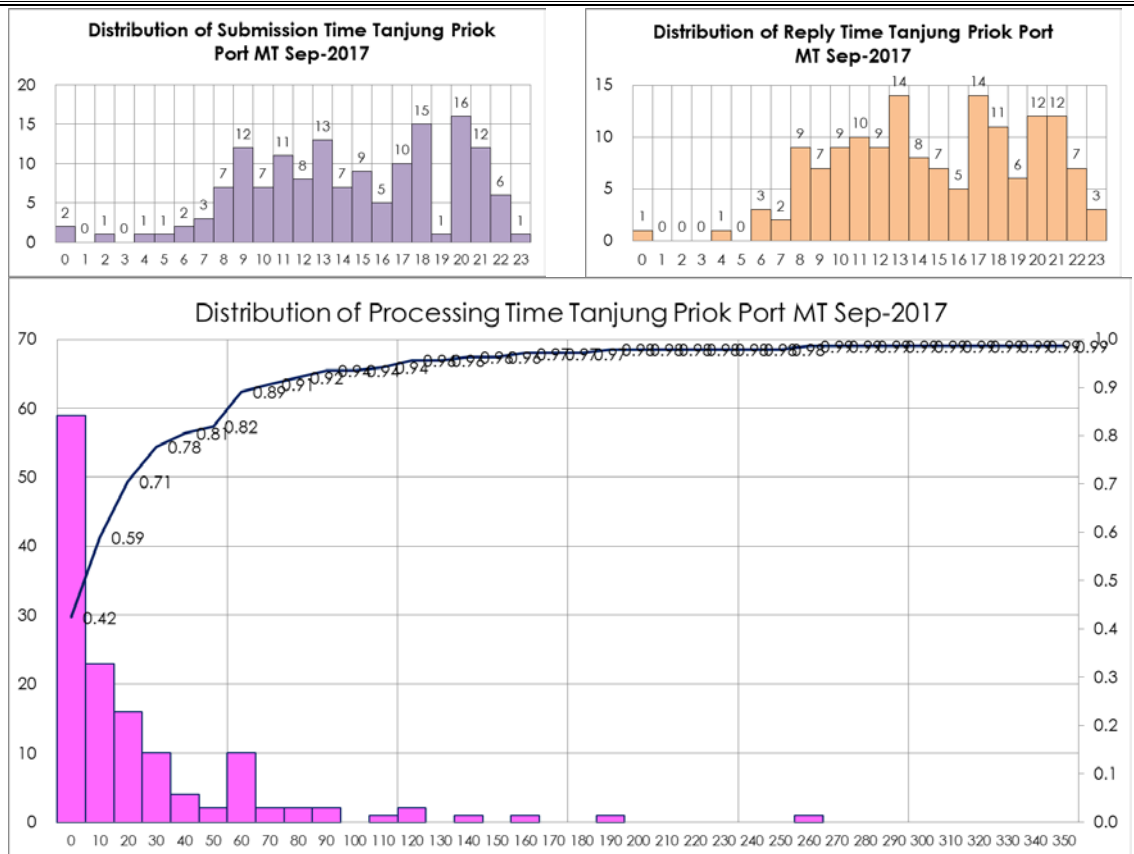
Source: Prepared by Data downloaded from Monitoring-INAPORTNET

Figure II-2-9 Distribution of Submision/Reply Time and Processing Time of MT

(h)LKK (Notice of Vessel Departure)

The number of submissions of LKK in September 2017 was 1,270. Submission in the daytime (12 hours from 6 o'clock to 18 o'clock) was 682 (53.7 %) and that in the late night (3 hours from midnight to 3 o'clock) was 30 (6.3 %). The time distribution pattern shows a chevron with three peaks at 11, 14 and 17 o'clock.

Reply in the daytime (12 hours from 6 o'clock to 18 o'clock) was 997 (78.0 %) and that in the late night (3 hours from midnight to 3 o'clock) was 26 (2.0 %). The time distribution pattern shows a chevron with two peaks at 10-11 and 21 o'clock.

The number of used data in analysis on processing time is 1,137.The average processing time of LKK was about 3 hours and 47 minutes. There are cases that take more than one day. 535 cases (47.1%) were done within 10 minutes and 62.5% was done within 30 minutes. 815 cases (71.7%) have been completed within 2 hours and 940 (82.7%) before 5 hours.
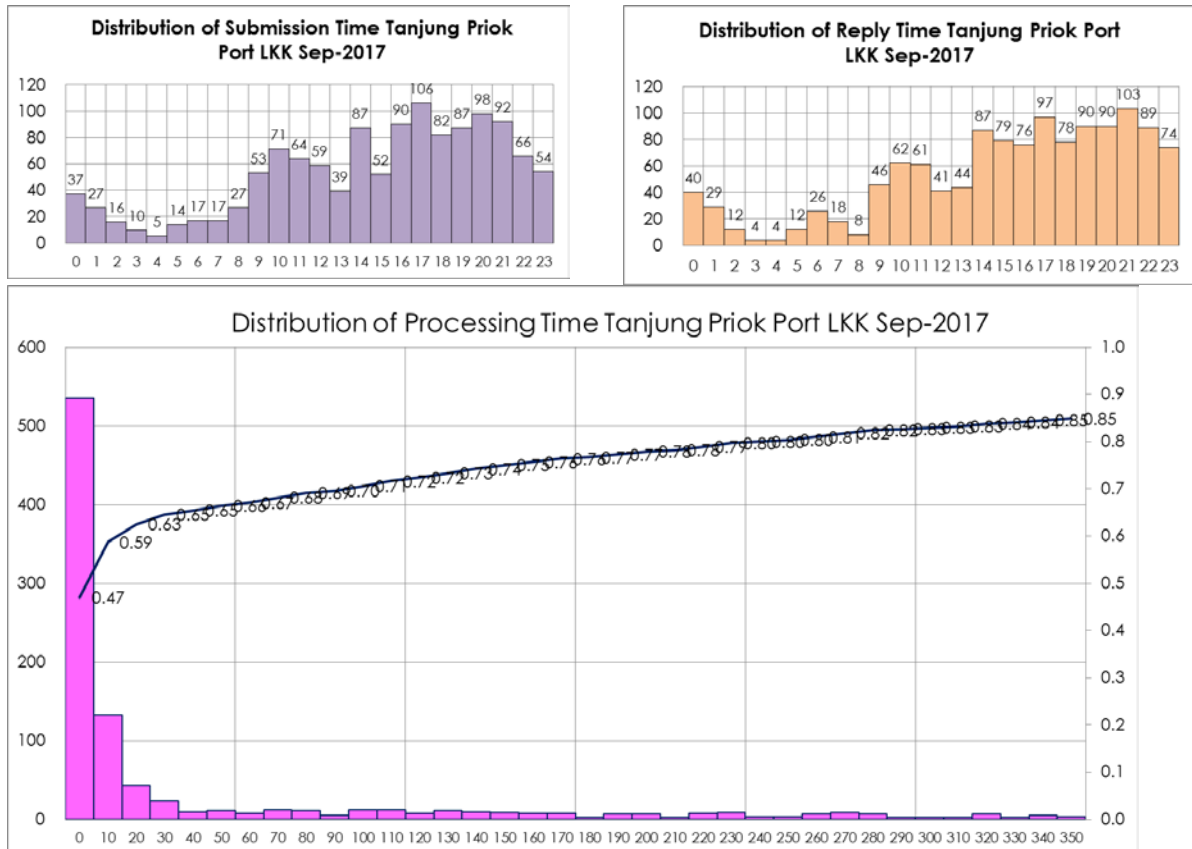
Source: Prepared by Data downloaded from Monitoring-INAPORTNET

Figure II-2-10 Distribution of Submision/Reply Time and Processing Time of LKK

(i)LK3 (Report of Vessel Arrival and Departure)

The number of submissions of LK3 in September 2017 was 1,270. Submission in the daytime (12 hours from 6 o'clock to 18 o'clock) was 682 (53.7 %) and that in the late night (3 hours from midnight to 3 o'clock) was 80 (6.3 %). The time distribution pattern shows a chevron with two peaks at 10, 14 and 17 o'clock.

Reply in the daytime (12 hours from 6 o'clock to 18 o'clock) was 599 (47.2 %) and that in the late night (3 hours from midnight to 3 o'clock) was 103 (8.1 %). The time distribution pattern shows an increasing trend towards night time.

The number of used data in analysis on processing time is 1,270.The average processing time of LK3 was about 4 hours and 22 minutes. There are cases that take more than one day. It is about 11 minutes in the case of the shortest time. There is no case within 10 minutes. 64 cases (5.0%) were done within 30 minutes.718 cases (56.5%) have been completed within 2 hours and 1,047 cases (82.4%) before 5 hours.
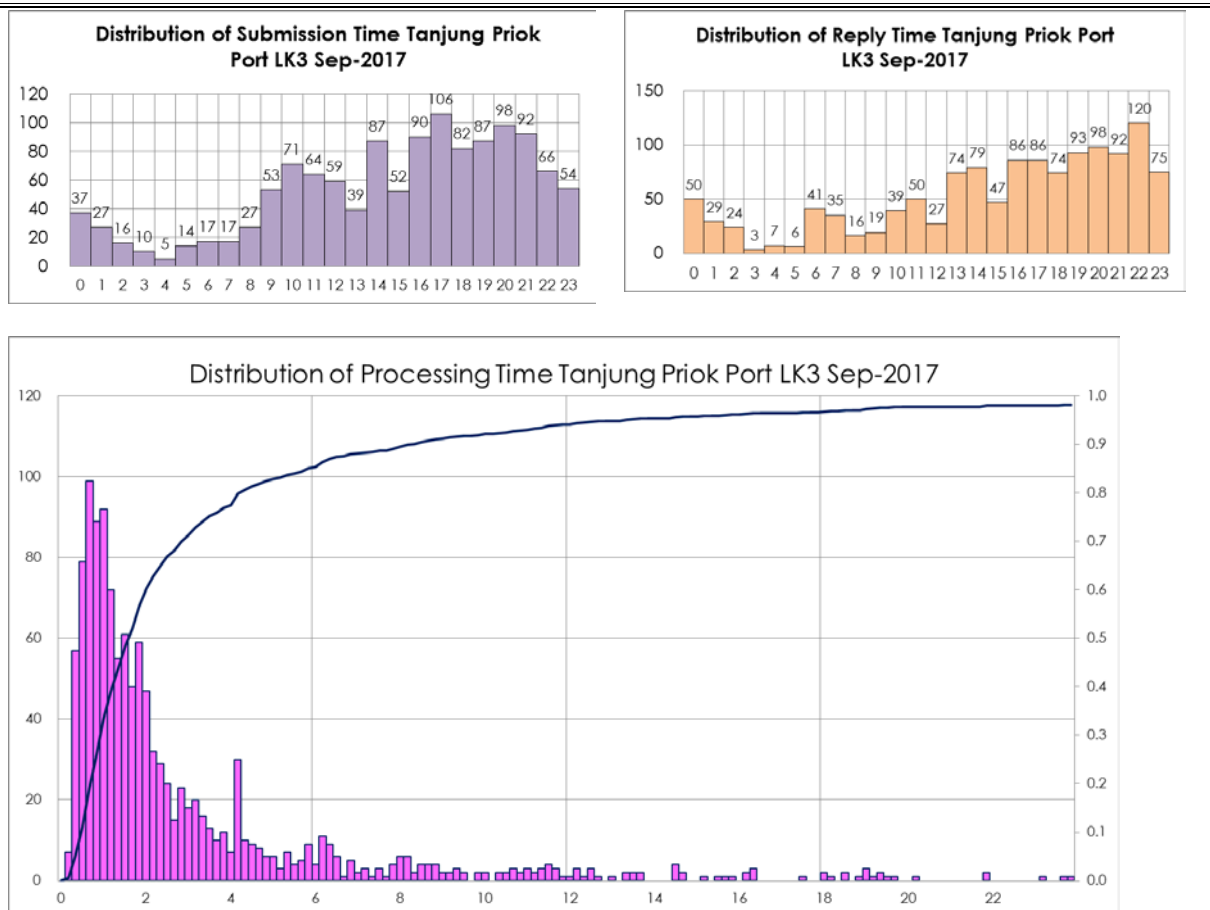
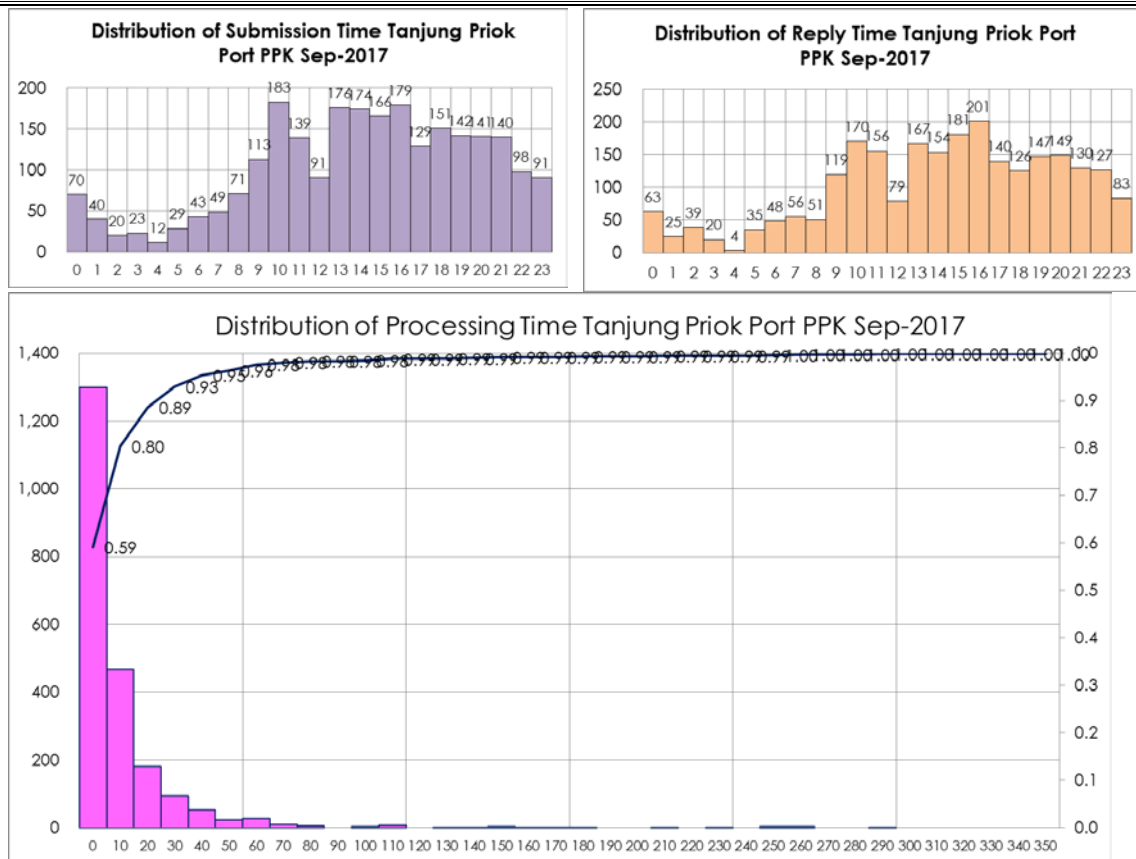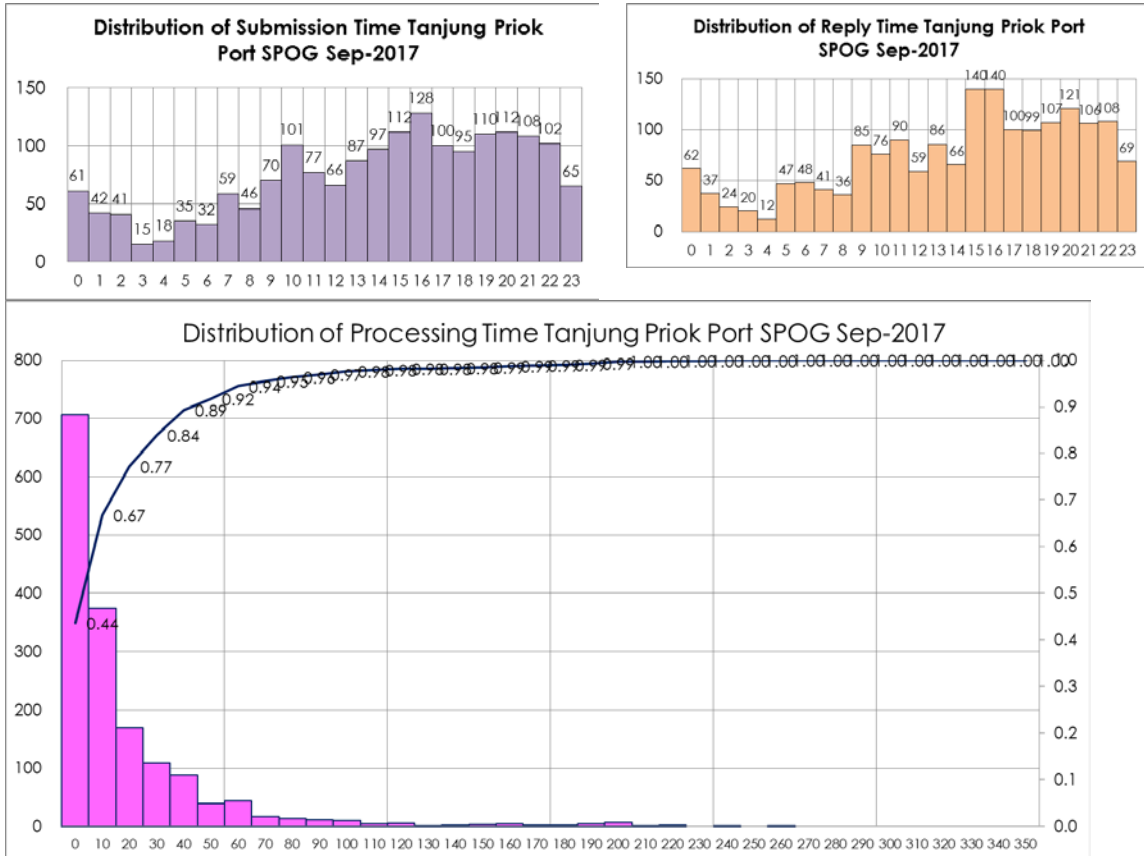Source: Prepared by Data downloaded from Monitoring-INAPORTNET

Figure II-2-11 Distribution of Submision/Reply Time and Processing Time of LK3

(j)SPB (Approval of Departure from Port)

The number of submissions of SPB in September 2017 was 1,259. Submission in the daytime (12 hours from 6 o'clock to 18 o'clock) was 620 (49.2 %) and that in the late night (3 hours from midnight to 3 o'clock) was 104 (8.3 %). The time distribution pattern shows an increasing trend towards night time.

Reply in the daytime (12 hours from 6 o'clock to 18 o'clock) was 573 (45.5 %) and that in the late night (3 hours from midnight to 3 o'clock) was 159 (12.6 %). The time distribution pattern shows a peak at 6-7 and 22-0 o'clock.

The number of used data in analysis on processing time is 1,235.The average processing time of SPB was about 1 hour and 50 minutes. It is more than 16 hours in the case requiring the longest time and 10 seconds in the case of the shortest time. 195 cases (15.8%) were done within 10 minutes and 36.7% was done within 30 minutes. 895 cases (72.5%) have been completed within 2 hours and 1134 cases (91.8%) before 5 hours.
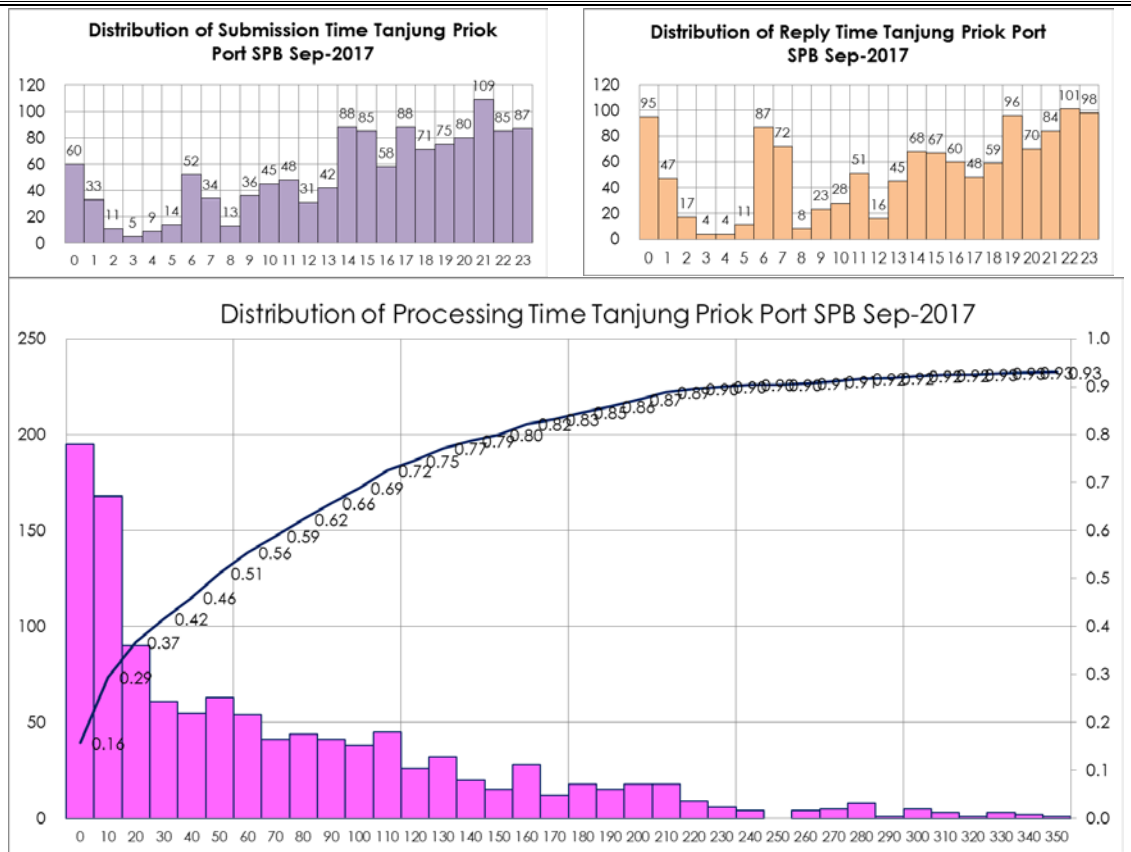
Source: Prepared by Data downloaded from Monitoring-INAPORTNET

Figure II-2-12 Distribution of Submision/Reply Time and Processing Time of SPB

(k)BMBB (Approval of Loading and Unloading of Dangerous Cargo)

The number of submissions of BMBB in September 2017 was 502. Submission in the daytime (12 hours from 6 o'clock to 18 o'clock) was 469 (93.4 %) and that in the late night (3 hours from midnight to 3 o'clock) was 5 (1.0 %). The time distribution pattern shows a chevron with two peaks at 10 and 13-14 o'clock.

All reply was done in the daytime (12 hours from 6 o'clock to 18 o'clock). The time distribution pattern shows a chevron with two peaks at 10-11 and 14 o'clock.

The number of used data in analysis on processing time is 460.The average processing time of BMBB was about 8 hours. There are cases that take more than one day. It is 47 seconds in the case of the shortest time. 7 cases (1.5%) were done within 10 minutes and 8.3% was done within 30 minutes. 206 cases (44.8%) have been completed within 2 hours and 73.5 % before 5 hours.
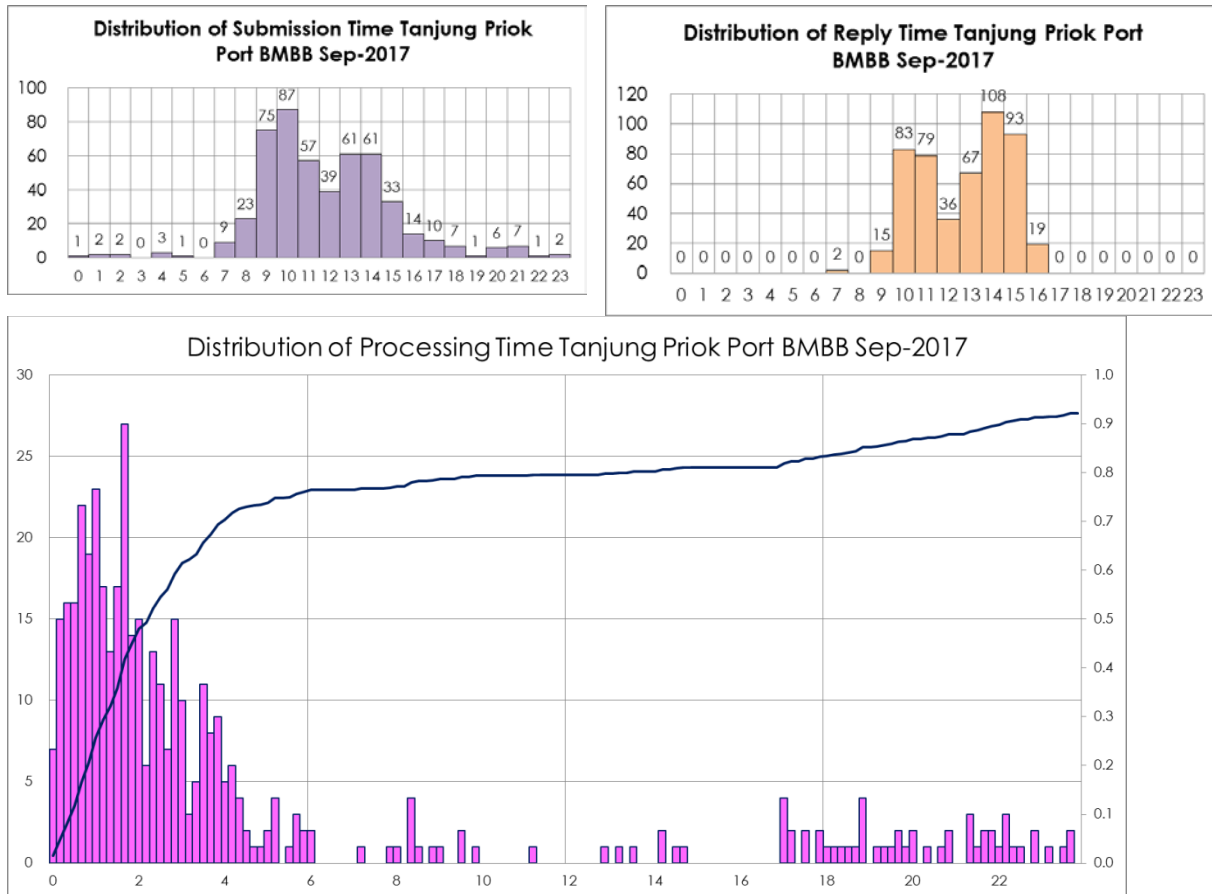
Source: Prepared by Data downloaded from Monitoring-INAPORTNET

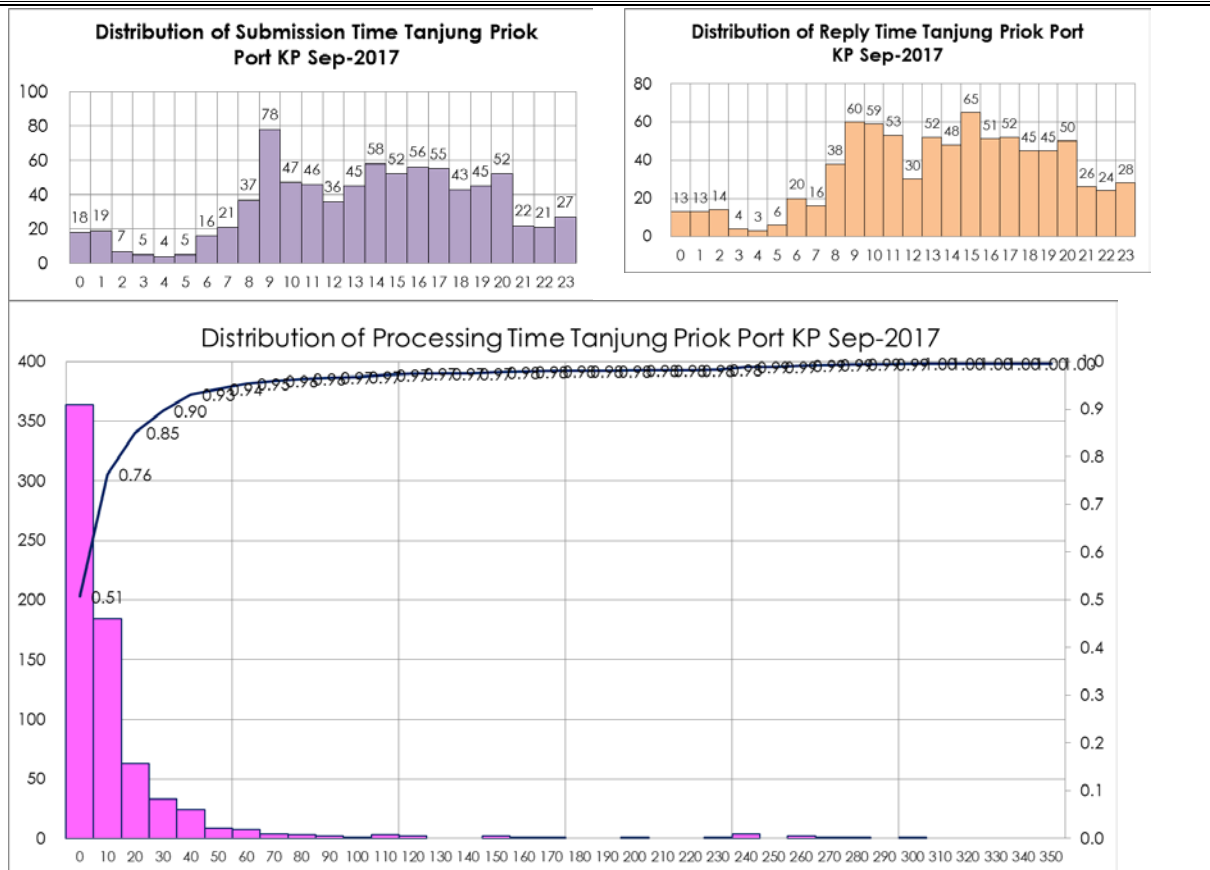**Figure II-2-13 Distribution of Submision/Reply Time and Processing Time of BMBB**

(4)Analysis of Submission Time

A ratio of submission in daytime of each document to the Port Authority was 53.7 % to 93.4 % and that to the Harbor Master was 49.2% to 82.1 %. Applicants entered data for application into INAPORTNET even at night. 652 submissions were done in late time at Tanjung Priok Port in September 2017.

About 80% of documents of notice of arrival (PKK) and for approval of port entry (SPM) were submitted in the daytime. About 80% of documents on loading and unloading activity plans were also submitted in the daytime. Almost all documents on dangerous cargo (BMBB) are submitted in the daytime. The numbers of documents submitted when a vessel departs from the port (LKK, LK3, SPB) were almost the same in the daytime and night time (18:00 to 06:00). A certain percentage (6.3 %to 8.1%) of documents of LKK, LK3 and SPB were submitted in late time. The peak times of each document appear mainly in the daytime.

Many documents prepared before entry to a port are submitted in the daytime. On the other hand, documents required for departureare generally submitted after 06:00 PM including late time according to the graphs of time distributions.

Applicants can submit documents through INAPORTNET at any time. Applicantscan thus submit documents late at night without going to the offices of the Port Authority or Harbor Master. This is one of the most basic benefits of port-related procedures through INAPORTNET.

Table II-2-4 Submission Time at Tanjung Priok Port

Document	Submission	Submission in Daytime	%	Submission in Late Night	%	Peak Time
Port Authority						
PKK	1,278	995	77.9%	28	2.2%	11h
RKBM	1,063	1,061	82.1%	17	1.3%	10h
PPK	2,470	1,513	61.3%	130	5.3%	10h, 16h
KP	815	547	67.1%	44	5.4%	9h
MT	150	94	62.7%	3	2.0%	20h
LKK	1,270	682	53.7%	80	6.3%	10h, 14h, 17h
LK3	1,270	682	53.7%	80	6.3%	10h, 14h, 17h
BMBB	502	469	93.4%	5	1.0%	10h, 13-14h
Harbour Master						
SPM	1,293	1,061	82.1%	17	1.3%	9h
SPOG	1,779	975	54.8%	144	8.1%	10h, 16h
SPB	1,259	620	49.2%	104	8.3%	21h

Note: * daytime:06:00 – 18:00,   late night: from mid-night to 3 AM

(5)Analysis of Reply Time

A ratio of reply in the daytime of each document to the Port Authority was 47.2% to 100.0% and that to Harbor Master was 45.5% to 76.3%. Officials of the Port Authority and Harbor Master entered reply data into INAPORTNET in even late time.707 replies were done in late time at Tanjung Priok Port in September 2017.

About 75% to 80% of documents of notice of arrival (PKK) and for approval of port entry (SPM) were replied to in the daytime. 77.8% of documents on loading and unloading activity plan were also replied to in the daytime. All documents on dangerous cargo (BMBB) were replied to in the daytime. The numbers of documents replied to for vessel departures from the port (LKK, LK3, and SPB) were almost the same in the daytime and night time (18:00 to 06:00). A certain percentage (6.4%, 8.1% and 12.6%) of LKK, LK3 and SPB were submitted in late time. The peak times of each document appear mainly in daytime.

The situation of replies is basically the same as that of submissions. Officials of Port Authority and Harbor Master of Tanjung Priok Port respond to applications regardless of the time of day or night.

Table II-2-5 Reply Time at Tanjung Priok Port

Document	Submission	Submission in Daytime	%	Submission in Late Night	%	Peak Time
Port Authority						
PKK	1,278	997	78.0%	26	2.0%	10-11h
RKBM	1,063	827	77.8%	24	2.3%	9-11h, 15h
PPK	2,470	1,522	61.6%	127	5.1%	10h, 16h
KP	815	544	66.7%	40	4.9%	9-10h, 5h
MT	150	97	64.7%	1	0.7%	13h, 17h
LKK	1,270	645	50.8%	81	6.4%	10-11h, 21h
LK3	1,270	599	47.2%	103	8.1%	22h
BMBB	502	502	100.0%	0	0.0%	10-11h, 14h
Harbour Master						
SPM	1,293	986	76.3%	23	1.8%	10h
SPOG	1,779	967	54.4%	123	6.9%	15-16h
SPB	1,259	573	45.5%	159	12.6%	22-0h

Note: daytime:06:00 – 18:00,   late night: from mid-night to 3 AM

(6)Analysis of Process Time

The numbers of applications processed within 10 minutes, 30 minutes, 2 hours, 5 hours and one day by document at Tanjung Priok Port in September 2017 are shown in Table II-2-6. Regarding PKK (Notice of Vessel Arrival), about 68.5% of applications were completed within 10 minutes, about 94.3% within 30 minutes, 99.6 % within 2 hours and all within 5 hours. Applications of PPK (Decision of Vessel Berthing), KP (Approval of Berth Shift), SPOG (Approval of Vessel Move in the Port) and MT(Request for Extension of Berthing Period) show the similar tendency to PKK. Procedures of almost all these documents were completed within 5 hours. Regarding BMBB (Approval of Loading and Unloading of Dangerous Cargo) and LK3 (Report of Vessel Arrival and Departure), few applications were completed within 10 minutes, about 70 to 80% within 5 hours and almost all within a day. Regarding LKK (Notice of Vessel Departure) and SPB (Approval of Departure from Port) but about 70% of applications were completed within 2 hours and almost all within a day. Regarding RKBM (Submission of Loading and Unloading Activity Plan) and SPM (Approval for Port Entry), few applications were completed within 10 minutes and more than 40 % were completed within 5 hours. Around 30-40% of the applications stayed in an incomplete stage even after 1 day.

Procedures for corresponding to change of situations such as KP or MT seem to be done fast. It is thought that SPM is submitted early with enough allowance.

Document	Within	10 min.	Within	30 min.	Within	2 hours	Within	5 hours	Within	1day
Port Authority										
PKK	729	68.5%	1,004	94.3%	1,061	99.6%	1,065	100.0%	1,065	100.0%
RKBM	9	0.8%	74	7.0%	302	28.4%	466	43.8%	775	72.9%
PPK	1,299	59.2%	1,947	88.7%	2,170	98.8%	2,192	99.8%	2,195	100.0%
KP	364	50.8%	611	85.1%	698	97.2%	714	99.4%	718	100.0%
MT	59	42.4%	98	70.5%	131	94.2%	137	98.6%	139	100.0%
LKK	535	47.1%	711	62.5%	815	71.7%	940	82.7%	1,111	97.7%
LK3	0	0.0%	64	5.0%	718	56.5%	1,047	82.4%	1,247	98.2%
BMBB	7	1.5%	38	8.3%	206	44.8%	338	73.5%	424	92.2%
Harbour Master										
SPM	1	0.1%	46	3.6%	357	27.6%	561	43.4%	847	65.5%
SPOG	707	43.6%	1,250	77.2%	1,585	97.8%	1,620	100.0%	1,620	100.0%
SPB	195	15.8%	453	36.7%	895	72.5%	1,134	91.8%	1,235	100.0%
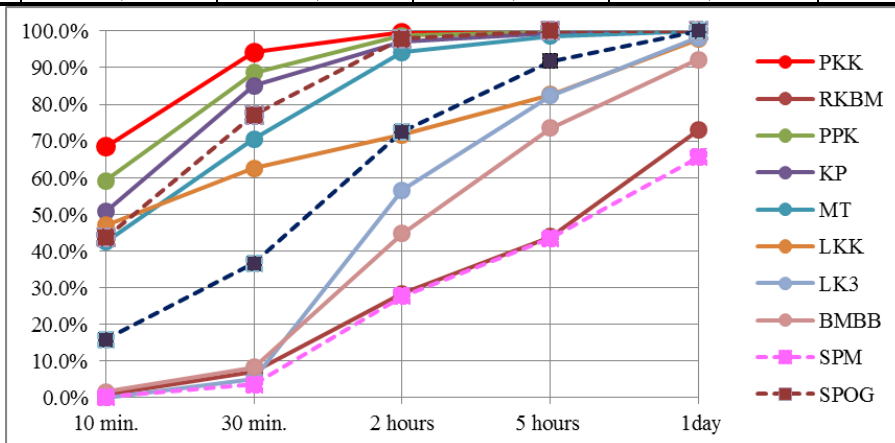
Note：The result of this analysis shows documentation process through INAPORTNET

Figure II-2-14 Number (parcentage) of Cleared Documents by Time (Tanjung Priok Port)

II-2-2-2 Makassar Port

(1)Users

Number of registered companies in Makassar Port as of September 2017 is 54 of shipping lines/shipping agents, 20 of stevedoring companies and 20 of forwarding companies. Numbers of individuals for each type of business companies are 65, 27 and 18.

The number of applicants who use INAPORTNET by month since Go-Live in June 2017 is as shown in Figure II-2-15. That for PKK stays between 33and 39. Those for other document show similar tendency. Judging from the fact that the number of applications has been stable since June 2016, it is suggested that operation of INAPORTNET has been stable since the same month. In addition, at current time the number of regular users of shipping lines/shipping agents is expected to be approximately 30-40. This is because the number of registration for PKK whose submission is mandatory for shipping lines/shipping agents, is expected to be quite the same of the number of regular users of shipping lines/shipping agents. Regular users of stevedoring companies are presumed to be approximately 15. Regarding forwarding companies, 1 company uses INAPORTNET at present considering that there is no record of LAB.

Table II-2-6 Process Time at Makassar Port

	2016										2017								
	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
PKK	4	9	33	32	34	36	33	35	32	35	34	34	39	37	34	36	34	36	38
SPM	1	10	33	32	34	37	32	35	31	35	36	33	40	37	34	36	34	36	38
RKBM	1	4	14	12	15	14	14	14	15	14	10	14	12	16	14	14	12	13	14
PPK	1	5	33	32	35	36	33	35	33	35	37	36	39	36	33	34	35	37	38
SPOG	1	2	28	30	30	31	31	33	32	32	36	32	35	31	30	31	30	33	32
KP	0	0	0	4	13	12	20	19	23	17	24	16	17	14	13	14	16	14	17
MT	0	0	0	1	0	1	1	1	0	2	1	1	1	0	2	1	2	0	1
LKK	0	2	30	35	31	34	35	34	33	33	37	35	38	36	34	32	33	35	38
LK3	0	2	30	35	31	34	35	34	33	33	37	35	38	36	34	32	33	35	38
SPB	0	2	30	35	31	34	35	34	33	33	37	35	38	36	34	32	33	35	38
LAB	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1
BMBB	0	1	5	11	7	8	10	14	15	14	13	15	15	12	12	12	9	15	17
BUNKER	0	0	0	0	0	17	17	21	19	19	23	27	21	21	18	19	19	20	22
PENGELASAN	0	0	0	0	0	1	2	2	5	6	9	5	4	3	7	4	2	5	8
SHSOP	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SHSSB	0	0	0	0	0	0	0	0	1	0	3	0	0	0	0	0	1	0	0
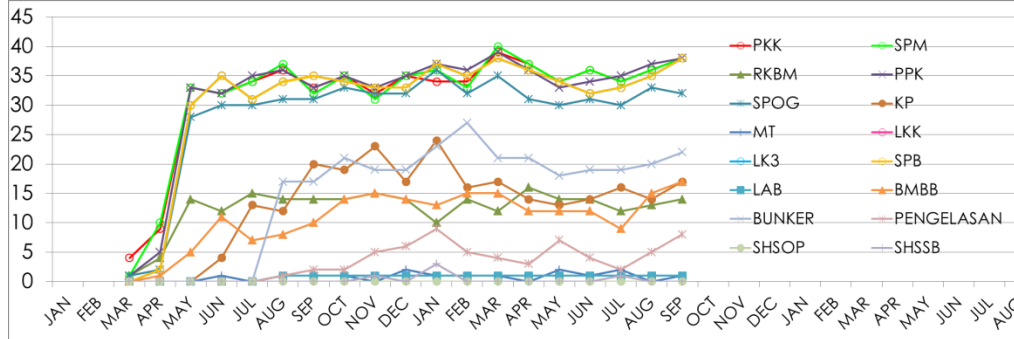
Source: Monitoring INAPORTNET

Figure II-2-15 Number of Applicants by Document at Makassar Port

(2)Number of Application

The number of applications through INAPORTNET by month since Go-Live in March 2016 is as shown in Table II-2-7 and Figure II-2-16. The number of PKK, SPM, LKK, LK 3 and SPB concerning ship entry and exit ports is almost the same. It is thought that it indicates the number of calling vessel in the month. It is found that approximately 400 vessels call at Makassar Port in a month.

There is no data on SHSOP and SESSB and a little data on MT, LAB and PENGELASAN. It is presumed that there was no action necessary for procedures related to these documents or the procedures were carried out by paper manually.

Table II-2-7 Number of Applications by Document (Makassar Port)

	2016										2017											
	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
PKK	4	14	310	373	347	336	384	420	378	399	388	359	392	371	375	352	389	404	404	433	414	407
SPM	1	17	314	380	345	337	390	413	377	400	389	349	390	378	365	342	395	415	390	431	426	395
RKBM	1	10	179	193	143	103	139	238	207	204	211	199	225	212	219	190	207	232	237	250	242	215
PPK	1	7	309	434	405	419	470	521	487	498	497	474	491	478	454	433	482	515	515	537	538	496
SPOG	1	3	256	333	283	269	357	375	359	371	378	332	336	295	288	279	297	321	308	367	391	371
KP	0	0	0	4	36	51	76	80	89	68	79	62	41	54	38	37	42	58	51	73	55	49
MT	0	0	0	1	0	2	1	1	0	2	1	2	3	0	2	1	3	0	2	0	2	4
LKK	0	3	261	375	325	317	380	405	385	391	379	351	396	371	376	346	388	392	408	420	405	396
LK3	0	3	262	375	325	317	380	405	385	391	379	351	396	371	376	346	388	392	408	422	405	395
SPB	0	2	261	375	325	316	375	402	385	391	379	350	395	371	373	346	386	393	407	424	401	398
LAB	0	0	0	0	0	1	1	1	3	2	1	2	1	1	1	1	1	2	1	4	4	2
BMBB	0	1	36	69	66	52	68	66	77	73	91	94	101	82	81	63	81	91	90	101	86	101
BUNKER	0	0	0	0	0	57	64	81	98	112	121	104	119	103	103	93	106	98	111	116	108	107
PENGELASAN	0	0	0	0	0	1	3	3	9	8	13	7	4	3	8	5	4	7	11	23	7	13
SHSOP	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SHSSB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
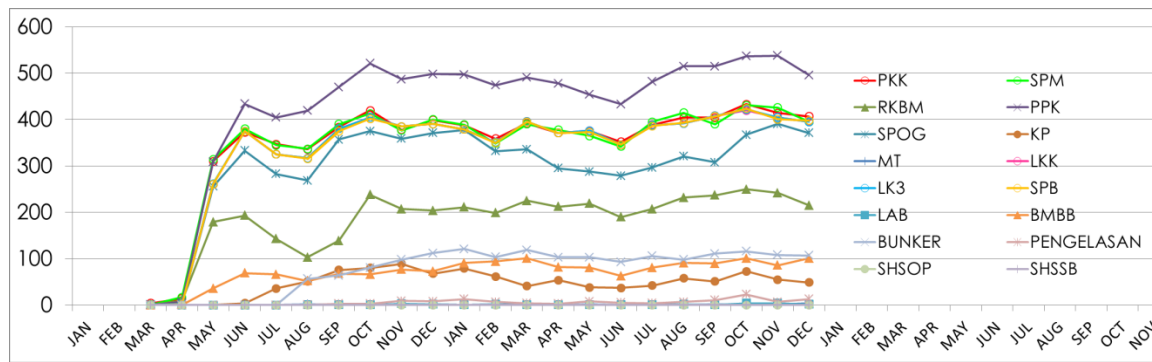
Source: Monitoring INAPORTNET

Figure II-2-16   Number of Applications by Document (Makassar Port)

(3)Submission/Reply Time and Processing Time

For the eleven (11) kinds of documents such as PKK, SPM, RKBM, PPK, SPOG, KP, MT, LKK, LK 3, SPB and BMBB that were applied through INAPORTNET at Makassar Port in September 2017, the distributions of submission time and reply time and processing time are shown below by document. Data that the submission time is later than the reply time is excluded in calculating processing time. (See Table II-2-8)

Table II-2-8 Data that submission time is later than replay time

2017-09	PKK	SPM	BKBM	PPK	SPOG	KP	MT	LKK	LK3	SPB	LAB	BMBB	BUNK	PENGE	SSHOP	SHSBB
Makassar	404	390	237	516	308	51	0	408	408	407	1	90	111	11	0	0
	369	390	237	483	308	50	0	408	408	405	1	58	73	5	0	0

Note: Upper: All data, Lower: normal data/ Difference indicates number of incredible data

(a)PKK (Notice of Vessel Arrival)

The number of submissions of PKK in September 2017 was 404. Submission in the daytime (12 hours from 6 o'clock to 18 o'clock) was 294 (72.8 %) and that in the late night (3 hours from midnight to 3 o'clock) was 14 (3.5 %). The time distribution pattern shows a chevron with two peaks at 8 and 19 o'clock.

Reply in the daytime (12 hours from 6 o'clock to 18 o'clock) was274 (67.8 %) and that in the late night (3 hours from midnight to 3 o'clock) was 23 (5.7 %). The time distribution pattern shows a chevron with a peak at 9 o'clock.

Analysis on processing time was carried out by using 369 data excluding data that submission time is later than replay time. The average processing time of PKK was about 1 hour 45 minutes. It is about 24 hours in the case requiring the longest time and 1 minute and 48 seconds in the case of the shortest time. 1 case (0.3%) were done within 30 minutes. 328 cases (88.9%) have been completed within 2 hours and 357cases (96.7 %) have been completed before 5 hours which is the stipulated time of reply to submission on PKK in the Article 9 of HK.103/3/11/DJPL-1.
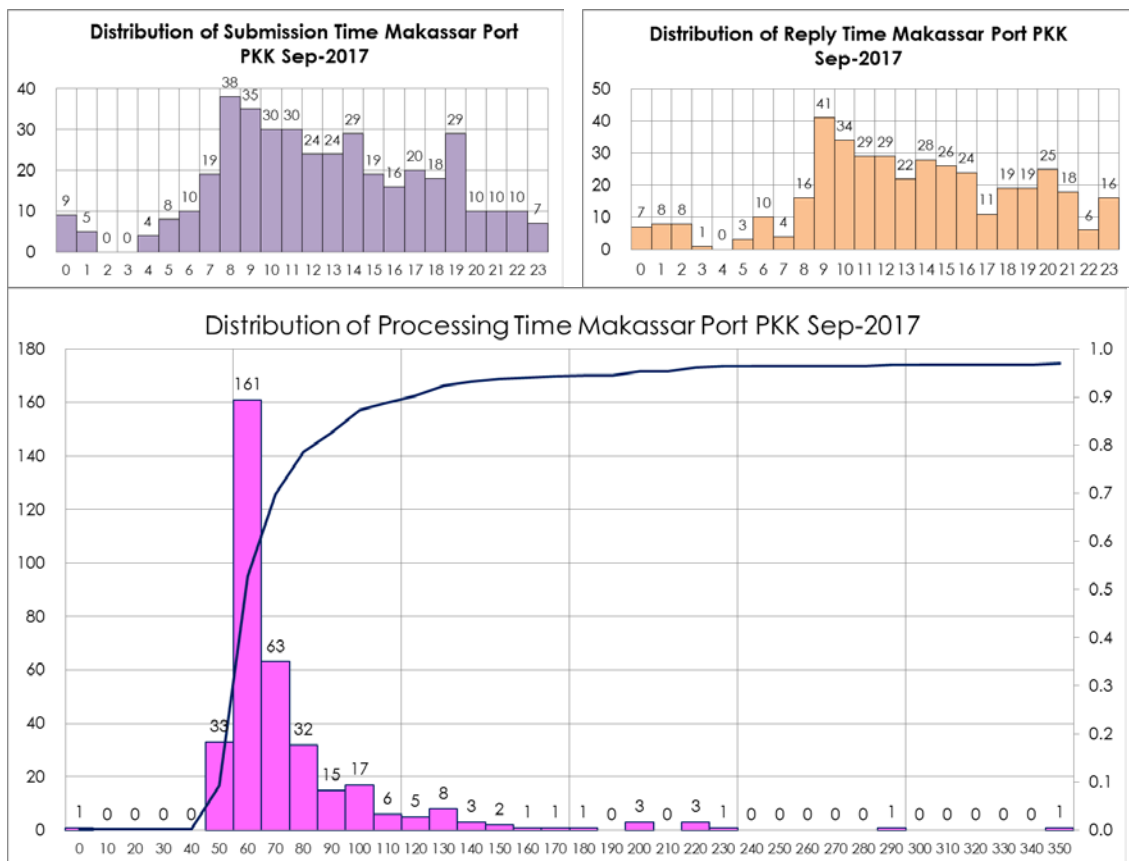
Source: Prepared by Data downloaded from Monitoring-INAPORTNET

Figure II-2-17 Distribution of Submision/Reply Time and Processing Time of PKK

(b)SPM (Port Entry Arrival)

The number of submissions of SPM in September 2017 was 390. Submission in the daytime (12 hours from 6 o'clock to 18 o'clock) was 294 (75.4 %) and that in the late night (3 hours from midnight to 3 o'clock) was 17 (4.4 %). The time distribution pattern shows a chevron with a peak at 8 o'clock.

Reply in the daytime (12 hours from 6 o'clock to 18 o'clock) was 292 (74.9 %) and that in the late night (3 hours from midnight to 3 o'clock) was 14 (3.6 %). The time distribution pattern shows a chevron with a peak at 8 o'clock.

The number of used data in analysis on processing time is 390. The average processing time of SPM was about 44 hours. There are many cases that take more than several days. It is one hour and 10 minutes in the case of the shortest time. No case was done within 30 minutes. 13 cases (3.3%) have been completed within 2 hours and about 50 cases (12.8%) have been completed before 5 hours which is the stipulated time of reply to submission on SPM in the Article 9 of HK.103/3/11/DJPL-1.
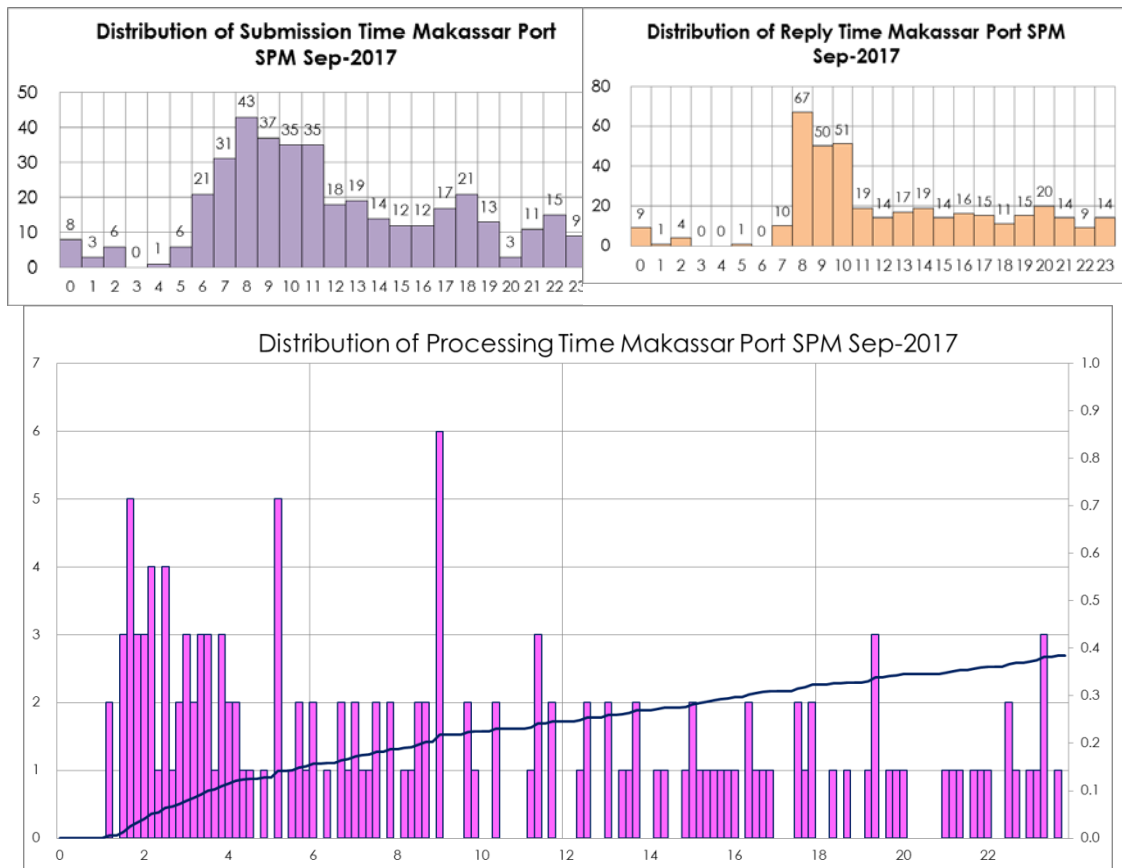
Source: Prepared by Data downloaded from Monitoring-INAPORTNET

Figure II-2-18 Distribution of Submision/Reply Time and Processing Time of SPM

(c)RKBM (Submission of Loading and Unloading Activity Plan)

The number of submissions of RKBM in September 2017 was 237. Submission in the daytime (12 hours from 6 o'clock to 18 o'clock) was 197 (83.1 %) and that in the late night (3 hours from midnight to 3 o'clock) was 2 (0.8 %). The time distribution pattern shows a chevron with a peak at 8-9 o'clock.

Reply in the daytime (12 hours from 6 o'clock to 18 o'clock) was 130 (54.9 %) and that in the late night (3 hours from midnight to 3 o'clock) was 10 (4.2 %). The peak time appears at 20 o'clock.

The number of used data in analysis on processing time is 237. The average processing time of RKBM was about 43 hours 12 minutes. There are many cases that take more than one day. It is 1 hour and 10 minutes in the case of the shortest time. No case was done within 30 minutes. 13 cases (5.5 %) have been completed within 2 hours and 44 cases (18.6%) have been completed before 5 hours.
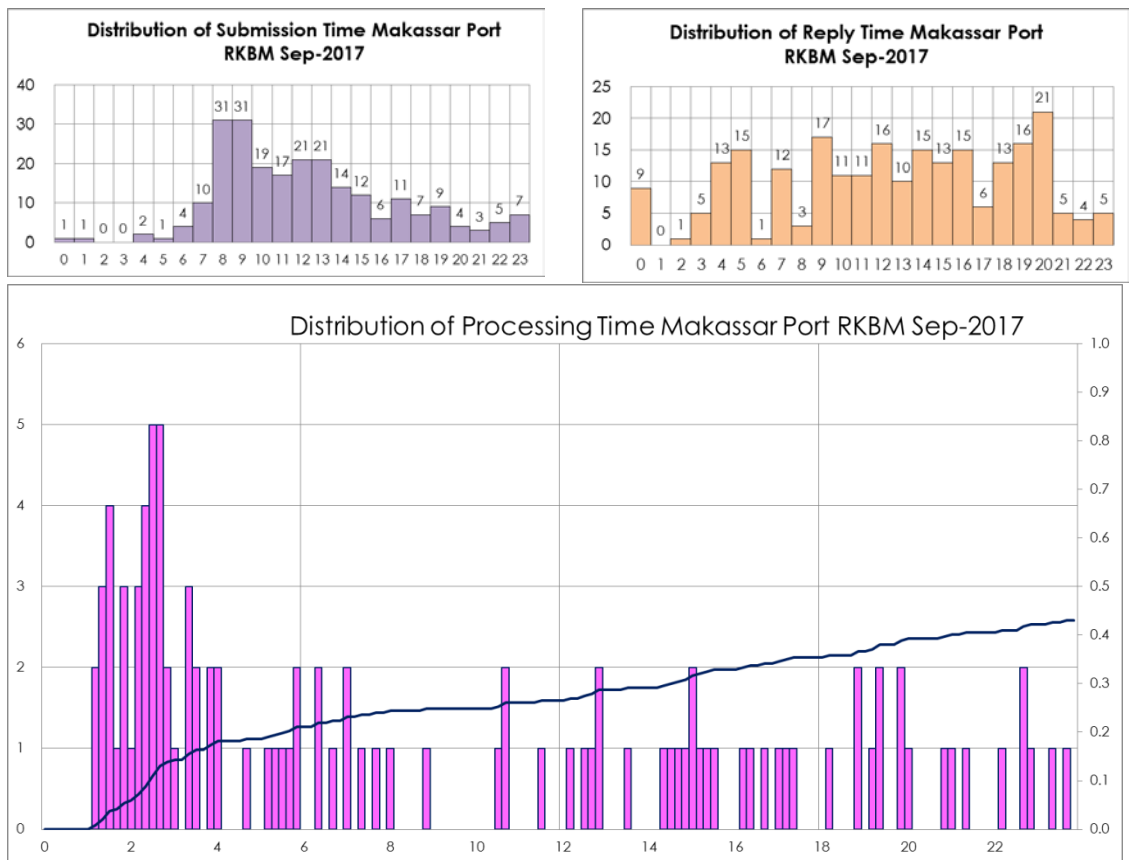
Source: Prepared by Data downloaded from Monitoring-INAPORTNET

Figure II-2-19 Distribution of Submision/Reply Time and Processing Time of RKBM

(d)PPK (Decision of Vessel Berthing)

The number of submissions of PPK in September 2017 was 516. Submission in the daytime (12 hours from 6 o'clock to 18 o'clock) was 355 (68.8 %) and that in the late night (3 hours from midnight to 3 o'clock) was 8 (1.6 %). The time distribution pattern shows a chevron with two peaks at 10 and 16 o'clock.

Reply in the daytime (12 hours from 6 o'clock to 18 o'clock) was 360 (69.8 %) and that in the late night (3 hours from midnight to 3 o'clock) was 12 (2.3 %). The time distribution pattern shows a chevron with a peak at 10 o'clock.

The number of used data in analysis on processing time is 483. The average processing time of PPK was about 2 hours and 22 minutes. There are cases that take more than one day. 163 cases (33.7%) were done within 10 minutes and 64.6 % was done within 30 minutes. 397 cases (82.2%) have been completed within 2 hours and 421 cases (87.2%) have been completed before 5 hours.

Source: Prepared by Data downloaded from Monitoring-INAPORTNET

Figure II-2-20 Distribution of Submision/Reply Time and Processing Time of PPK

(e)SPOG (Approval of Vessel Move in the Port)

The number of submissions of SPOG in September 2017 was 308. Submission in the daytime (12 hours from 6 o'clock to 18 o'clock) was 220 (71.4 %) and that in the late night (3 hours from midnight to 3 o'clock) was 6 (1.9 %). The time distribution pattern shows a chevron with a peak at 12 o'clock.

Reply in the daytime (12 hours from 6 o'clock to 18 o'clock) was 235 (76.3 %) and that in the late night (3 hours from midnight to 3 o'clock) was 2 (0.6 %). The time distribution pattern shows a chevron with two peaks at 7 and 16 o'clock.

The number of used data in analysis on processing time is 308. The average processing time of SPOG was about 10 hours. It is about 66 hours in the case requiring the longest time and 55 minutes in the case of the shortest time. No case was done within 30 minutes. 109 cases (35.4%) have been completed within 2 hours and 165 cases (53.6%) have been completed before 5 hours

Source: Prepared by Data downloaded from Monitoring-INAPORTNET

Figure II-2-21 Distribution of Submision/Reply Time and Processing Time of SPOG

(f)KP (Approval of Berth Shift)

The number of submissions of KP in September 2017 was 51. Submission in the daytime (12 hours from 6 o'clock to 18 o'clock) was 38 (74.5 %) and that in the late night (3 hours from midnight to 3 o'clock) was 1 (2.0 %). The submission time distributes over a wide range.

Reply in the daytime (12 hours from 6 o'clock to 18 o'clock) was 41 (80.4 %) and that in the late night (3 hours from midnight to 3 o'clock) was 1 (2.0 %). The reply time distribution pattern shows a chevron with two peaks at 11 and 14 o'clock.

The number of used data in analysis on processing time is 50.The average processing time of KP was about 2 hours. It is about 22 hours in the case requiring the longest time and 21 seconds in the case of the shortest time. 13 cases (26.0%) were done within 10 minutes and 60.0% was done within 30 minutes. 41 cases (82.0%) have been completed within 2 hours and 45 cases (90.0%) have been completed within 5 hours.

Source: Prepared by Data downloaded from Monitoring-INAPORTNET

Figure II-2-22 Distribution of Submision/Reply Time and Processing Time of KP

(g)LKK (Notice of Vessel Departure)

The number of submissions of LKK in September 2017 was 480. Submission in the daytime (12 hours from 6 o'clock to 18 o'clock) was 213 (52.2 %) and that in the late night (3 hours from midnight to 3 o'clock) was 19 (4.7 %). The peak appears at 15 o'clock.

Reply in the daytime (12 hours from 6 o'clock to 18 o'clock) was 199 (48.8 %) and that in the late night (3 hours from midnight to 3 o'clock) was 33 (8.1 %). The time distribution pattern shows an increasing trend towards night time.

The number of used data in analysis on processing time is 408. The average processing time of LKK was about 2 hours and 20 minutes. There are cases that take more than one day. No case was done within 30. 335 cases (82.1%) have been completed within 2 hours and 377 (92.4%) before 5 hours.
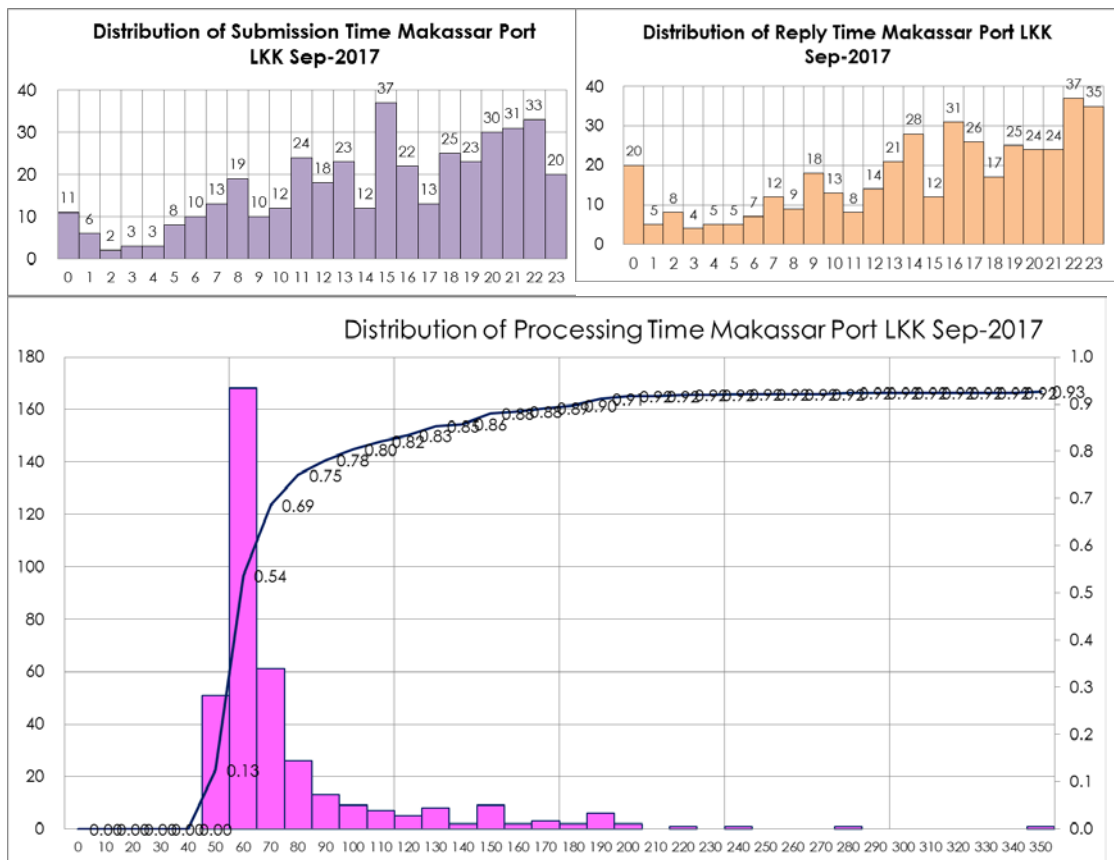
Source: Prepared by Data downloaded from Monitoring-INAPORTNET

Figure II-2-23 Distribution of Submision/Reply Time and Processing Time of LKK

(h)LK3 (Report of Vessel Arrival and Departure)

The number of submissions of LK3 in September 2017 was 408. Submission in the daytime (12 hours from 6 o'clock to 18 o'clock) was 213 (52.2 %) and that in the late night (3 hours from midnight to 3 o'clock) was 19 (4.7 %). The peak appears at 15 o'clock and the number of submission increases towards night time.

Reply in the daytime (12 hours from 6 o'clock to 18 o'clock) was 190 (46.6 %) and that in the late night (3 hours from midnight to 3 o'clock) was 56 (13.7 %). the number of submission increases towards night time and the peak appears at mid-night.

The number of used data in analysis on processing time is 408. The average processing time of LK3 was about 4 hours. There are cases that take more than one day. It is about 1 hour in the case of the shortest time. There is no case within 30 minutes. 164 cases (40.2%) have been completed within 2 hours and 333 cases (81.6%) before 5 hours.
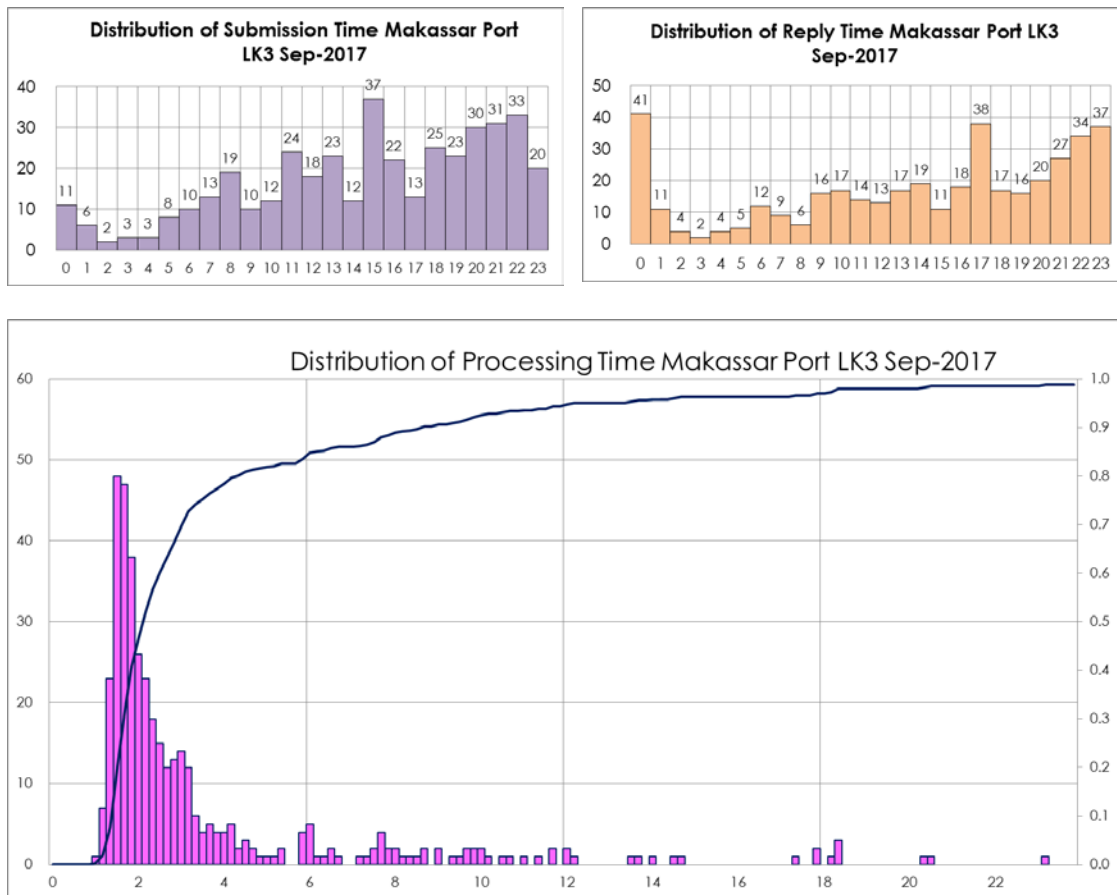
Source: Prepared by Data downloaded from Monitoring-INAPORTNET

Figure II-2-24 Distribution of Submision/Reply Time and Processing Time of LK3

(i)SPB (Approval of Departure from Port)

The number of submissions of SPB in September 2017 was 407. Submission in the daytime (12 hours from 6 o'clock to 18 o'clock) was 200 (49.1 %) and that in the late night (3 hours from midnight to 3 o'clock) was 31 (7.6 %). The number of submission increases towards night time.

Reply in the daytime (12 hours from 6 o'clock to 18 o'clock) was 180 (44.2 %) and that in the late night (3 hours from midnight to 3 o'clock) was 67 (16.5 %). A peak appears at mid-night.

The number of used data in analysis on processing time is 405. The average processing time of SPB was about 2 hours and 13 minutes. It is about 12 hours in the case requiring the longest time and about 1 hour in the case of the shortest time. No case was done within 30 minutes. 287 cases (70.9%) have been completed within 2 hours and 369 cases (91.1) before 5 hours.
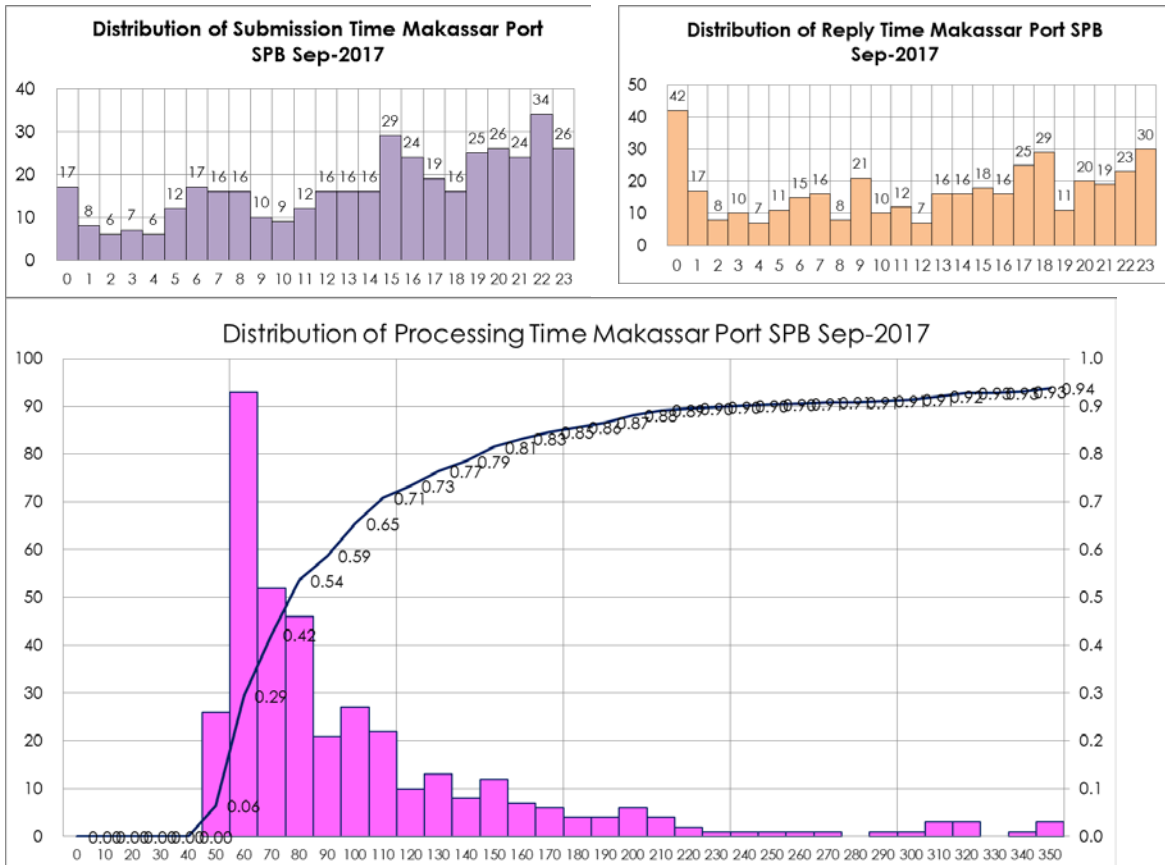
Source: Prepared by Data downloaded from Monitoring-INAPORTNET

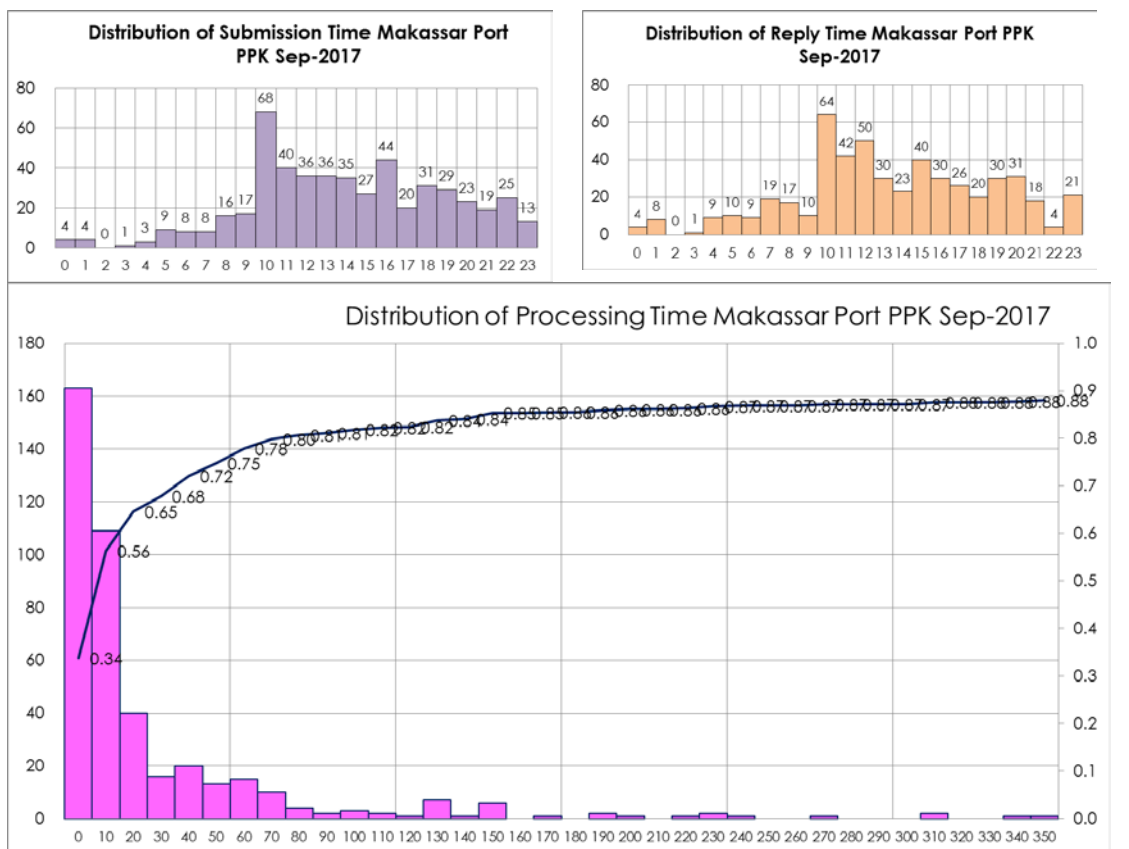**Figure II-2-25 Distribution of Submision/Reply Time and Processing Time of SPB**

(j) BMBB (Approval of Loading and Unloading of Dangerous Cargo)

The number of submissions of BMBB in September 2017 was 90. Submission in the daytime (12 hours from 6 o'clock to 18 o'clock) was 59 (65.6 %) and that in the late night (3 hours from midnight to 3 o'clock) was 3 (3.3 %). The time distribution pattern shows a chevron with two peaks at 14 and 20 o'clock.

Reply in the daytime (12 hours from 6 o'clock to 18 o'clock) was 67 (74.4 %) and that in the late night (3 hours from midnight to 3 o'clock) was 2 (2.2 %). The time distribution pattern shows a chevron with two peaks at 10 and 16 o'clock.

The number of used data in analysis on processing time is 58.The average processing time of BMBB was about 7 hours. There are cases that take more than one day. It is about 8 minutes in the case of the shortest time. 1 case (1.7%) was done within 10 minutes and 10.3% was done within 30 minutes. 32 cases (55.2%) have been completed within 2 hours and 72.4 % before 5 hours.
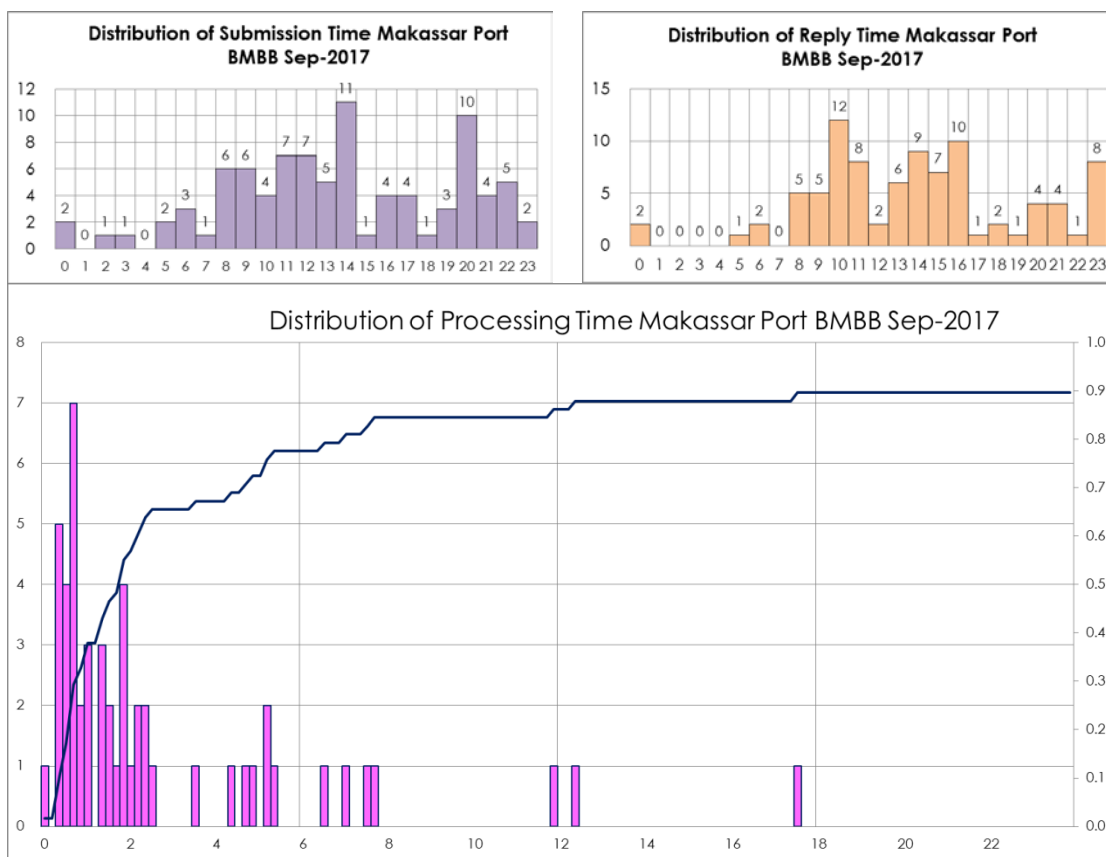
Source: Prepared by Data downloaded from Monitoring-INAPORTNET

Figure II-2-26 Distribution of Submision/Reply Time and Processing Time of BMBB

(k)BUNKER (Approval of Filling Fuel)

The number of submissions of BUKER in September 2017 was 111. Submission in the daytime (12 hours from 6 o'clock to 18 o'clock) was 97 (87.4 %) and no submission is in the late night (3 hours from midnight to 3 o'clock). The time distribution pattern shows a chevron with two peaks at 8 and 12 o'clock.

Reply in the daytime (12 hours from 6 o'clock to 18 o'clock) was89 (80.2 %) and that in the late night (3 hours from midnight to 3 o'clock) was 1 (0.9 %). The time distribution pattern shows a chevron with a peak at 11 o'clock.

The number of used data in analysis on processing time is 73.The average processing time of BMBB was about 2 hours. It is about 22 hours in the case requiring the longest time and 9 seconds in the case of the shortest time. 7 cases (9.6%) were done within 10 minutes and 24.7% was done within 30 minutes. 54 cases (74.0%) have been completed within 2 hours and 95.9 % before 5 hours.

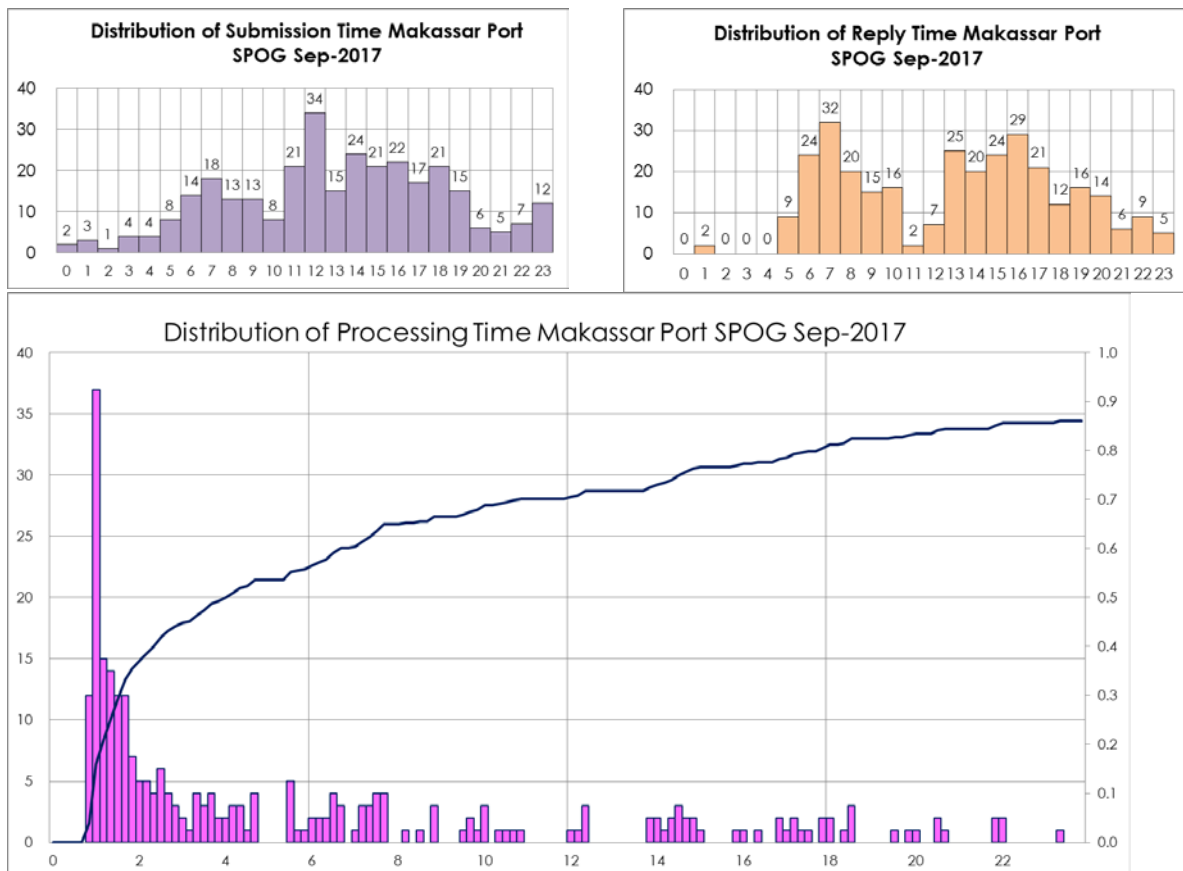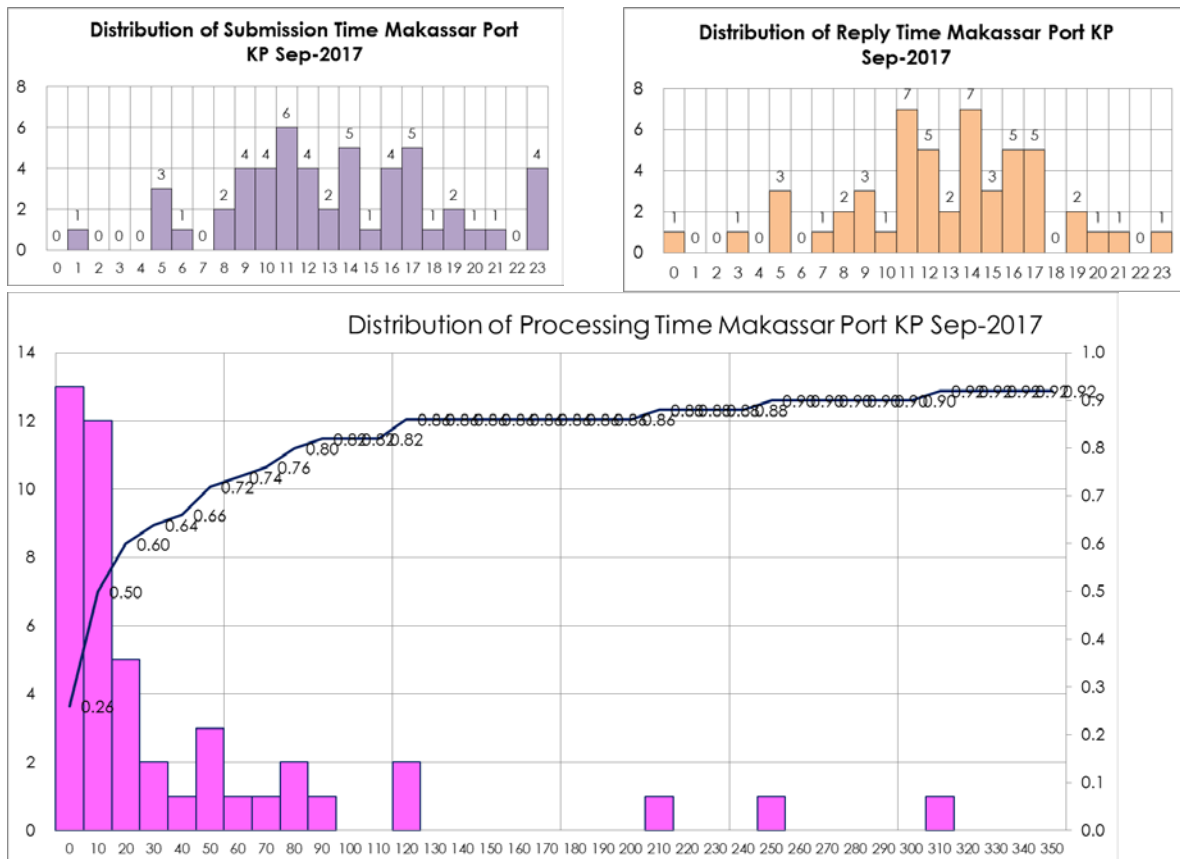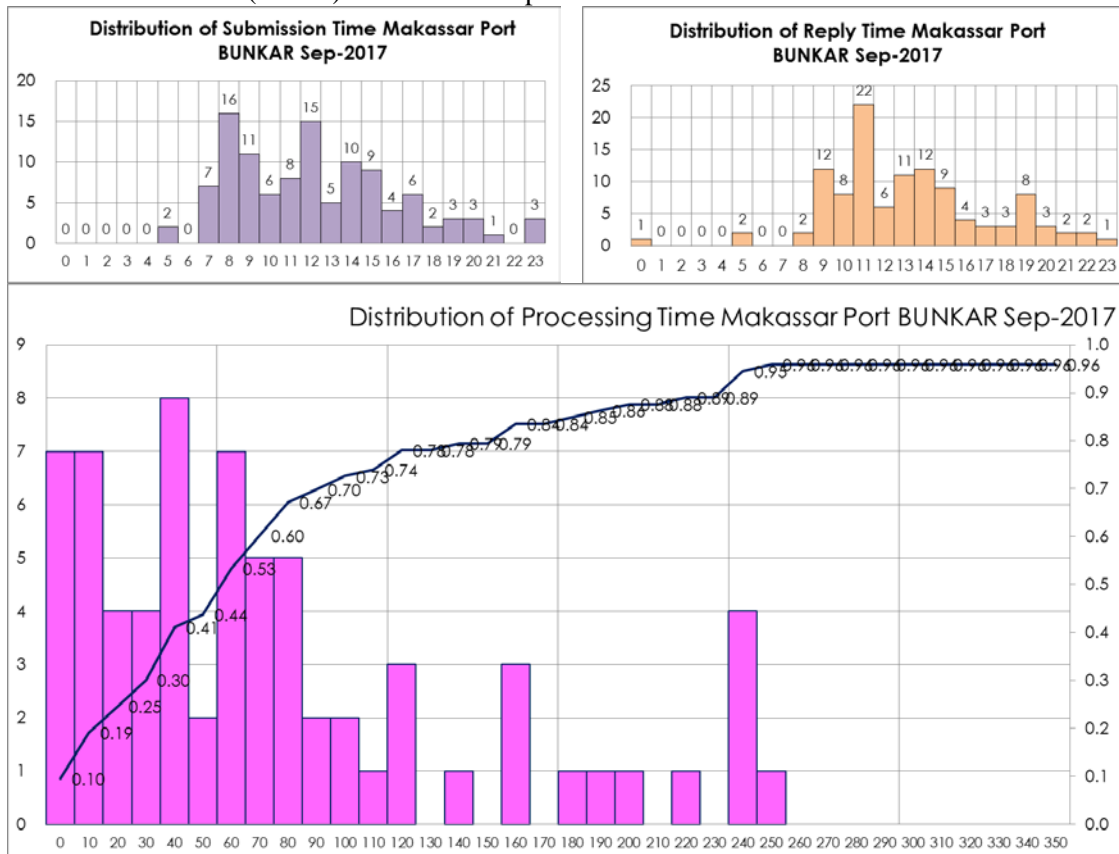Source: Prepared by Data downloaded from Monitoring-INAPORTNET

Figure II-2-27 Distribution of Submision/Reply Time and Processing Time of BMBB

(4)Analysis of Submission Time

A ratio of submission in the daytime of each document to the Port Authority was 52.2 % to 87.4% and that to Harbor Master was 49.1%and 75.4%. Applicants entered data for application into INAPORTNET even in late time. 135 submissions were done in late time at Makassar Port in September 2017.

About 70-75% of documents of notice of arrival (PKK) and for approval of port entry (SPM) were submitted in the daytime. About 75% of documents on loading and unloading activity plans were also submitted in the daytime. 65.6% of documents on dangerous cargo (BMBB) are submitted in the daytime. The number of submitted documents when a vessel departs from the port (LKK, LK3, SPB) was almost the same in the daytime and night time (18:00 to 06:00). A certain percentage (4.7%, 4.7 %and 7.6%) of LKK, LK3 and SPB were submitted in late time. The peak times of each document appear mainly in the daytime.

Records show that about three-fourths of documents prepared before entry to a port are submitted in the daytime. On the other hand, documents required for departure are generally submitted after 06:00 PM according to the graphs of time distributions.

Applicants submitted documents at night without going to the offices of the Port Authority or Harbor Master. This is one of the most basic benefits of port-related procedures through INAPORTNET.

Table II-2-9 Submission Time at Makassar Port

Document	Submission	Submission in Office Time (6am-6pm)	%	Submission in Late Night*	%	Peak Time
Port Authority						
PKK	404	294	72.8%	14	3.5%	8h、19h
RKBM	237	294	75.4%	17	4.4%	8-9h
PPK	516	355	68.8%	8	1.6%	10h, 16h
KP	51	38	74.5%	1	2.0%	11h, 14h
LKK	408	213	52.2%	19	4.7%	15h
LK3	408	213	52.2%	19	4.7%	15h
BMBB	90	59	65.6%	3	3.3%	14h, 20h
BUNKAR	111	97	87.4%	0	0.0%	8h, 12h
Harbour Master						
SPM	390	294	75.4%	17	4.4%	8h
SPOG	308	220	71.4%	6	1.9%	12h
SPB	407	200	49.1%	31	7.6%	22h

Note: daytime:06:00 – 18:00,   late night: from mid-night to 3 AM

(5)Analysis of Reply Time

A ratio of reply in daytime of each document to the Port Authority was 46.6 % to 80.2% and that to the Harbor Master was 44.2% to 76.3 %. Officials of the Port Authority and Harbor Master entered reply data into INAPORTNET in even late time. 221 replies were done in late time at Makassar Port in September 2017.

About 67.8% and 74.9% of documents of notice of arrival (PKK) and for approval of port entry (SPM) were replied to in the daytime. The number of documents replied to for vessel departures from the port (LKK, LK3, SPB) was almost the same in the daytime and night time (18:00 to 06:00). A certain percentage (8.1 %, 13.7% and 16.5 %) of LKK, LK3 and SPB were submitted in late time. The numbers of documents on loading and unloading activity plans (RKBM) is also almost the same in the daytime and night time. The peak times of each document appear mainly in the daytime.

Officials of the Port Authority and Harbor Master of Makassar Port respond to applications regardless of the time of day or night.

Table II-2-10 Reply Time at Makassar Port

Document	Submission	Submission in Office Time (6am-6pm)	%	Submission in Late Night*	%	Peak Time
Port Authority						
PKK	404	274	67.8%	23	5.7%	9h
RKBM	237	130	54.9%	10	4.2%	20h
PPK	516	360	69.8%	12	2.3%	10h
KP	51	41	80.4%	1	2.0%	11h, 14h
LKK	408	199	48.8%	33	8.1%	22h
LK3	408	190	46.6%	56	13.7%	0h
BMBB	90	89	80.2%	2	2.2%	10h, 16h
BUNKAR	111	67	74.4%	1	0.9%	11h
Harbour Master						
SPM	390	292	74.9%	14	3.6%	8h
SPOG	308	235	76.3%	2	0.6%	7h, 16h
SPB	407	180	44.2%	67	16.5%	0h

Note: daytime:06:00 – 18:00,   late night: from mid-night to 3 AM

(6)Analysis of Process Time

The numbers of applications processed within 10 minutes, 30 minutes, 2 hours, 5hours and one day by document at Makassar Port in September 2017 are shown in Table II-2-11. Almost no actions for replying to documents other than PPK (Decision of Vessel Berthing), KP (Approval of Berth Shift) and BUNKER (Approval of filling fuel) were taken. The procedures of these documents began after 30 minutes and were almost all completed within 5 hours except BUNKER (Approval of filling fuel), SPM (Approval for Port Entry) and BMBB (Approval of Loading and Unloading of Dangerous Cargo).

Regarding RKBM (Submission of Loading and Unloading Activity Plan) and SPM (Approval for Port Entry) more than 60% of applications stayed in an incomplete stage even after one day. Procedures for PPK (Decision of Vessel Berthing), KP (Approval of Berth Shift), BUNKER (Approval of filling fuel) and BMBB (Approval of Loading and Unloading of Dangerous Cargo) proceeded according to the passage of time.

The reason why few actions were taken within 30 minutes is not understood and needs to be clarified. It is thought that SPM is submitted early with enough allowance.

Document	Within	10 min.	Within	30 min.	Within	2 hours	Within	5 hours	Within	1day
Port Authority										
PKK	1	0.3%	1	0.3%	328	88.9%	357	96.7%	368	99.7%
RKBM	0	0.0%	0	0.0%	13	5.5%	44	18.6%	102	43.0%
PPK	163	33.7%	312	64.6%	397	82.2%	421	87.2%	478	99.0%
KP	13	26.0%	30	60.0%	41	82.0%	45	90.0%	50	100.0%
LKK	0	0.0%	0	0.0%	335	82.1%	377	92.4%	403	98.8%
LK3	0	0.0%	0	0.0%	164	40.2%	333	81.6%	403	98.8%
BMBB	1	1.7%	6	10.3%	32	55.2%	42	72.4%	52	89.7%
BUNKAR	7	9.6%	18	24.7%	54	74.0%	70	95.9%	73	100.0%
Harbour Master										
SPM	0	0.0%	0	0.0%	13	3.3%	50	12.8%	150	38.5%
SPOG	0	0.0%	0	0.0%	109	35.4%	165	53.6%	265	86.0%
SPB	0	0.0%	0	0.0%	287	70.9%	369	91.1%	405	100.0%
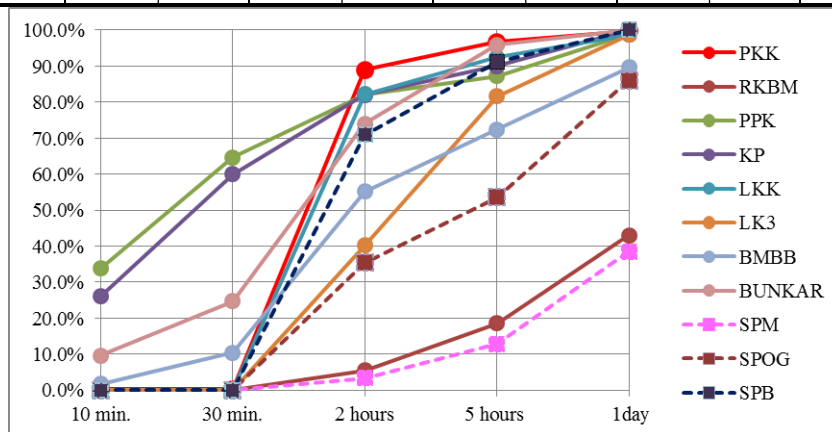
Note：The result of this analysis shows documentation process through INAPORTNET

Figure II-2-28 Number (parcentage) of Cleared Documents by Time (Makassar Port)

II-2-3 Other Ports

In the two main ports (Belawan port and Tanjung Perak port) other than Pilot Ports and other 12 ports (Bitung port, Tanjung Emas port, Ambon port, Banjarmasin port, Teluk Bayur port, Palembang

port, Pontianak port, Balikpapan port, Panjang port , Sorong port, Gresik port and Banten port), port related procedures are carried out through INAPORTNET. Figure II-2-29 shows that the number of applications in a month after Go-Live. Main ports and some other ports show a stable situation in terms of the number of applications. The situation at some ports is not yet stable but is expected to become stable in the near future.

According to Figure II-2-30, the number of applications at some ports other than main ports
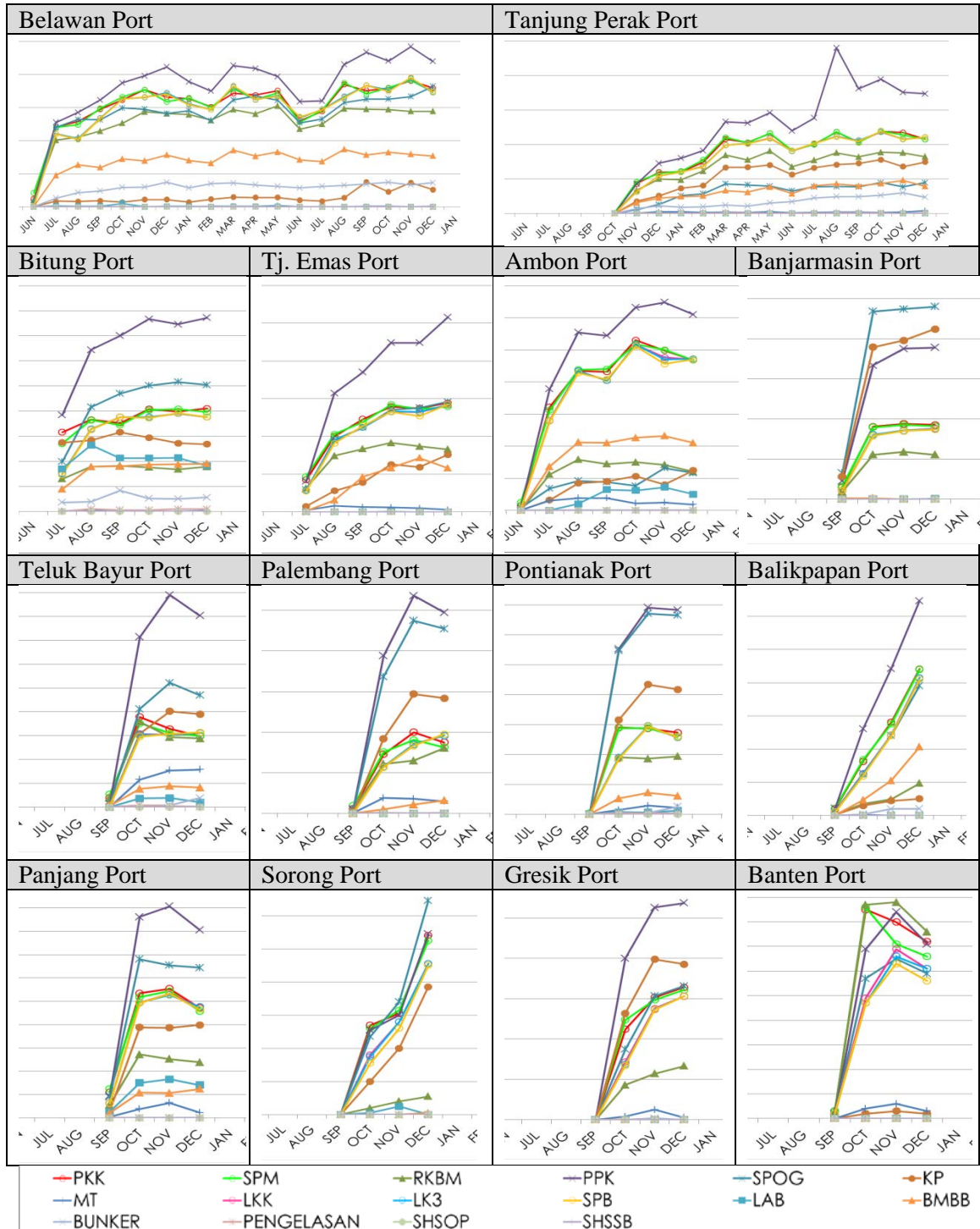
Figure II-2-29 Number of Application in Each Month by Document

exceeds that of Belawan Port and Makassar Port. It seems that the analysis of these ports is necessary to grasp nationwide port activities.

Table II-2-11   Applications by Documents of Each Port (December 2017)

Document	BITUNG	Tj. EMAS	AMBON	BANJARMASIN	TELUK BAYUR	PALEMBANG	PONTIANAK	BALIKPAPAN	PANJANG	SORONG	GRESIK	BANTEN	BELAWAN	Tj. PRIOK	Tj. PERAK	MAKASSAR
PKK	205	289	234	185	149	175	273	883	236	108	657	72	359	1,327	1,077	407
SPM	198	279	234	182	150	163	260	879	229	105	645	66	348	1,315	1,076	395
RKBM	89	166	60	111	144	161	194	195	119	11	267	76	289	1,110	823	215
PPK	386	516	305	378	402	495	684	1,294	403	109	1,075	71	440	2,691	1,735	496
SPOG	252	292	58	480	235	455	666	782	322	129	664	59	364	1,935	446	371
KP	134	152	62	424	195	284	418	101	199	77	772	2	52	1,003	746	49
MT	2	6	9	0	79	30	22	1	11	0	11	3	1	187	40	4
LKK	188	283	235	176	156	192	257	830	238	91	613	61	346	1,334	1,104	396
LK3	188	284	236	175	156	192	257	830	238	91	614	61	346	1,330	1,104	395
SPB	188	285	235	174	157	195	258	822	232	90	614	56	347	1,348	1,107	398
LAB	91	0	25	1	10	0	11	0	70	0	0	0	0	0	0	2
BMBB	95	116	105	0	41	32	61	414	62	1	0	0	154	543	393	101
BUNKER	28	0	0	0	19	0	25	41	0	0	1	0	73	0	235	107
PENGELAS AN	5	0	0	0	1	1	3	0	0	0	0	0	0	0	11	13
SHSOP	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SHSSB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
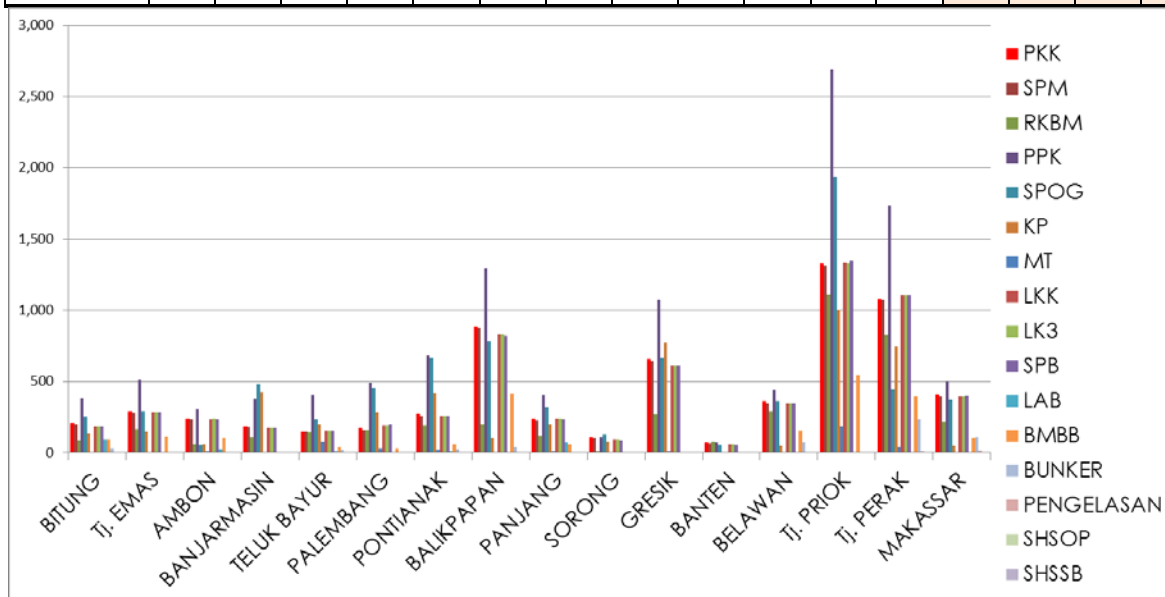
Source: Monitoring-INAPORTNET

Figure II-2-30 Applications by Documents of Each Port (December 2017)

III. Urgent Technical Improvement Plan and Short-Term Improvement Plan

III-1 Urgent Plan

III-1-1 Technical Issues of Current System of INAPORTNET

The INAPORTNET system is currently working without critical problem however the implementation and deployment has been carried out rapidly. Therefore, the point to concern for the INAPORTNET system will be more focused on the situation after expansion to 16 targeted ports.

More specifically, based on current situation, the following concerns and risks will be listed up from the viewpoint of "Application", "Infrastructure" and "Operation and Maintenance (O&M)".

III-1-1-1 Application

(1)Increase of User Access

Since INAPORTNET has a huge number of users and data items to be handled, it will fatefully force the increase of access (from its number and time). Especially, the fore part of overall port arrival/departure process which has a lot of data input will accumulate a large volume of access and it will be a burden on the system with the growth of users and vessels.

As a result, the following issues will be affecting to the system use.

- Increase of access will erode the system resource, so it may cause a system performance down and requires system enforcement.

- System performance down will result the increase of system using time, so that it will inflate the sense of burden for users.

(2)Complexity of Total System Work Flow

The workflow of INAPORTNET is a long process consists of applications and approvals by Ship Agent, Port Authority, Harbor Master, PELINDO and other entities related to arrival/departure of vessels. Therefore, the users sometime caused to have a long waiting time for the application to be approved. The current system covering all workflow, but it is not showing its workflow easy-to-understand. More specifically, it does not indicate information such as the current situation, status of approval time to process, so the user will know that their turn had come when it is approved and the button for proceeding to next process has been activated. User also does not know who (which officer) is handling the process now.

According to this situation, the following issues will be expected to affect the system performance and the process.

- If users are in harry, they will keep windows open and reload it every second until the change will happen, so that it will increase the session and system load wastefully.

- Users do not have information about who is handling the application currently. As a result, it will be a burden for helpdesk operators to find the person and confirm situation. Then it will prolong helpdesk's response time.

III-1-1-2 Infrastructure

(1)Concern on Shortage of System Resources

In usual case, the system capacity is designed as the expected peak load to become less than 80% of maximum system load. However, after the Go-Live, the system has been downed for more than three times due to over session. Moreover to the situation of over session mentioned on above,

INAPORTNET is difficult to escape from the additional flood of user access (against the system capacity) caused by rapid expansion of target port.

According to this situation, the following issues will be expected to affect the system performance and the process.

- A server down due to over access may cause more frequently than current. In case of system failure, the manual operation will take after to continue the business. however, if the system stops so frequently, it may seriously affect the quality of port services.

- Since the system is implemented into MOT's datacenter, INAPORTNET is sharing common infrastructure such as network equipment including load balances with other MOT systems. Hence, an extreme load on INAPORTNET may affect not only the INAPORTNET itself but also the all other systems in MOT datacenter.

(2)Instability of Network Infrastructure

A network problem is the issue which occurs more frequently than the server downs mentioned above. Moreover, the access network stoppage at Port Authority or Harbor Master is more critical because the most of approving process of INAPORTNET is conducted by these port bodies will affect directory to service continuity of INAPORTNET.

In Indonesia, the access network in suburban area is still instable however the national telecommunication network such as marine cable has been developed. Therefore, the access network for Port Authority or Harbor Master implementing two types of access network parallelly, the wired (such as fiber or ADSL) and wireless (such as mobile broadband). Though, it is still instable and unfortunately it stops frequently.

Like the challenges mentioned above (a lack of system resources), those kinds of network problem will affect the port related process (even if the damage will be limited to the port), and usually the network issues may take more time to be recovered comparing to a server incident as above.

(3)Disaster Resiliency

Recently, all INAPORTNET infrastructure is installed to the datacenter in Jakarta, and by concentrating to a single site, O&M resources are optimized. On the other hand, there is no redundancy method has been taken yet. Not limited to major disaster, the datacenter facility itself possibly have an incident (e.g. black out, violent attack, failure of emergency system), and that case, INAPORTNET does not have a systematical backup plan currently.

In current situation, manual procedure will take place in case that INAPORTNET system is impossible to operate. However, if INAPORTNET has been penetrated and used more, the staffs will be unfamiliar to the manual procedure because of a lack of experience. In that case, it will be more difficult to take manual countermeasures.

Additionally, that case will possibly force the longtime for recovering the system and may cause damage on the past ICT/data property.

III-1-1-3 Operation and Maintenance

(1)Increase of Inquiry to Helpdesk

According to the expansion of target port, INAPORTNET users are dramatically increasing. Moreover, it is planned to be deployed to local ports after the expansion to 16 ports, so the users who are not familiar with ICT will participate to the system. Therefore, an inquiry from users will significantly increase compare to current situation.

Nonetheless, while MOT's general helpdesk is responsible as a primary contact point, further response will be redirected to and handled in INAPORTNET officers and relatives. Actually, because INAPORTNET is a very specific and technical system, the most of inquiries are redirected to them. However, the current tools for user support are not adequately implemented, and such user support

work is now conducted using Whatsapp, a familiar (but not for professional) chat communication service used in Indonesia broadly. More specifically, Whatsapp groups has been organized for each community's objectives (e.g. a community of each port, each port operator companies), then confirm and handle (discuss) in each community by chatting on Whatsapp.

Therefore, the one by one management for each inquiry (such as a management by using ticket system) is not introduced, and the inquiry has not sorted, counted and analyzed statistically.

According to this situation, the following issues will be expected to affect the system and service of INAPORTNET.

- Without one by one inquiry status handling in the situation of the user/inquiry increase, it is expected to cause miss communications such as omissions, contradictions or overlaps. This will possibly debase process performance of total vessel arrival/departure business as well as enlarge a feeling of incredulity.

- It is impossible to upgrade the efficiency of inquiry response without analysis an innovation such as standardization of response based on the trend analysis of inquiry.

(2)Information Share between O&M Stakeholders

Currently, the operation of INAPORTNET infrastructure and Frontend system (a part of Application) are conducted by PUSTIKOM as same as other systems, and its maintenance is outsourced to the O&M provider (the provider of datacenter).

On the other hand, other part of INAPORTNET application is developed by DGST and PUSTIKOM by outsourcing to software company as well as its maintenance.

Since the budget for INAPORTNET is prepared by DGST, DGST is responsible to make all decision regarding to the operation and maintenance.

In case of system enhancement, these relatives (DGST, PUSTIKOM and O&M provider) have to cooperate unitedly with sharing exact information to decide and execute enhancement or modification.

Currently the O&M meeting is held as required and the situation and problem are shared by those relatives. However, the basic operation data to make a decision upon statistical viewpoint has not been collected systematically.

According to this situation, the following issues will be expected to affect the system and service of INAPORTNET.

- The investment decision on INAPORTNET will be the responsibility of DGST. Actually, data for the prediction of user and application increase is controlled by DGST but it is difficult to make a decision on investment plan without comparison with statistical data regarding to system use situation.

- According to the following three parallel situations of relative's mission, and without sharing objective data on current situation, it is difficult to make an exact decision about investment regarding to INAPORTNET.
  - ➢ PUSTIKOM is not responsible only to INAPORTNET but all MOT systems.
  - ➢ Datacenter provider is under the contract with PUSTIKOM, so the work direction would be come from PUSTIKOM.
  - ➢ PUSTIKOM cannot decide system investment on INAPORTNET.

III-1-2 Urgent Improvement Plan

III-1-2-1 Purpose of Urgent Improvement Plan

Since INAPORTNET is expanding rapidly to cover 16 ports, expectedly 80% of vessel's arrival/departure in Indonesian port, the load applied on system is expected to increase in quite short time.

According to challenges listed above, the most emergency matter to concern is how the system can prepare for this rapid expansion.

The simplest way to fulfil the gap between "Actual load on system" and "Resource Capacity of the system" is an enhancement of the system resource (add or upgrade the system performance). However, an enhancement of system resource will usually need large budget for implementing additional equipment, and it is difficult to prepare in short term especially with the annual budget operation of government organizations.

On the other hand, to reduce the current or future increasing load on system is another approach to find out the matching point between necessary system capacity and actual load, and some of the measures for this will possibly not require large amount of budget.

Therefore, the scope of the Urgent Improvement Plan would be more focused on "Reduction of system load" which can execute immediately without large budget.
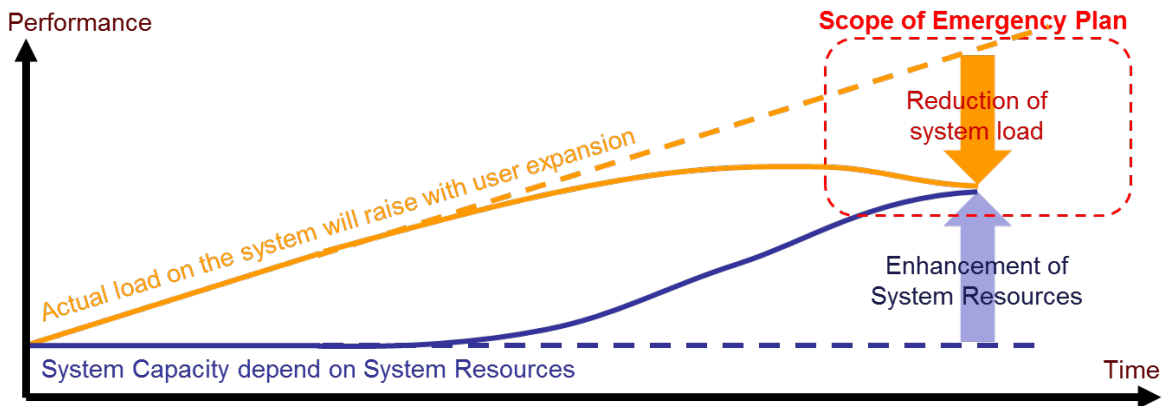
Source: JICA Project Team

Figure III-1-1 Scope of Urgent Improvement Plan

From the viewpoint of reduction of system load, challenges listed above indicates that, (1) rapid increase of user is the primary issue to concern for the system, (2) data to analyze system situation was not captured chronologically / continuously, and (3) some environmental instability may affect to the system continuity.

Therefore, the base concept of Urgent Improvement Plan will be;

- to understand the system load status statistically <Status Monitoring>

- to remove the unnecessary system load raising factors <Waste Elimination>

- to improve the system without large budget <Easy Improvement>

III-1-2-2 Measures

According to the challenges, the measure which is immediately executable without huge resource preparation will be proposed as the followings which is immediately executable. As an actual

execution for each measure, it must be reconfirmed from the feasibility aspect and budget aspect, then should be started from possible items.

Correspondence between measures and current challenges is shown in below table.

Table III-1-1 Coverage of the measures against current challenges

Emergency measures	Application		Infrastructure			O&M		
	Increase of user access	Complexity of total work flow	Concern on shortage of system resources	Instability of network infra	Disaster resiliency	Increase of Inquiry to helpdesk	Information share btw. O&M stakeholders	
General Measure								
1) Confirmation of O&M feature / framework	✔		✔					✔
Status Monitoring								
2) Statistical analysis of access load on system	✔		✔					
3) Prediction of future volume of access	✔		✔	✔				
4) Formulation of the System Enhancement Plan			✔	✔				
Waste Elimination								
5) Introduction of Inquiry Management System						✔		
6) Addition of total workflow and current status		✔						
7) Introduction/enhancement of notification function	✔	✔						
Easy Improvement								
8) Consideration of System backup in remote place					✔			
9) Enforcement of network infrastructure				✔				

(1)Enhancement of Relation for O&M Feature / Framework

The purpose of operation and maintenance is not only to run the current system continuously but also to apply the PDCA cycle from long-term viewpoint.

ITIL, the best practices for system operation which is referred in worldwide, is indicating the process related to operation as below.

Table III-1-2 Process related to Operation (Referring from ITIL v3)

	Category		Process
1.	Service Strategy	Confirmation of the role and features for IT according to business purpose	• Service Portfolio Management • Financial Management
2.	Service Design	Implementation of functional and cost-effective services	• Service Catalog Management • Service Level Management • Availability management • Capacity Management • IT Service Continuity Management • Security Management • Supplier Management
3.	Service Transition	Improvement of capability for the change of business needs	• Change Management • Service asset and configuration management • Release and deployment management
4.	Service Operation	Adaptation of effective and ensured IT management and service	• Event Management • Incident Management • Request Fulfilment • Problem Management • Identity Management

Source: ITIL

The Operation team of INAPORTNET is established by collaboration of three parties DGST, PUSTIKOM, and O&M provider.

Currently, there is no direct contract between DGST and O&M Provider, however for smooth operation, the all three related parties should cooperate closely to carry out the O&M work for the system.

In particular, the three parties should periodically confirm the system status data provided from the O&M provider. (especially the usage situation related to the budget plan for the next fiscal year).
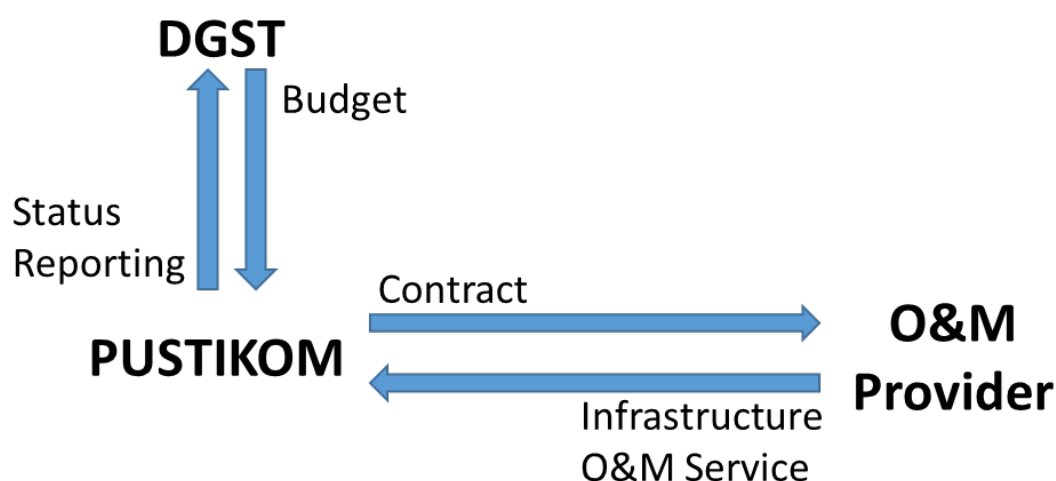
Source: JICA Project Team

Figure III-1-2 Relation of INAPORTNET Operation team (DGST/PUSTIKOM/O&M provider)

1) O&M items

In order to carry out O&M with close collaboration, three parties should clarify the O&M work items, responsibility of each organization, and to share the status at all times.

According to the example format for procurement of system O&M support which is provided from Information-technology Promotion Agency Japan (IPA), the following items are defined as O&M work for operating and managing government system.

Regarding these items, it is desirable to define practical methods and constantly grasp the status and result of O&M between DGST, PUSTIKOM and O&M Provider.

1. Support on operation management
   - Formulation of system operation plan
   - Formulation of system operation instruction (manual)
   - Evaluation and improvement of system operation work
   - Arrangement of O&M meetings

2. System monitoring
   - Operation schedule management
   - System status monitoring

3. Incident management
   - Response according to past incident case
   - Escalation management (to problem management, if necessary)
   - Record of response and result

4. Problem management (incl. risk management)
   - Primary fault isolation, notification to responsible organization
   - Recovery operation according to the Incident Recovery Manual
   - Management of recovery work, confirmation of recovery completion
   - Execution of temporary measure (if necessary)
   - Record of incident response, statistical analysis

5. Activity report
   - Periodical report (monthly, semiannual…)
   - Serious incident report
   - Provision of incident data

6. Inquiry response (Q&A)
   - Management of inquiry
   - Preparation of answers for inquiry
   - Management and analysis of Q&A

7. Software update
   - Collection of patch release information, vulnerability information
   - Formulation of vulnerability response plan

- Periodical release (update) of business application
- Immediate release (update) of business application
- Application of bug fixing module for OS and middleware
- Application of virus pattern file

8. Configuration management

- Management of configuration information database
- Management of terminal connection policy
- Management of vulnerability measure condition

9. User management

- User management support of product environment
- User access control support of product environment

10. Database operation management

11. Support on security monitoring

2) Binding of SLA

For executing certain O&M, DGST and PUSTIKOM should define and agree (or review if it already exist) SLA (Service Level Agreement) with O&M Provider, and to manage the content and complying situation.

Below is an SLA introduction guideline that the Ministry of Economy, Trade and Industry of Japan (METI) provides for other ministries and government agencies as an example of service level evaluation item and request level.

In addition to the following service level evaluation items and required levels, it is necessary to discuss and agree the evaluation method (calculation formula, etc.) and the treatment at the time of failure more specifically.

Table III-1-3 Example of SLA items

Service Category	Service Level Evaluation Item (example)	Service Level Request Level (example)
System Operation (Data Center)	Server availability	More than 99.8%
	Application availability	More than 99.8% (for mission-critical applications) More than 90% (for non-mission-critical applications)
	Achievement rate of standard response time	More than 93% (Standard response time: 3 seconds)
	Achievement rate of scheduled completion time for batch process	More than 95%
	Achievement rate of documents delivery time	More than 93%
	Ordinary backup rate	100%
	Achievement rate of notification of incident to users	100% (within 15 minutes)
	Occurrence frequency of serious incidents	No more than 2 times per year

Service Category	Service Level Evaluation Item (example)	Service Level Request Level (example)
	Recovery time	Less than 6 hours for every incident
	Result of user satisfaction survey	More than 4 points out of 5 points
LAN/Desktop	LAN availability	More than 99%
	Occurrence frequency of incidents	No more than 2 times per year
	Achievement rate of recovery time	More than 95% (within 4 hours)
	Achievement rate of equipment delivery	More than 95% (within 3 days for standard terminals)
	Completion rate of hardware maintenance	More than 90% (within 4 hours for on-site maintenance)
	Completion rate of replacement, change and additional works	More than 95% (within 1 day for on-site work)
	Result of user satisfaction survey	More than 4 points out of 5 points
Helpdesk	Phone call loss rate	Less than 3%
	Average waiting time of call	Less than 20 seconds
	Average holding time of call	Less than 30 seconds
	Average call time	Less than 5 minutes
	Completion rate by 1st call	More than 80%
	Solving rate	More than 95% (within 1 day)
	Result of user satisfaction survey	More than 4 points out of 5 points
Network	Network availability	More than 99.9%
	Occurrence frequency of serious incidents	No more than 2 times per year
	Achievement rate of recovery time	More than 95% (within 4 hours)
	Recovery time	Less than 6 hours for every incident
	Connection point extending time	Less than 2 months
Security	Grasp of new virus information	Less than 1 hour after identification by service vendor
	Application time of virus pattern file	Less than 6 hours after the release
	Occurrence frequency of serious incidents	0 time
	Achievement rate of recovery time	More than 95% (within 4 hours)
	Recovery time	Less than 6 hours for every incident

Source: Ministry of Economy, Trade and Industry of Japan (METI)

(2)Statistical Analysis of Access Load on System

Access on the system is the critical data for understanding how much load has been applied to the system. All relatives should be shared the data to promote operation and maintenance.

As example, the principal data is as the table below.

Table III-1-4 Principal data items to understand load on system

		Data item	Description	Example of Detail, Unit of data
App. Servers	1	Number of Actual Users	The number of user account which is actually accessing the system	● By user category ● By time (every hour)
	2	Number of Sessions	The number of sessions applied to servers	● By time (every hour) ● Relation between sessions and terminals
	3	Number of Page view	The number of page view for each system screen (web pages)	● By page (mainly large PV number pages) ● By time (every hour) ● Newly accessed or reloaded
	4	Response time of each pages	Time spend for response each system screen (web pages)	● By page (ex. top ranking pages) ● Average
DB Servers	5	Number of DB access	The number of access on DB server from App. servers	● By time (every hour) ● By total accessing time
	6	Situation of DB process	The processing time of each query request on DB	● By time (every hour) ● By type of query (by service)

Source: JICA Project Team

(3) Prediction of Future Volume of Access

From the viewpoint of future system investment, the past trend and future prediction should be analyzed by three parties such as the followings.

- Number of Users: the number of users in target port (such as Number of Ship Agent, etc.), its prediction can be made from the current registered user entities in each port.
- Number of Applications: the number of application applied and processed in INAPORTNET, its prediction can be made from a calculation based on past trend of applications by number of users.

These numbers are expected to have a correlation with the data regarding to above (2), and the future system load will be predictable by analysis of these data.

(4) Formulation of the System Enhancement Plan

Based on the future system load calculated in above, the System Enhancement Plan should be formulated by DGST according to further consideration on necessary system performance and system enhancement as well as taking the budget cycle into account. In the case of annual budget operation, the System Enhancement Plan expected to define annual enhancement activities until more than three or four years further with its data and prediction regarding to the necessary system performance.

On the other hand, as compliant to the latest trend of technology, the server virtualization technology is already implemented to current infrastructure, and servers in datacenter have been clustered. Therefore, the infrastructure is able to change its system resource allocation flexibly, easily and quickly, if the budget can be applied as flexible as this technology. Hence, to assure the appropriate system resource, the operation for flexible budgeting should be concerned parallelly with the System Enhancement Plan.

(5)Introduction of Inquiry Management System

The stoppage of business according to the unclear usage in INAPORTNET will be not only the stress and loss for users but also loss for the administrator side port arrival/departure related business operation.

The essential goal for helpdesk function will be summarized in following three things.

<The goal for helpdesk function>

- To increase user satisfaction by accurate and prompt support

- To contribute to the smooth operation of the whole work by accurate and prompt support

- To collect and analyze the contents of inquiries from users and to contribute to grasping and improving problems of the system.

In order to accomplish these goals, in view of the current situation mentioned above, the following points will be challenges for the helpdesk function of INAPORTNET.

<Challenges on current helpdesk function structure>

- Inquiries not via # 151 are not recorded and managed. Therefore, as inquiry increases due to expansion of target ports and addition of service, there is concern that the risk of untreated neglect will increase.

- No records are left for inquiries not via # 151. For this reason, statistical analysis of inquiries cannot be performed, and the trend cannot be grasped. As a result, efficiency improvement (such as preparing FAQ) for inquiries cannot be planned, and it is impossible to examine measures for the #3 of above-listed goals.

In the case of large-scale inquiry management, the system called Ticket System is generally used. Infomedia, who operates #151, is owning necessary systems and preparing staffs capable of managing large-scale inquiry.

However, as a fact, the most query in INAPORTNET will not pass #151, so how to make them manage-able is the most important subject.

Meanwhile, the Whatsapp communication that currently using in escalating inquiries internally is quite convenient, familiar and cost saving and it is utilized effectively so far. Therefore, it is ideal to connect the Whatsapp (or similar chat tools) with inquiry management system. However, that kind of system development will require the cohesive cost, so that it is recommended as a beginning step to put a person in charge of sort, categorize and record the Whatsapp transactions and make the data of inquiry first.

As for immediate plan, by analyzing the trend of inquiries, pick up the frequently asked series and standardize the response for those to make it possible to process in Tier 1 level contact point, or take a countermeasure to reduce the similar inquiries by adding some guidance to users.

The measures to enhance capacity for responding inquiry such as above will be critical for supporting more users within current human resources.

Furthermore, following approach will be expected for permanent structure which the operation team should have in view.

- Merge primary acceptance window of inquiries to #151 which have necessary facilities and know-how for helpdesk (even in case inquiry casted to HM and PA, it must be guided to ask #151).

- Initially, the escalation rate will be high and it becomes inefficient. However, the improvement of the primary reception quality based on inquiry management and trend

analysis by #151, the burden of handling inquiries at operation team can be reduced and a sustainable system can be constructed.

● Minimize the impact on HM and PA operations (time loss due to inquiry response) and smoothen their procedure.

● For reference, in case of core business systems operated by Japanese government agencies, it is often that outsourcing the helpdesk function together with system operation. According to this method, Japanese government agencies are trying to build a special helpdesk for each important system.
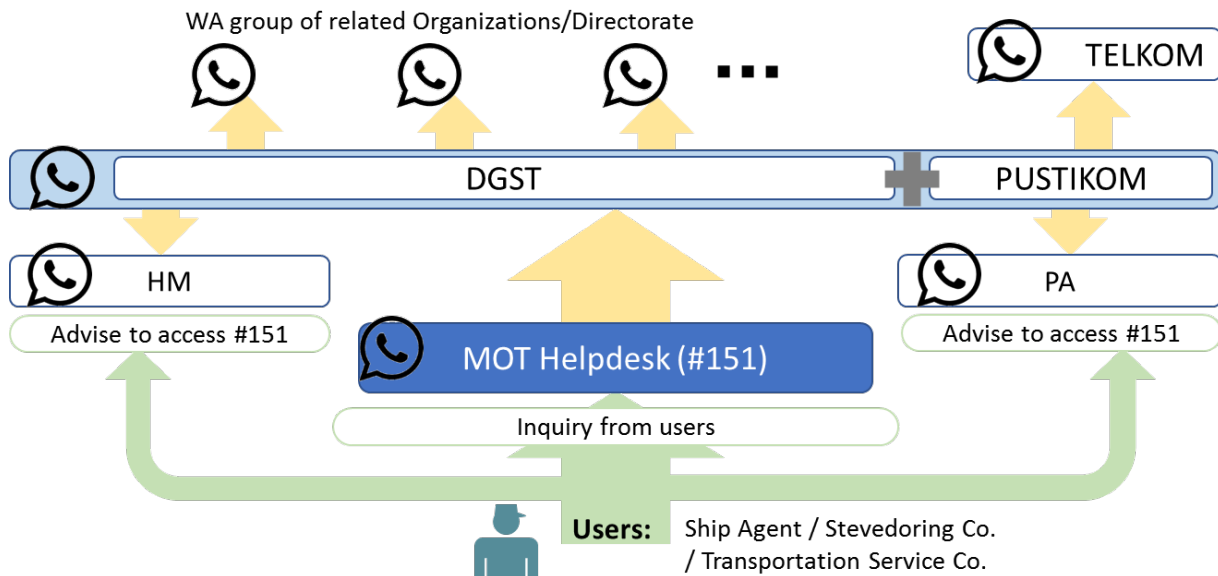
Source: JICA Project Team

Figure III-1-3 Measure for improving helpdesk function

(6)Addition of Total Workflow and Current Status

The current user interface is designed to select a target application from the menu bar and process it, so it is easy to grasp how many and what kind of applications have been submitted or under the creation at the moment.

However, when focusing to the single vessel's port related procedure, there is no function to visually grasp what kind of workflow will be applied to the vessel and what is the current completion status.

INAPORTNET should equip the following workflow chart interface. With this function, user will be able not only to grasp the progress status of each port related procedure but also to grasp the person in charge to approve and the approve step, so that it will possible to infer how long does it take to be approved and where to put inquiries if it necessary.

Therefore, it will make more efficient for users to ask inquiries and to create/submit applications.
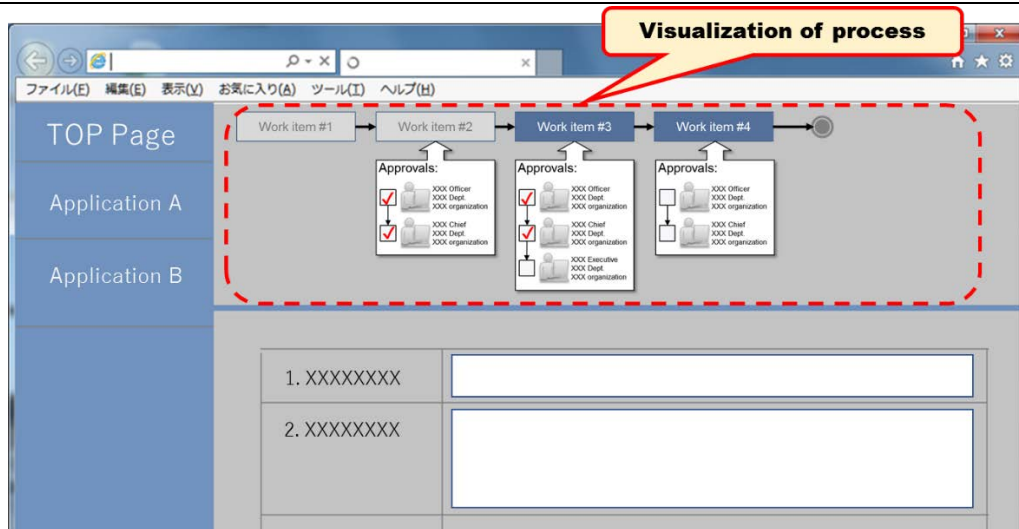
Source: JICA Project Team

Figure III-1-4 Image of workflow chart (1)

(7)Introduction/enhancement of Notification Function

Related to above, it is recommended to add the notification function by such as e-mail or message when the approval process ends and the user's turn for next step comes.

In case that users waiting for approval of applications, they used to keep reloading the screen until it is approved, so that sometimes it will apply the huge unnecessary load to the application server especially if the page contains the DB query.

By contrast, it is also a waste of time for users to wait the approval in front of PC with keep pushing reload button. Hence, by implementation of these notification functions, users can save unnecessary work as well as reducing unnecessary load.

(8)Enhancement of System Backup in Remote Place

As for system backup method to ensure the continuity of business, there are some scalability from "Remote data backup" to "Hot Standby" (which is called "active-active standby").

Option	Brief description	Cost	Tasks for recovery	Downtime	Evaluation
Hot standby	• DR site is a duplicate of Production site. • All HW/SW/NW are installed and configured. • Data is mirrored continuously from Production site to DR site. • System in DR site is up and running.	Expensive	• Activate network access	Short	○
Warm standby	• Remote site (data center) is prepared. • HW/SW/NW is installed and configured. • Back up tapes are sent periodically from Production site.		• Restore data from tape • Start application • Activate network access		△
Cold standby	• Remote site (data center) is prepared. • No HW/SW/NW is installed and configured. • Back up tapes are sent periodically from Production site.		• Procure IT equipment • Install and configure HW/SW/NW • Restore data from tape • Start application • Activate network access		×
Remote data backup only	• Data backup is stored at remote location.	Cheap	• Prepare data center • Procure IT equipment • Install and configure HW/SW/NW • Restore data from tape • Start application • Activate network access	Long	×

Source: JICA Project Team

Figure III-1-5 Measures for system backup

Since the INAPORTNET will affect all ports throughout country in case that the center had stopped by some trouble, the system backup function in other remote site should be prepared in future, ideally the backup with hot standby mode (active-active).

While the cost for establishing DR site is impossible to bear currently, the remote data backup (which is able to pick up the latest data in case) at wherever that can avoids simultaneous disaster will be recommended to implement. It may also support a smooth transition to manual operation by preparing necessary data.

In addition, to ensure the effectivity of system backup, Business Continuity Plan (BCP) which define the activities on emergency have to be formulated and implemented.

On the other hand, in the near future, it is necessary to consider the backup plan (for manual operation) and remote backup center such as disaster recovery site (DR site) to provide the port related procedure continuously.

(a)Backup of main datacenter (DR site)

- As for the INAPORTNET system, no sub-centers are established at this moment.

- Floods are the most prone natural disaster to consider in Jakarta. On the other hand, it is also necessary to prepare for the possibility of artificial urban disasters such as terrorism or riot.

- Especially concerned is the stoppage of urban infrastructure (such as electricity, water) and the simple miss-operation of facilities in datacenter.

- In view of the above, and on the other hand, considering that there are limitations on the resources (especially talent) of the system O&M, the backup site is desirable to be located near Jakarta, but the place not affected by the disaster in Jakarta (Suburban cities like Bogor).

(b)Backup plan considering manual operation

- If the system cannot be operated, the operation will be continued manually (by using paper applications).

- The most frequent factor in case that the system cannot operate is considered to be malfunction of communication infrastructure. However, it is difficult for the system operation side to solve those network operator's problem.

- On the other hand, since information will be stored in the system, there is concern that necessary information will be present only in the system, as well as switching to manual work will gradually become unfamiliar.

- Some PAs are preparing mobile lines as a backup network other than the main line (FTTH). This is an effective measure from the viewpoint of continuity of the network since each access lines (the highest probability part of network failure) are using different route. However, since the INAPORTNET interface is designed based on rich communication such as wired network and PC, satisfactory operation is difficult with mobile line and mobile terminal.

- Therefore, to access minimum necessary information in the system enough to conduct manual work, and make it possible to perform easy (simple) approval procedure, preparation of a light user interface assuming a mobile terminal is likely effective for smooth transition to the manual operation.

(9)Enforcement of Network Infrastructure

It is difficult to solve the instability of network infrastructure by users. While the communication backbone (as marine cables between islands) has been developed with the leadership of Ministry of Communication and Informatics (KOMINFO), the access network is still instable due to the quality of

construction and maintenance. Moreover, the development of optical fiber is behind compared to the implementation of mobile network due to the policy for overcoming digital divide.

The network for government critical systems are running on dedicated quality responsible network in more advanced countries, but it is difficult for INAPORTNET to invest such infrastructure now, so that users have to wait for the improvement of network quality.

Meanwhile, there are some measures to be considered for this issue taken by users such as the followings.

- To make contract with network service with SLA or other provider responsible services, and share it with other systems or other departments.

- if the telecom carrier facility exists nearby, negotiate more direct connection method with them such as implementation of dark fiber or microwave wireless connection.

- Self-implementation of Wi-Fi network from more reliable network exchange point.

- The selection of network services provided by different method such as wired and wireless or two or more telecom groups (as TELKOM and INDOSAT)

Moreover, not only to select multiple communication method but also to introduce the gateway system which uses those different networks simultaneously for upstream network. With this technology, not only utilizing all network connection services efficiently but also the operation for switch over (in case that either of networks having trouble) will be more stress-free.

III-1-2-3 Immediate Implementation Plan

The measures listed above are selected from the viewpoint of the important measures that can start immediately. However, the following three aspects shall be considered for actual implementation timeline;

- Urgency

- Sequential Condition

- Budget

The result of analysis on measures is as below Table.

Table III-1-5 Analysis of measures

		Urgency	Sequential condition	budget	
				level	Cost factor
General Measure					
1)	Confirmation of O&M feature / framework	Urgent (will be base of all)	Will be base of all	Low - Mid	✔ No cost to start ✔ Additional cost, depend on current contract
Status Monitoring					
2)	Statistical analysis of access load on system	Urgent (Should share with all)	---	Low	✔ Analysis work (in-house)
3)	Prediction of future volume of access	---	Should be after 2)	Low	✔ Analysis work (in-house)
4)	Formulation of the System Enhancement Plan	---	Should be after 3)	Low	✔ Analysis and document work (in-house)

Waste Elimination					
5)	Introduction of Inquiry Management System	Urgent (Should analyze trend)	---	Low	✓ Assignment of staff (in-house)
6)	Addition of total workflow and current status	---	Depend on analysis of 5)	Mid - High	✓ App. Modification (based on app. feature)
7)	Introduction/enhancement of notification function	---	Depend on analysis of 5)	Mid - High	✓ App. Modification (based on app. feature)
Easy Improvement					
8)	Consideration of System backup in remote place	Urgent (should start from Plan)	---	Low - Mid	✓ Appropriate Storage ✓ Network connection if backup online
9)	Enforcement of network infrastructure	---	---	Low - High	✓ Depend on actual measure

According to this analysis, the priority and action plan of the measures is shown in below figure.
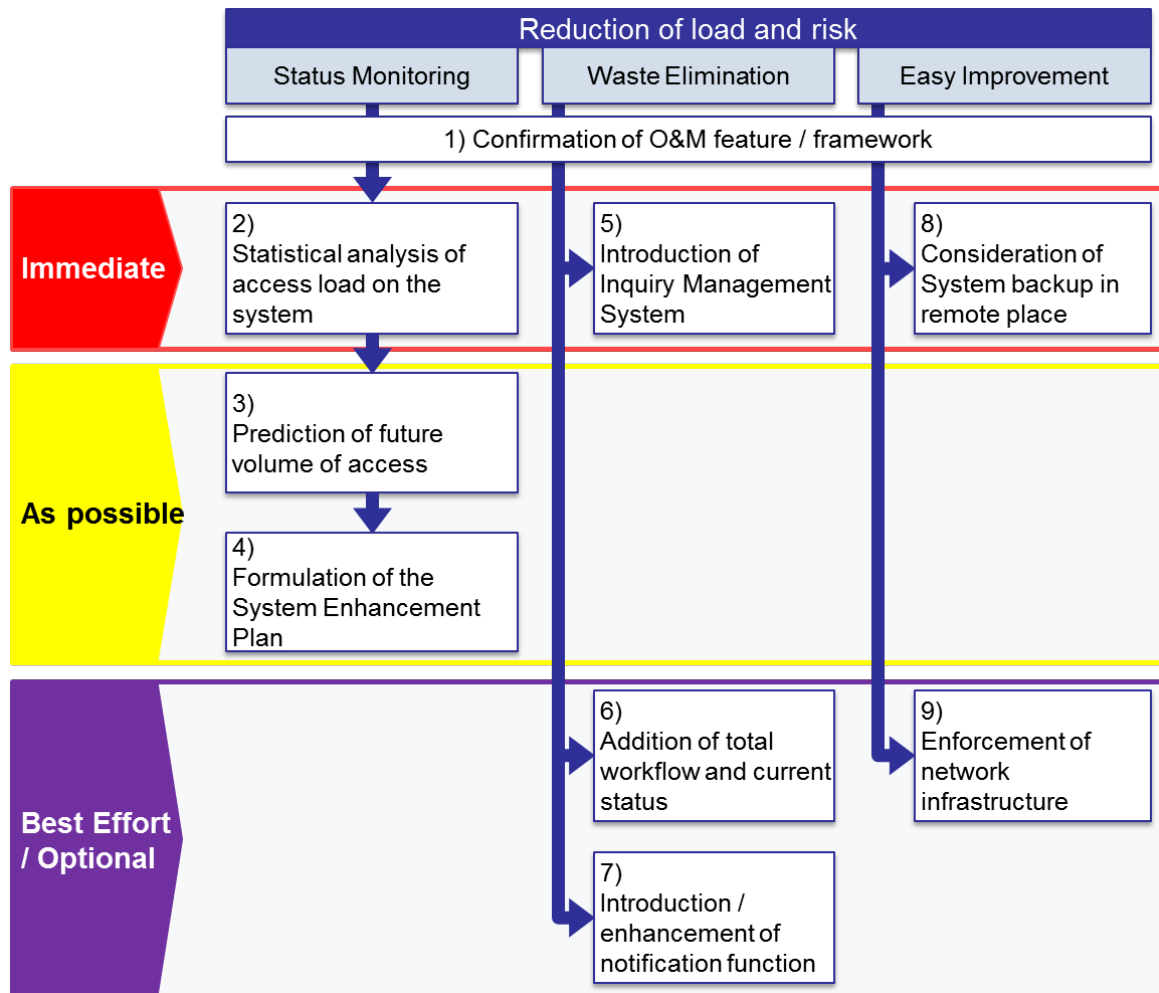
Figure III-1-6 Priority of Urgent Improvement Plan

In particular, "1) Confirmation & enhancement of O&M feature/framework" have to be considered not only immediately but also throughout this INAPORTNET project because it is a backbone concept for whole O&M works.

Three top priority measures, "2) Statistical analysis of access load to the system", "5) Introduction of Inquiry Management System" and "8) Consideration of System backup in remote place" are able to and have to start immediately. Especially, since it will be a base for any kind of decision in system management, 2) need to be carried out quickly and certainly.

After the implementation of 2), "3) Prediction of future volume of access" and then "4) Formulation of the System Enhancement Plan" have to be carried out as soon as possible.

The rest of measures such as "6) Addition of total workflow and current status", "7) Introduction / enhancement of notification function" and "9) Enforcement of network infrastructure" are optional and it have to be considered based on more specific data and information which can grasp from prior activities.

III-2 Improvement of INAPORTNET

III-2-1 Measures to be Taken for a More Reliable System

III-2-1-1 Provision of Necessary Information for Easy System Use as Needed

(1)Function to Clearly Indicate that the Procedures Have Been Transferred to Manual Operation when the System is down

Recently there are few system suspensions for INAPORTNET. In such cases, the related procedures will temporally transfer to manual operation instead of using INAPORTNET. However, the Port Authority of Tanjung Perak pointed out that those information (about the stoppage and manual operation transferring) are not provided to PA sufficiently and the transfer to the manual operation will be delay.

The main reason for this case is the insufficient information providing of trouble information and manual operation transfer notification and not only PA (and HM) but also other INAPORTNET users (such as Ship Agents) cannot understand the situation and status.

Therefore, the function to clearly indicate that the procedures have been transferred to manual operation is necessary should be equipped to avoid any delays in vessel arrival and departure procedures. In order to pursue this goal, some changes in configuration of INAPORTNET are necessary to be implemented.

There are roughly two cases expected for the trouble situation to be transferred to manual operation;

[Case 1]   The system trouble on INAPORTNET servers (and/or datacenter) or network trouble around the INAPORTNET datacenter which cause the suspension of use for PA and Users.

[Case 2]   The network trouble around the PA's (and/or HM's) environment which cause the suspension of use for only PA (and/or HM).

Currently, in both case, the situation (the occurrence) of trouble is well monitored by O&M team (in this case, PUSTIKOM who responsible for Front-end System) so the occurrence of trouble is able to detect immediately. Hence, "how" and "where" to inform it to all related users (include PA and HM) will be critical.

As a solution for each case will be as followings;

[Case 1] In this case, it is difficult to send a notification from INAPORTNET system so that notification from other system such as e-mail, SNS or the Web servers in other environments.

[Case 2] In this case, to avoid Ship Agents to apply on system although PA (and/or HM) cannot respond or identify the application, an urgent notification to users by using INAPORTNET system (ex. homepages) as well as the method in [Case 1] or the suspension of INAPORTNET services for the related uses will be required.
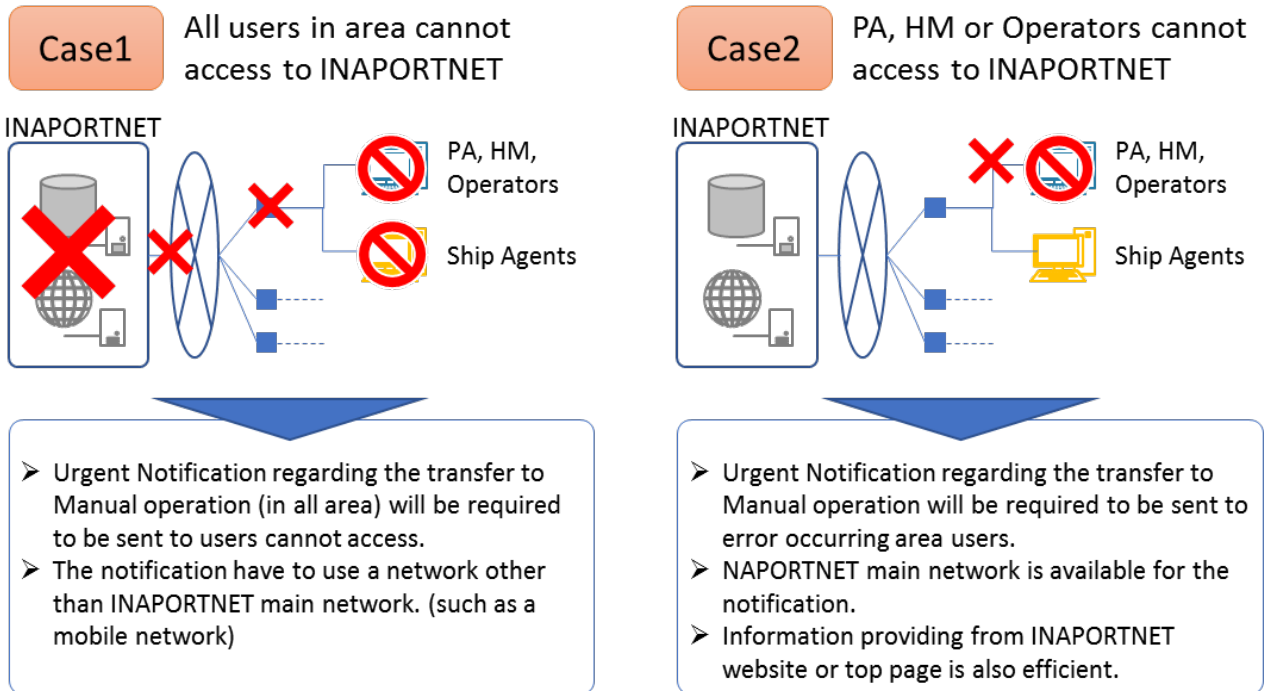
Source: JICA Project Team

Figure III-2-1 Function to indicate the system trouble and manual operation transfer

(2)User-friendly Website of INAPORTNET

INAPORTNET is the system to connect port users and port related government bodies and administrators, so that the information necessary for users expected to be provided and should be easy to access.

The top pages which all users can access (without user login) are the system login page (http://inaportnet.dephub.go.id/site/login) and the INAPORTNET Website page (http://inaportnet.000webhostapp.com) which currently providing the instructions of INAPORTNET including user manuals.

However, the login page (and top page after login also) does not have any information providing and INAPORTNET Website only providing information and materials below. Currently, these pages are not providing any realtime information.

Table III-2-1 The contents on INAPORTNET Website

Title	Contents
Halaman Download Materi Pemaparan (Maps Download Material Exposure)	Outline of INAPORTNET such as the basic regulation, purpose and features
Buku Petunjuk Penggunaan (User Guide Book)	User Manual of Front-end system (Ver1.0)
Tahapan dalam Aplikasi (Steps of Using INAPORTNET Application)	The process instruction for user registration and starting to apply port entry/departure procedure (including Agent Approval)

Title	Contents
Panduan Registrasi (Manual Book of Registration Steps)	Registration guide for Ship Agents, Ship Companies, Forwarding Companies, Stevedoring Companies
Flowchart Proses Kedatangan Kapal (Flowchart of the Ship Arrival Process)	Flowchart for the ship entry procedure, sample of forms
Flowchart Proses Keberangkatan Kapal (Flowchart of the Ship Departure Process)	Flowchart for the ship departure procedure, sample of forms

Source: JICA Project Team

The information in above table is important but the top page will be more useful as information providing window for all users. In particular, realtime (or timely) information for users such as Latest News/Notices, Service status/Outrage information, Maintenance schedules are expected to be provided appropriately.

Furthermore, the latest news will also contain the information such as system/function upgrade, user meetings (seminar, workshop), regulations and circulars.

In addition to manuals provided currently, the code information used in INAPORTNET, Definition of input data (for example, the definition or entry or departure time), FAQ and its analysis result are expected to be provided as well.

Source: each website

Figure III-2-2 User-friendly website

III-2-1-2 Prompt Response when Problems Occur

EDI systems of Ministry of Transportation (MOT) for private users, including INAPORTNET, are operated and managed by PUSTIKOM and they operate the Helpdesk of MOT as a genuine route for inquiries. Although there is an inquiries record, they have not yet analyzed it. On the other hand, in

many cases, INAPORTNET users are using WhatsApp to ask about troubles or questions to PAs. In this case, the inquiry information is not systematically accumulated in PAs and DGST.

In 4 main ports, PA of Belawan is the most advanced in terms of inquiry correspondence. In addition to WhatsApp group, they run one telephone line (0812 6712 6734) for their call center. According to them, two persons of them are always responding to the inquiries in 24 hours 7days. Although we have an impression that PA of Belawan grasps the problems in INAPORTNET operation precisely, they have not accumulated the information of inquiries systematically.

The inquiries contain a lot of information leading to system improvements. As we proposed in "Introduction of inquiry management system" in the Urgent technical improvement plan of this Project, it is necessary to have a mechanism that can systematically accumulate and classify a series of information such as inquiries and trouble situations. Periodically reviewing the classified inquiries information from the viewpoint of system improvement, DGST can judge whether system improvement is necessary or not.

Exactly saying, it can be thought as a method indicated by following figure.
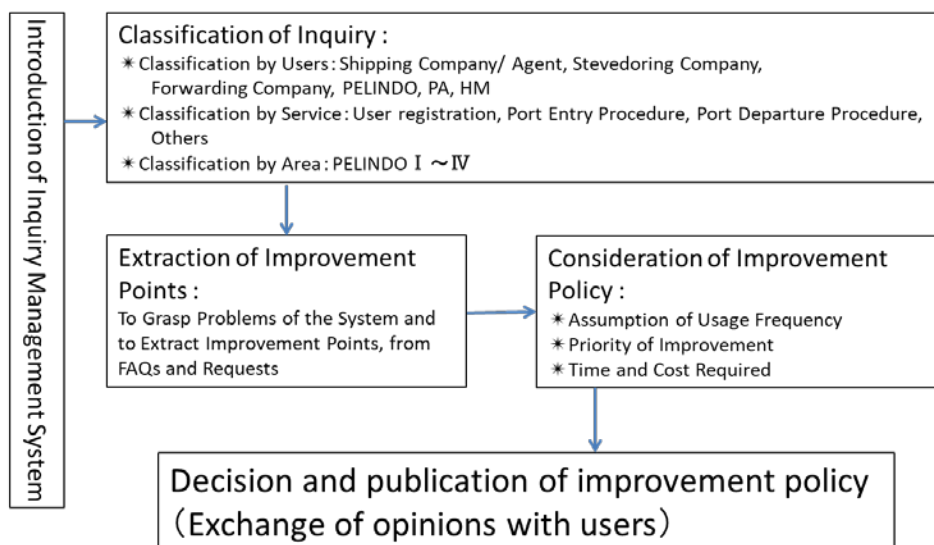
Source: Project Team

Figure III-2-3 Improvement depend on Inquiry Information

As a systematic classification, it can be considered for example; classification by users, classification by services, classification by area, etc. as shown in Figure III-2-3. In reviewing and evaluating the improvement policy, DGST should consider the priority while assuming the usage frequency, and examine the approximate time and expense required for improvement. Finally, it is desirable to present the examination results and to finalize the policy at a meeting where the user representatives participate in.

Based on the findings of our team, we would like to suggest the following two points to be improved immediately.

(1)Adoption of Simple Input Methods which Make Users Take Few Mistakes

There is information from users that there are many rejects due to incorrect inputs. As the classification of inquiries, it should be like this: classification by users = all users, classification by services = all procedures, classification by areas = nationwide.

This is thought to be due to insufficient user support function for user's data input. The current checking functions are mainly format checks such as character types, numbers of characters or digits,

etc. In order to upgrade the user's supports, it is important to enrich guidance functions related to the input method (style etc.) as follows.

DGST should add the guidance functions for the portions where there are many errors or many inquiries (*1), and for the portions where they want to unify inputted data format in order to utilize data statistically (*2). They had better indicate input examples and input rules, or they should add explanations of easy-to-mistake parts.

Concerning (*1); DGST should identify the portions from the accumulation and analysis of FAQs.

Concerning (*2); there are how to unify the description style of ship names, or how to input a company name with/ without PT., for example. As indicated in the left side of Figure III-2-4, there is lack of uniformity in the notation of a company name and a ship name. In order to eliminate input errors and to unify data, DGST need to develop an automatically capitalized function, an indication instructing "to use the name described in ●●", or a function to compare input data with master database. It is also an effective measure to make inputting frames with a list from which users can select the inputted data. With these countermeasures, it is possible to unify data input as shown in the right column of the figure.
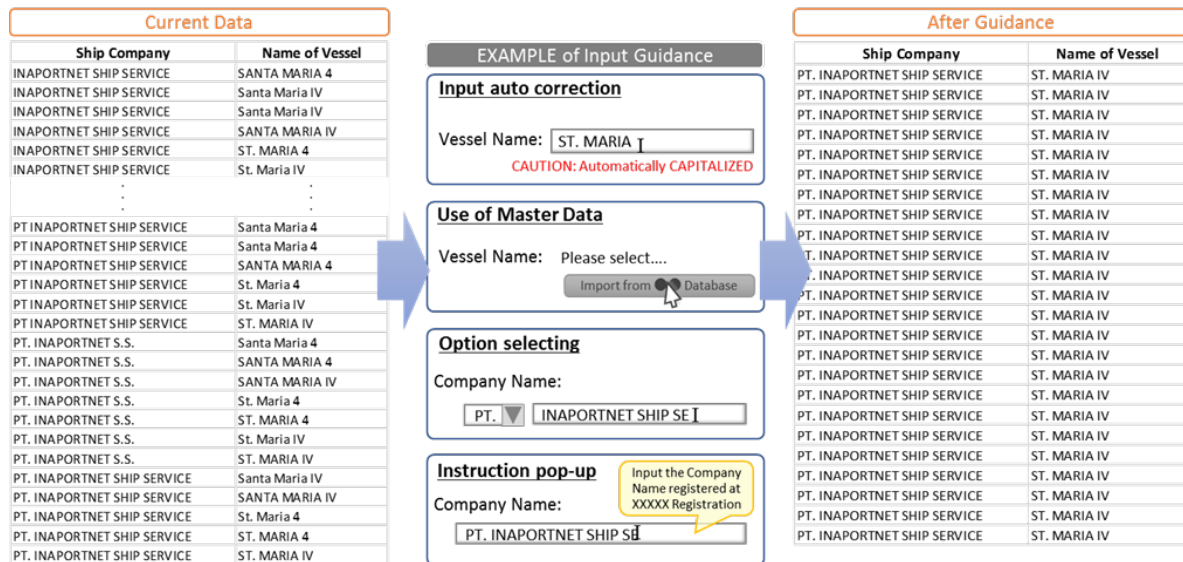
Source: Project Team

Figure III-2-4 Example of enriching guidance function

In addition, it is effective to provide confirmation lists of documents and processes necessary for INAPORTNET procedures as a user's inputting support function. Table III-2-2 is an in-house material prepared by a shipping agent for INAPORTNET application works. It is also considered as a part of user service to create such confirmation lists for each case such as international/ domestic, and passenger/ cargo ship, etc. and to be used effectively by users.

Table III-2-2 Checking list of an shipping agent

CHECK LIST DOCUMENT for INAPORTNET	
Date	
Name of Vessel	
Husbander's Name	
Wharf No.	
Terminal name	

	No.	Description of DOC.	Source	File	ADA	TDK ADA
Vessel / Kapal	1	Ship Particular	Vsl	pdf		
	2	Ships Registry	Vsl	pdf		
	3	International Tonnage Cert.	Vsl	pdf		
	4	Safe Manning Cert.	Vsl	pdf		
	5	Safety Certificate (C, S, R)	Vsl	pdf		
	6	Crew List	Vsl	pdf		
	7	Master Cable – RPM	Vsl	pdf/ Email		
	8	Last port clearance	Vls	pdf		
Agent / Cabang	9	PKKA	Agency	Pdf		
	10	PBM appointment	Kaops	Pdf		
	11	Discharge List	Planner	Excel		
	12	Loading List	Planner	Excel		
	13	Dangerous List	Planner	Excel		
	14	Special list -ODGt	Planner	Excel		
	15	Submission to permit stack export	Planner	Excel		
	16	Payment of Port Service (receipt)	Boarding	pdf		
					HAL-SP	1 of 2

Order of Noticing Activities ---INAPORTNET					
Date					
Name of Vessels					
Husbander					
Wharf No.					
Terminal name					
No.		Activities	done by	Success	
				Already	Not yet
A	Ship Arrival				
	1	Shipping Agent	Boardir!g		
	2	OP Validation	OP		
	3	Ship Arrival Notice	Svahbandar		
	4	Validation for PKK	OP		
	5	Validation for SPM	Syahbandar		
	6	Validation of PKK by OP → RKBM	OP		
	7	Response RPKOP (Pelindo Receive	PBM-Terminal		
		Validation PKK and Response RKBM)			
	8	Validation of RPKOP & Ship Notice →PKK	Syahbandar		
	9	Determination of PPK continuing to SPK Pandu	Pelindo		
	10	Validation of SPK Pandu Tunda → SPOG	Pelindo		
	11	Realization of Pandu Tunda	Pelindo		
	12	Ship Mooring	Pelindo		
B	Ship Departure				
	1	Ship Departure Notice	Boarding		
	2	Validation to LKK	OP		
	3	Output Validation No.2 - Publishing invoice of Port charge	Syahbandar		
	4	Pay port charge/ Receive Receipt	Boarding		
	5	Validation of PNBP payed	Syahbandar		
	6	Allocation of Tunda- Pandu	Pelindo		
	7	Validation of LKK	OP		
	8	Validation for getting SPB	Syahbandar		
	9	PNBP already paid and LK3 in approve	Boarding/ OP		
	10	Ship departure	Pelindo		
		Boarding Name	Port Authority		

Note: 1. If you meet problems, you should coordinate with Related Parties: Port Authority, Kesyabandaran, PT. Pelindo - PCS 2. The "ONLY" PNBP Payment ONLY payable after the Payment Agent submits a voyage of Departure Ship +/- 3 Hours before TD, payment refers to CODE Billing PNBP listed in billing INAPORTNET don IN BANK BNI1946 only. 3. Log into Payment Code at ATM, (process almost same as payment of plane ticket / train with CODE BILLINGnya listed)	Syahbandar	
	Pelindo 2- PCS	
	HAL-SP	2 of 2

Source: A shipping agent of Port of Tanjung Priok

(2)Response for an amendment of the PNBP calculating regulation

According to the amendment of the PNBP calculating regulation in 2016, a mooring fee is added to the ship that enters a dockage. But there are no improvements against this amendment in INAPORTNET. Minister for Transportation's Regulation No.PM 77 year 2016, promulgated on June 26 2016, is the amendment of PM 69 year 2015 which stipulates the guidelines of PNBP applicable to DGST. In the Article 56 of the regulation, the following clause that had not existed before was added. *"(6) In case of ships' visiting for dockage, the activities are subject to berthing services for one visit."* However, sub-program of INAPORTNET for PNBP calculation has not been improved yet.

It is important for EDI systems to respond promptly to amendments of rules and regulations. However, if the amendment is applied very few times, it is not a good idea to improve the system each time. It might be reasonable to set an alternative flow temporarily and notify it in detail to users; for example, a method to enter the data manually, or a method in which users can pay the estimated payment at first and settle the account later.

III-2-1-3 Avoidance of Interruption of Ship Clearance Procedures

When we asked the persons in charge of PAs and HMs of the 4 major ports about causes of the system troubles, almost all of them said that the trouble of SIMPONI sometimes in system outage of INAPORTNET.

INAPORTNET, which provides business function in cooperation with various external systems, needs to ensure that the connection point (interface) with the external system (which is relatively error-prone) does not become a weak point of the total system. Particularly, troubles in cooperation with SIMPONI (the system owned by the Ministry of Finance), and with SIMLALA (the system owned by DGST which feeds the prerequisite data to INAPORTNET), may have been a factor affecting the stoppage of all INAPORTNET procedures.

The causes for this case include;

a) a problem with the interface server (the server to pass information at the connection point), and

b) a problem in the business system of the connection destination (process has not completed appropriately, or no appropriate information is sent to the interface server).

Basically, in case of b), there is no other choice but to ask the administrator of the opponent system to solve the failure part fundamentally. Meanwhile, the countermeasures for a) and measures can be taken by referencing side (INAPORTNET side) in case of b) can be considered as follows.

i. Enhance the connection point with those external systems (such as a reinforcement of interface server or a duplication of connecting point (server))

ii. Prepare countermeasures for the case of malfunction at the connection point (such as manual operation, preparation of alternative procedure)
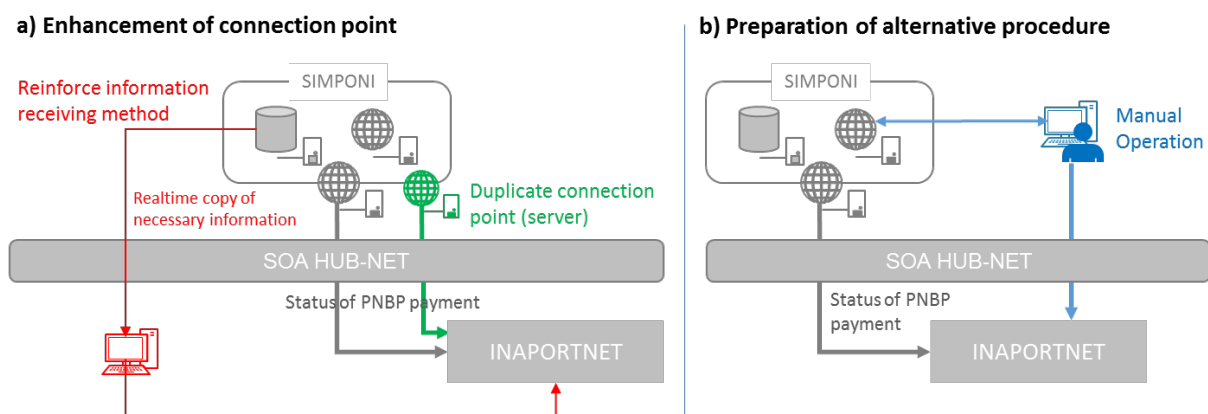
Source: JICA Project Team

Figure III-2-5 Enhancement of interface with external system (in SIMPONI's case)

Moreover, regarding SIMPONI, since it is a system of other ministries and agencies, the system policy of the SIMPONI is different from the system policy of INAPORTNET. In other words, SIMPONI may be strictly designed and operated as a system to achieve the objectives of the Ministry of Finance (certain fee collection, for example) but it may not be designed and operated to achieve the objectives of INAPORTNET (for example, to complete the payment quickly or punctually).

For this reason, fee collection process should be revised and updated more controllable and user-friendly by following manners:

- Obtain more detailed status information of the fee collection process (not only to obtain the notice at the completion but also to obtain it at the time of reception, processing or pending (in some reasons))

- Add a procedure that can confirm the payment by DGST as a part of payment processes (for example, force users to submit information confirming payment, confirm payment in designated reception counter, collect the fee representatively by DGST)

III-2-1-4 Monthly Monitoring of INAPORTNET Usage Conditions

(1)Usage Status of Monitoring INAPORTNET at 16 Main Ports

INAPORTNET covers sixteen (16) procedures (documents) for entry to, departure from and movement in ports. The subject of the procedures is over 35 tons vessels. To grasp the usage situation of INAPORTNET, we use port procedure data of March 2018 which entrance and depart procedures were completed as of April 2018 which conducted the analysis.

The processing time is defined as the difference of a receiving time (Waktu Permohonan) and a response time (Waktu Respon) in the time analysis. Waktu Permohonan is the time when INAPORTNET received submitting from an applicant and Waktu Respon is the time when Port Authority or Harbour Master personnel entered their response into INAPORTNET. We use the submission time for Waktu Permohonan and reply time for Waktu Respon in the report.

The sixteen ports to be analyzed are Ambon, Balikpapan, Banjarmasin, Banten, Belawan, Bitung, Gresik, Makassar, Palembang, Panjang, Pontianak, Sorong, Tanjung Emas, Tanjung Perak, Tanjung Priok, Teluk Bayur.

This analysis covers PKK, RKB, PPK, LK 3, SPM and SPB, which are important procedures at the time of arrival and departure.

(2)Data Source

The address of Monitoring INAPORTNET is as follows. http://monitoring-inaportnet.dephub.go.id. Data to be analyzed shall be data that entered and departed from port in March 2018.

In the case where the application month and the approval month are different months, they are organized in the submission month on Monitoring Inaportnet.
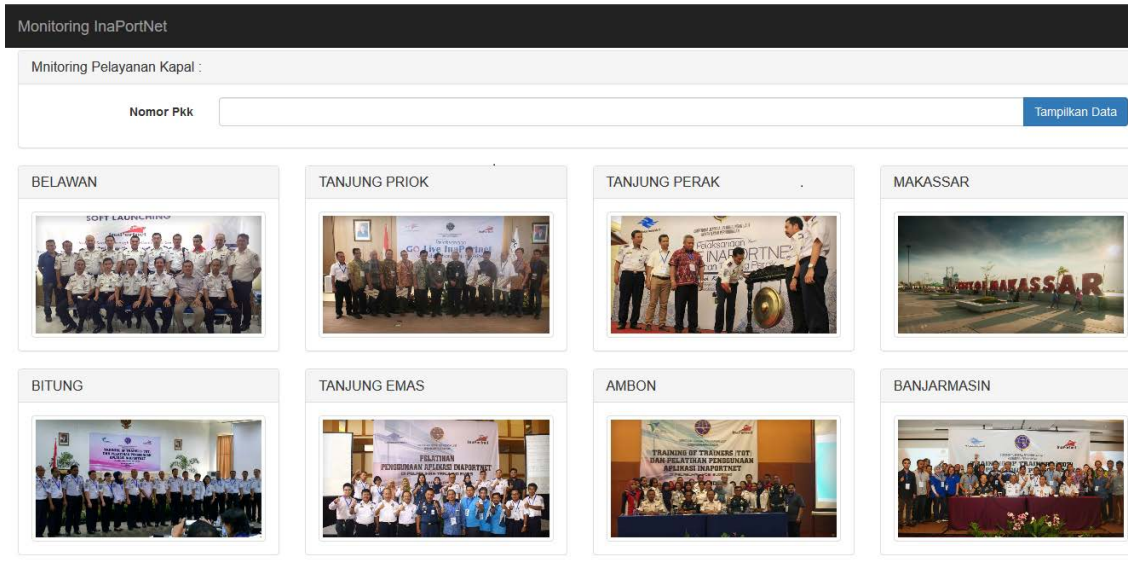
Figure III-2-6 Front Page of Monitoring Inaportnet
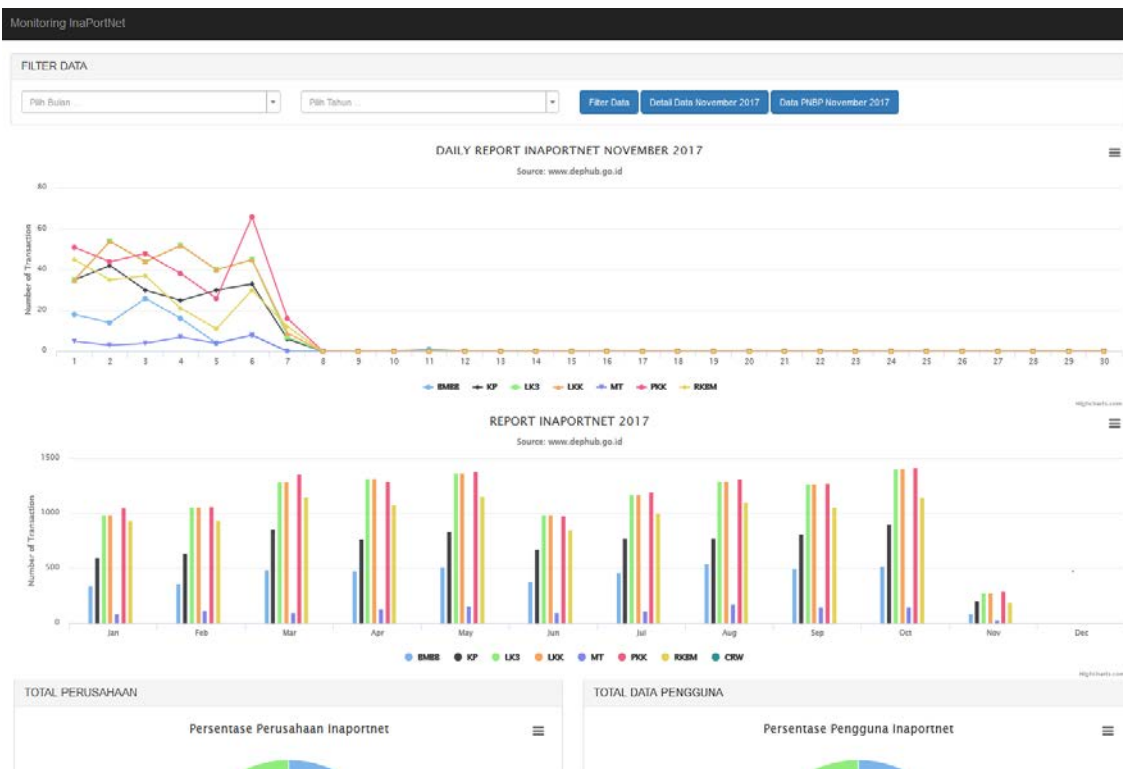
Figure III-2-7 Year Data of Monitoring Inaportnet
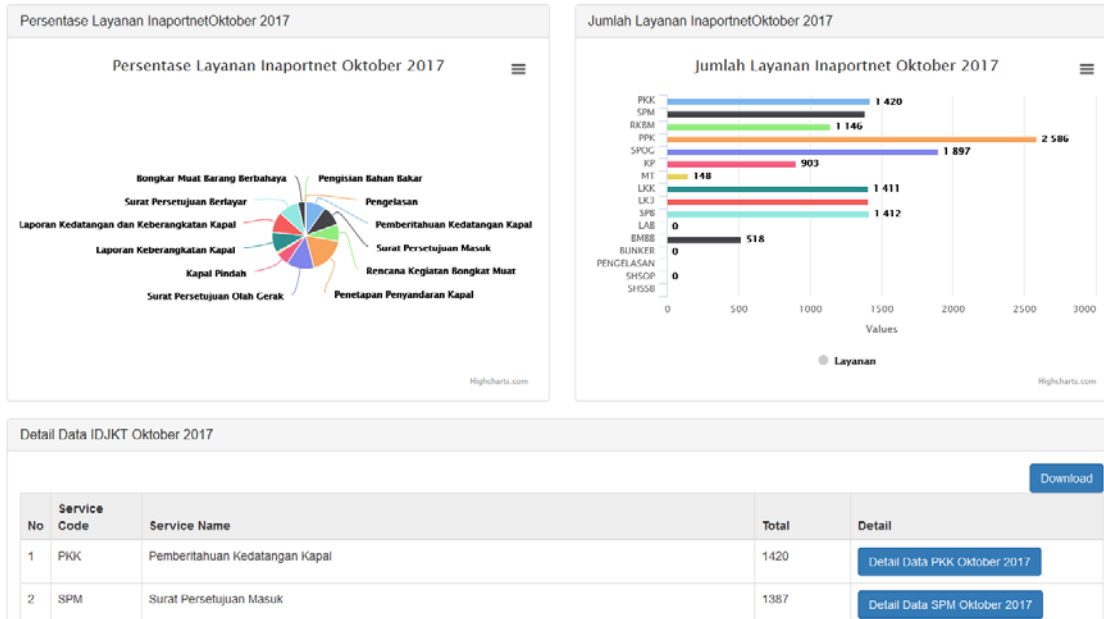
Figure III-2-8 Monthly Data of Monitoring Inaportnet
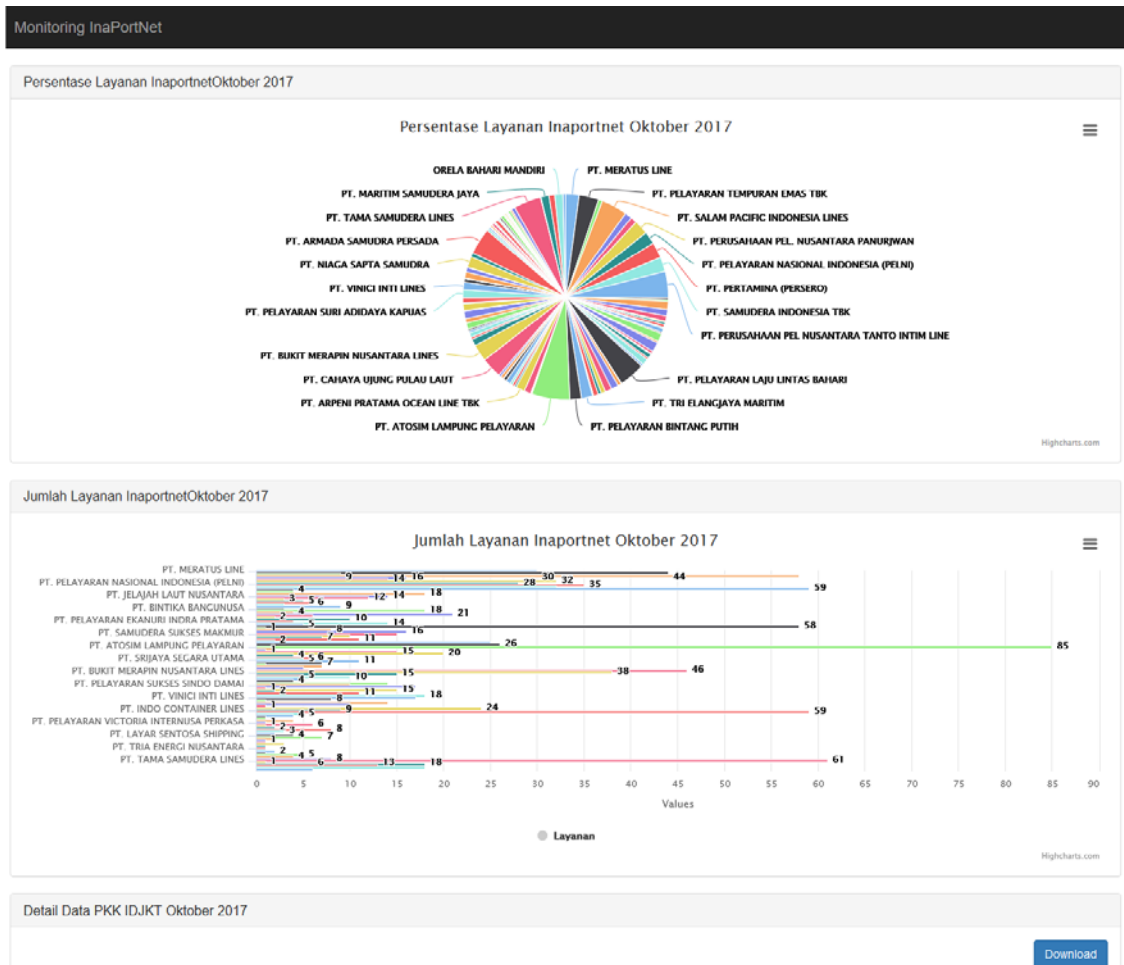
Figure III-2-9 Data for each Ship Agent of Monitoring Inaportnet

No	Nama Kapal	Waktu Permohonan	Waktu Respon	Nomor Produk
1	SOECHI PRESTASI	01-10-2017 15:41:26	01-10-2017 15:35:59	PKK.DN.IDJKT.1710.000019
2	TRANSKO ARIES	02-10-2017 17:52:27	02-10-2017 17:53:09	PKK.DN.IDJKT.1710.000073
3	MT.INTAN PREMIER	02-10-2017 17:55:44	02-10-2017 18:00:15	PKK.LN.IDJKT.1710.000075
4	GAS WALIO	02-10-2017 19:39:51	02-10-2017 20:05:38	PKK.DN.IDJKT.1710.000081
5	BULL FLORES	04-10-2017 11:43:21	04-10-2017 11:44:56	PKK.DN.IDJKT.1710.000144
6	CHAMPION ONE	04-10-2017 19:01:00	04-10-2017 18:57:37	PKK.DN.IDJKT.1710.000165
7	APODA	06-10-2017 08:58:14	06-10-2017 09:02:08	PKK.DN.IDJKT.1710.000223
8	GRACE HARMONY	07-10-2017 14:35:15	07-10-2017 14:32:04	PKK.DN.IDJKT.1710.000310

Figure III-2-10 PKK Data for each Ship Agent of Monitoring Inaportnet

(3)Processing Time at Each Port（Mar 2018）

The processing time of each port is shown in the graph by processing time period when the procedure is completed. (Within 10 minutes, within 30 minutes, within 2 hours, within 5 hours, within 1 day) The graph shows the cumulative percentage of the procedure on the vertical axis and the processing time on the horizontal axis.

Average processing time has been completed within approximately one day except SPM. SPM procedures take longer to process than others because SPM submission time indicated in Monitoring INAPORTNET is the reply time for ship agent registration.
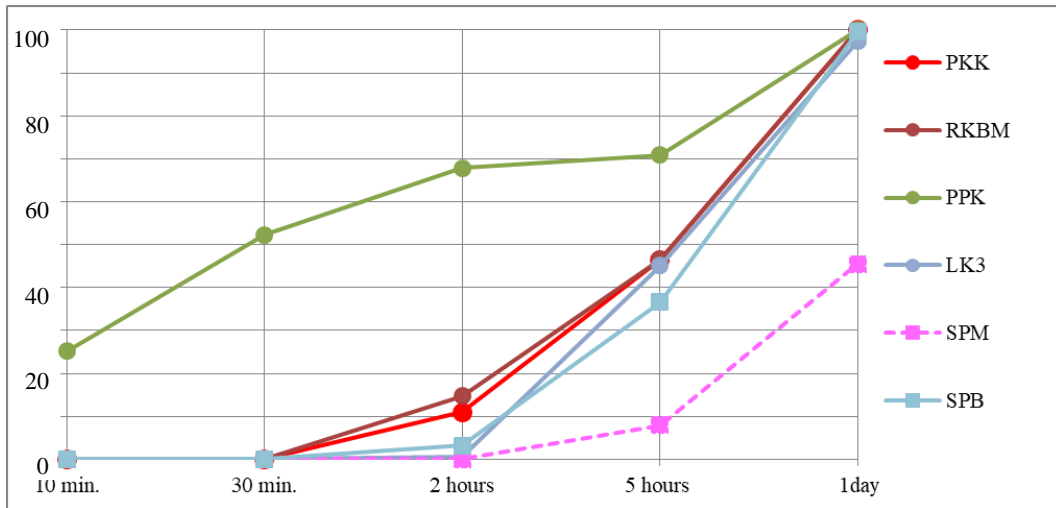
Source：Monitoring INAPORTNET Website

Figure III-2-11 Processing time of Ambon Port
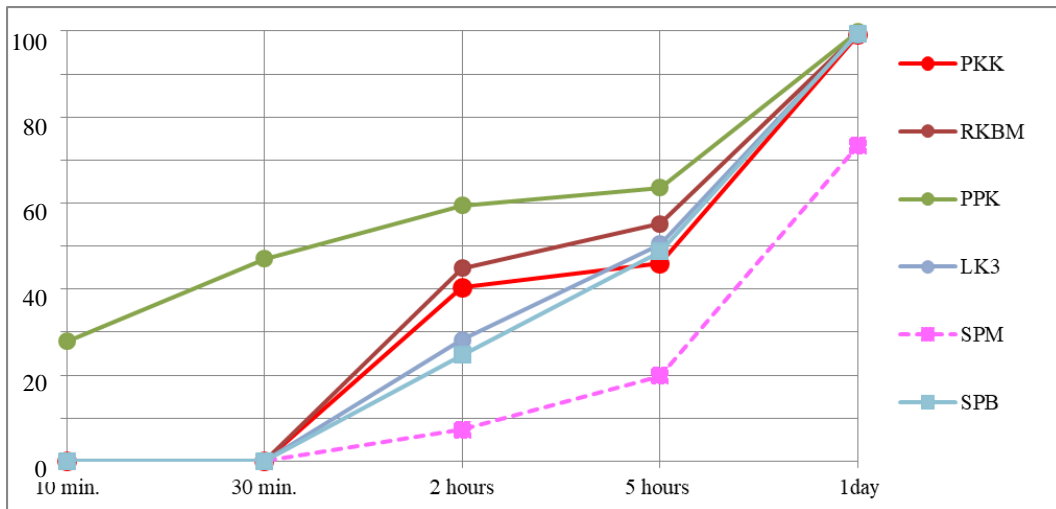
Source：Monitoring INAPORTNET Website

Figure III-2-12 Processing time of Balikpapan Port
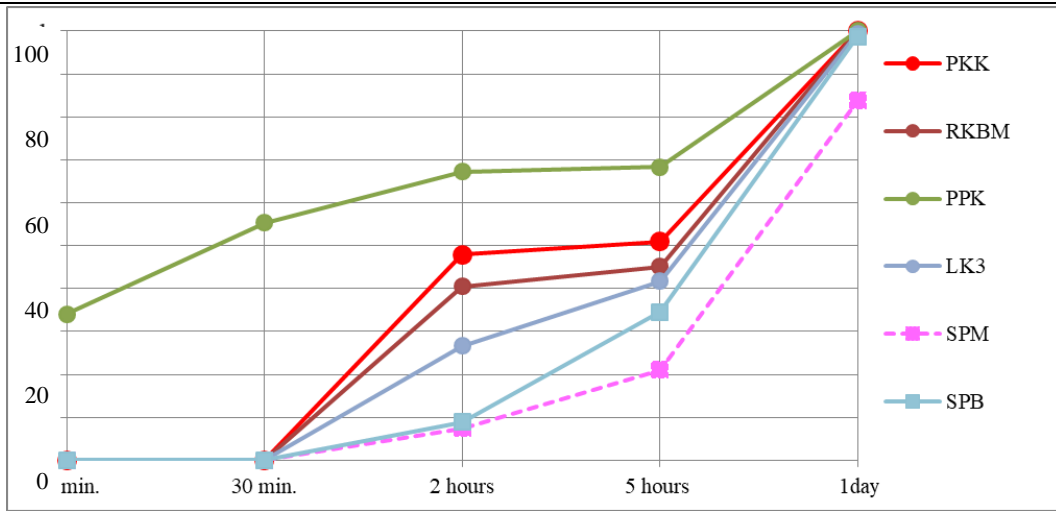
Figure III-2-13 Processing time of Banjarmasin Port
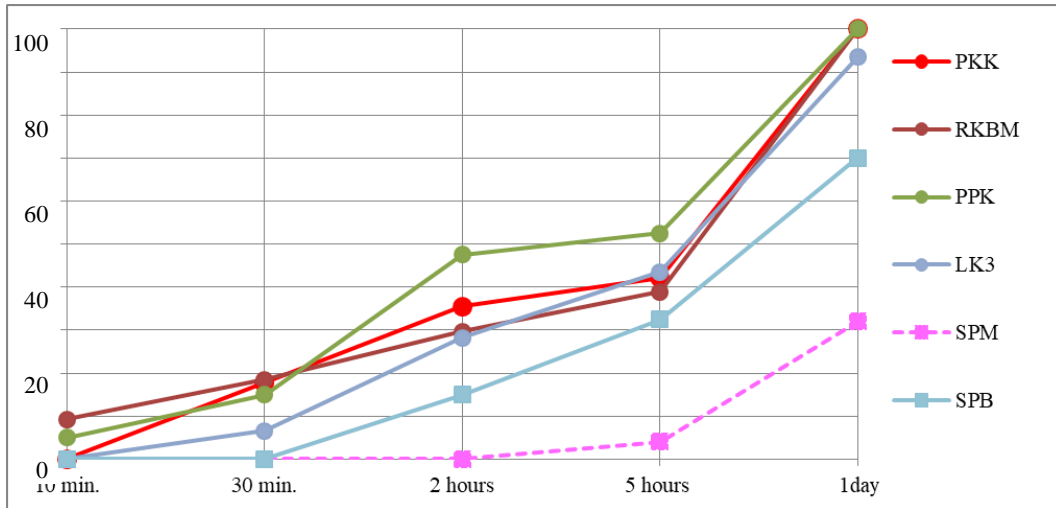
Figure III-2-14 Processing time of Banten Port
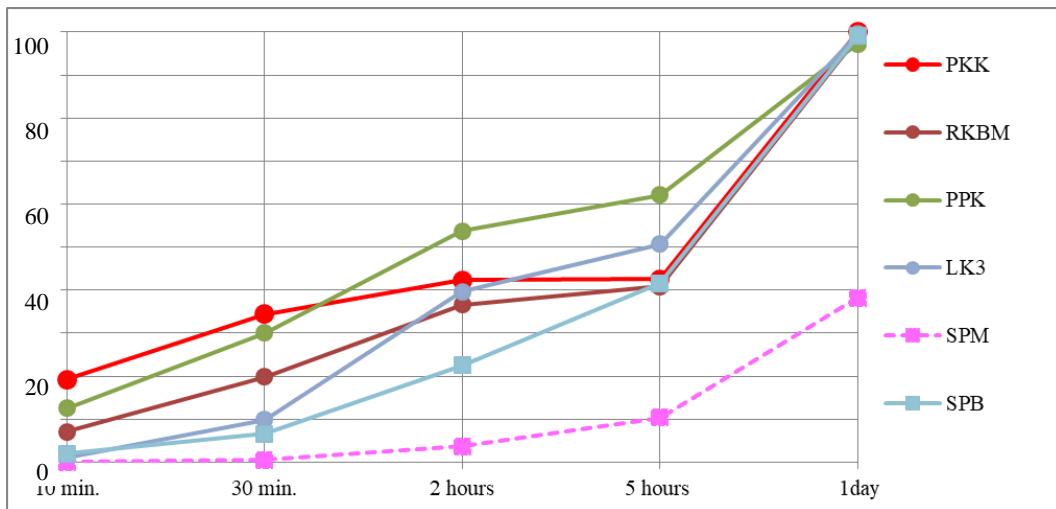
Figure III-2-15 Processing time of Belawan Port
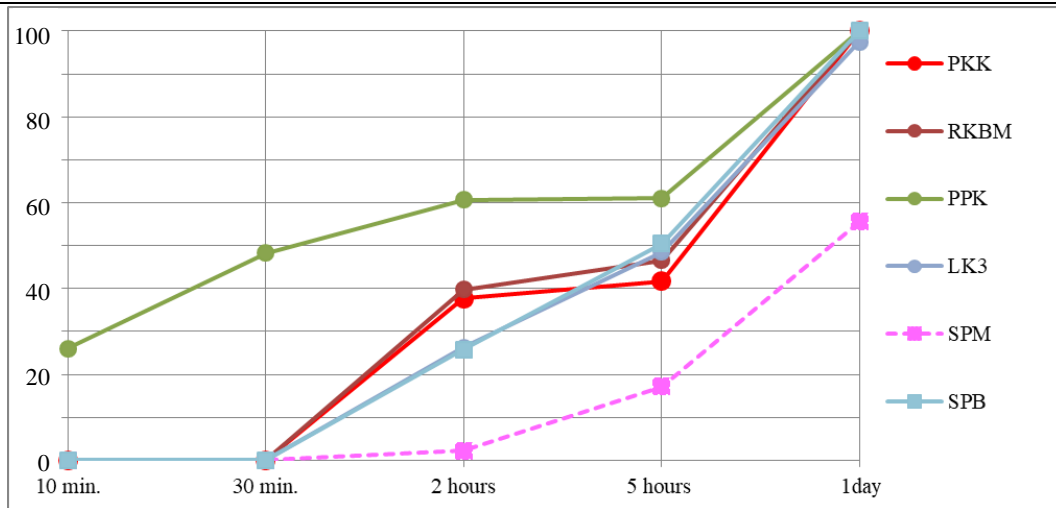
Source：Monitoring INAPORTNET Website

Figure III-2-16 Processing time of Bitung Port
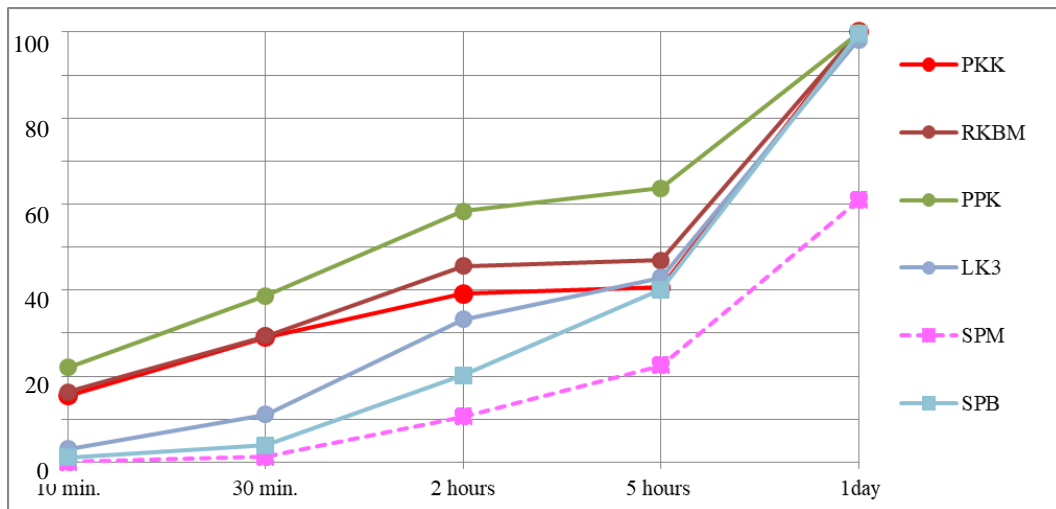
Source：Monitoring INAPORTNET Website

Figure III-2-17 Processing time of Gresik Port
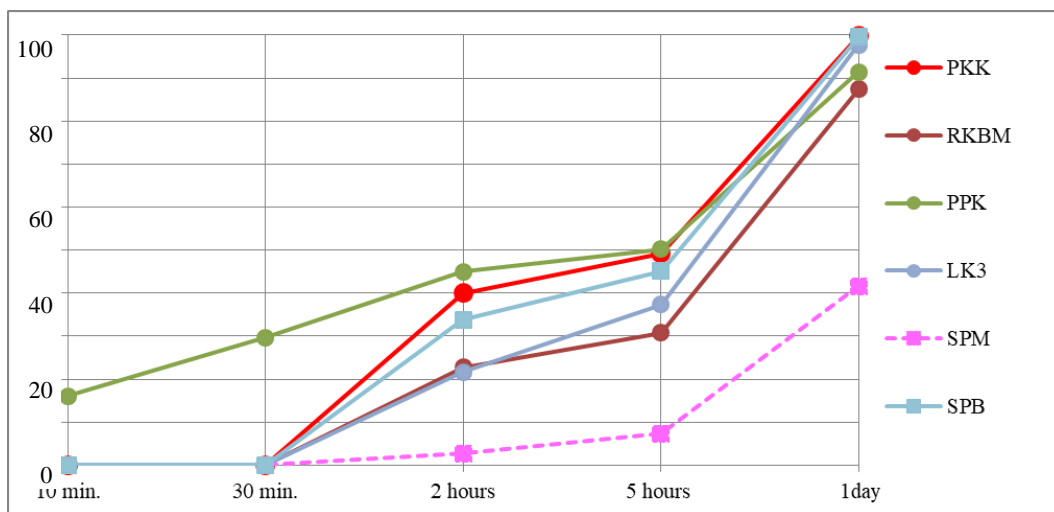
Source：Monitoring INAPORTNET Website

Figure III-2-18 Processing time of Makassar Port
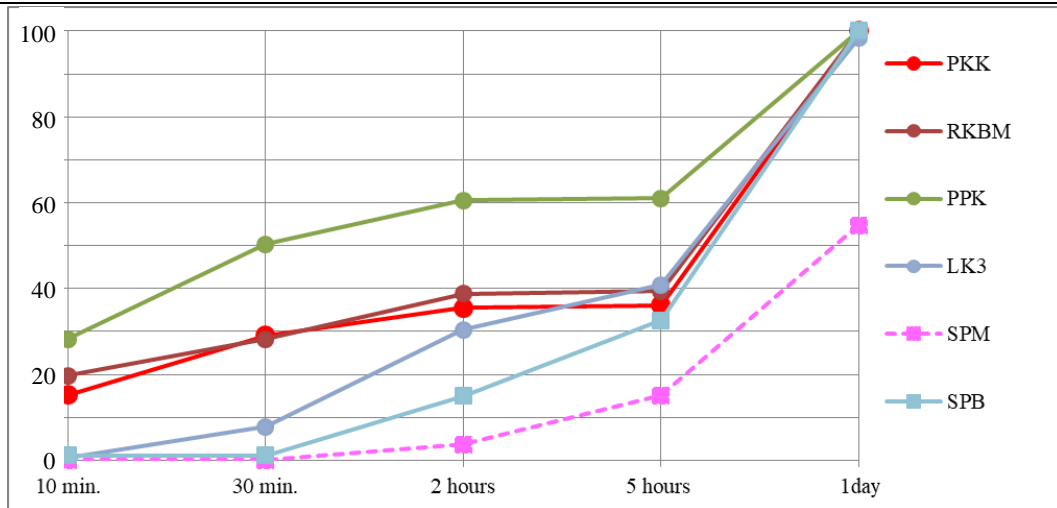
Figure III-2-19 Processing time of Palembang Port
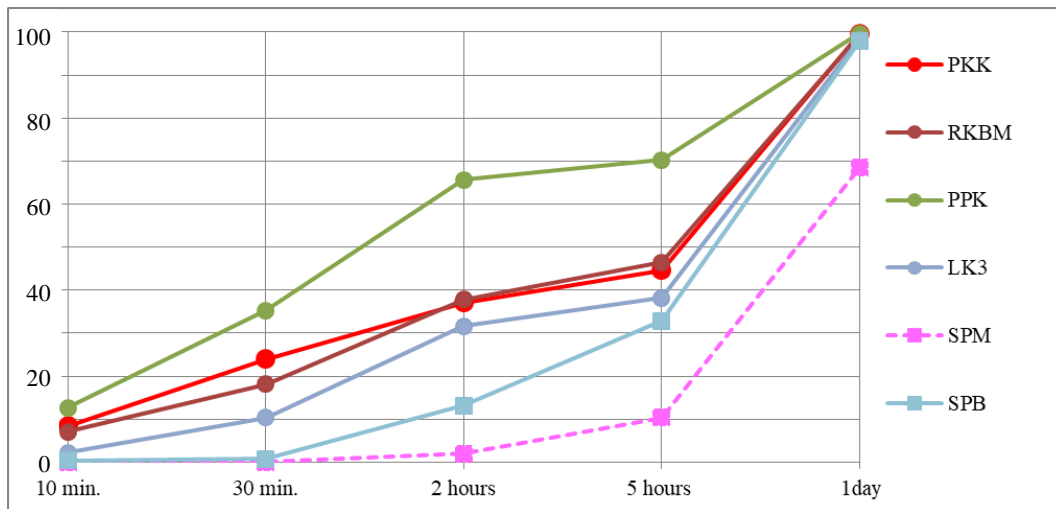
Figure III-2-20 Processing time of Panjang Port
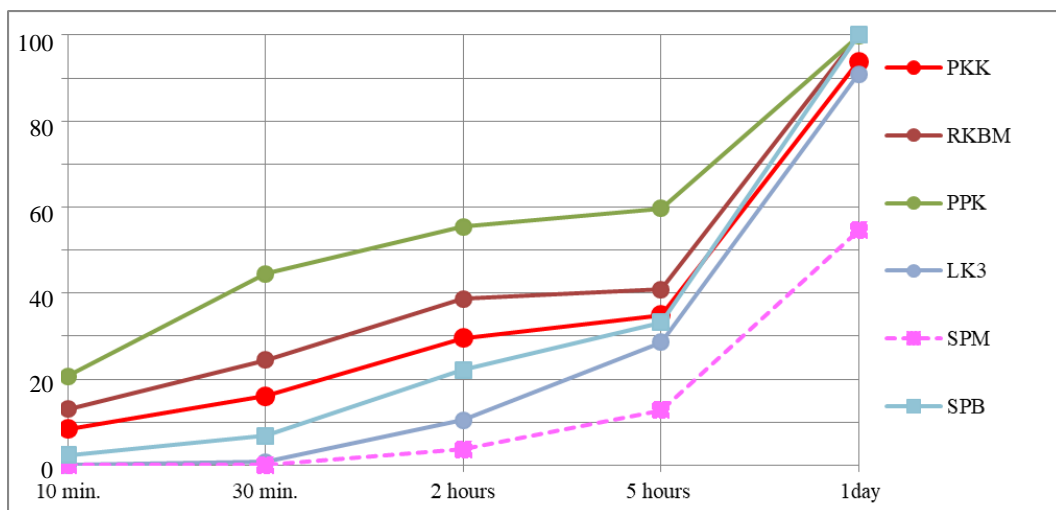
Figure III-2-21 Processing time of Pontianak Port
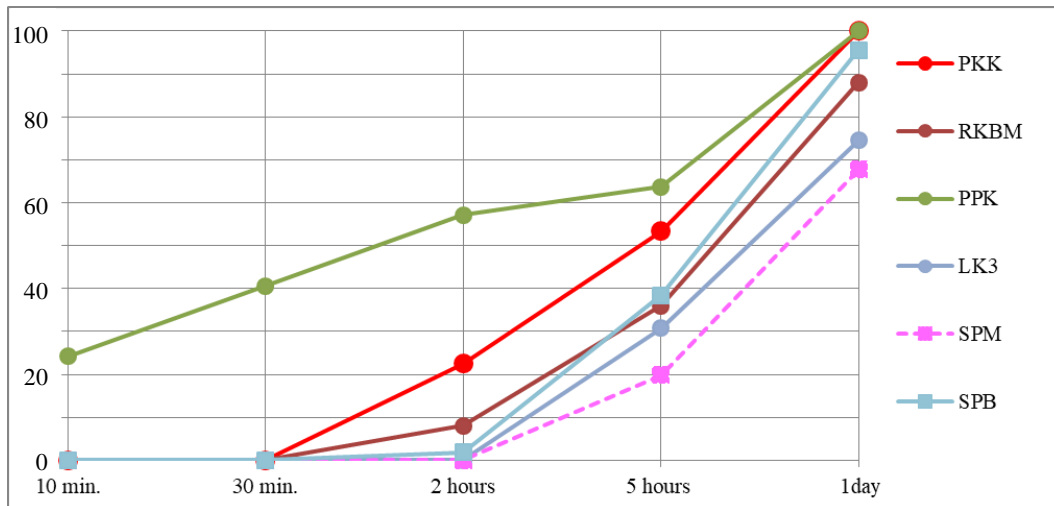
Figure III-2-22 Processing time of Sorong Port
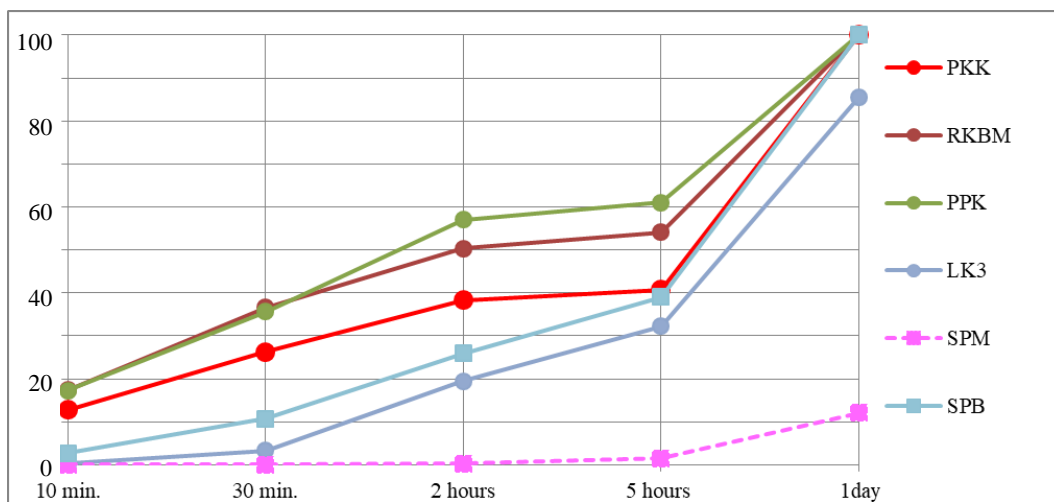
Figure III-2-23 Processing time of Tanjung Emas Port
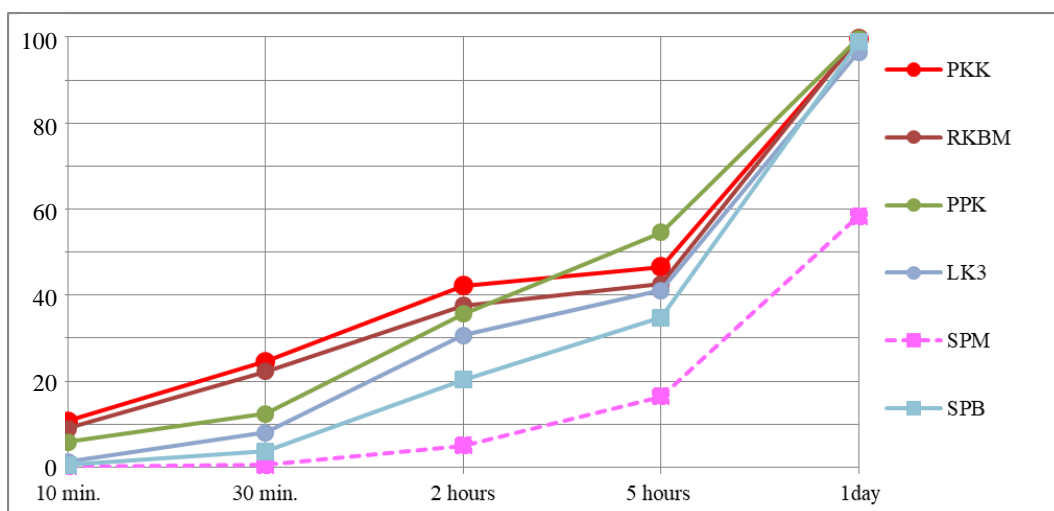
Figure III-2-24 Processing time of Tanjung Perak Port
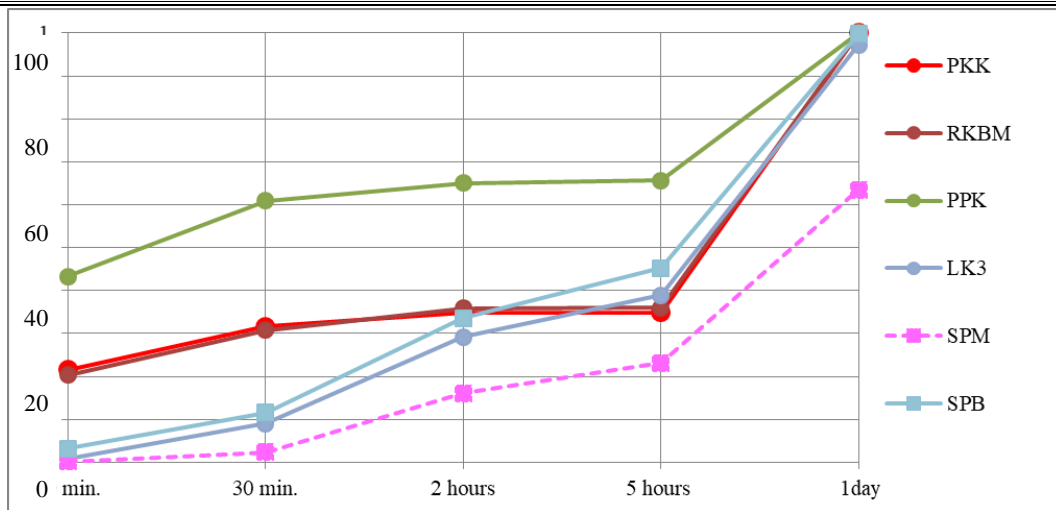
Figure III-2-25 Processing time of Tanjung Priok Port
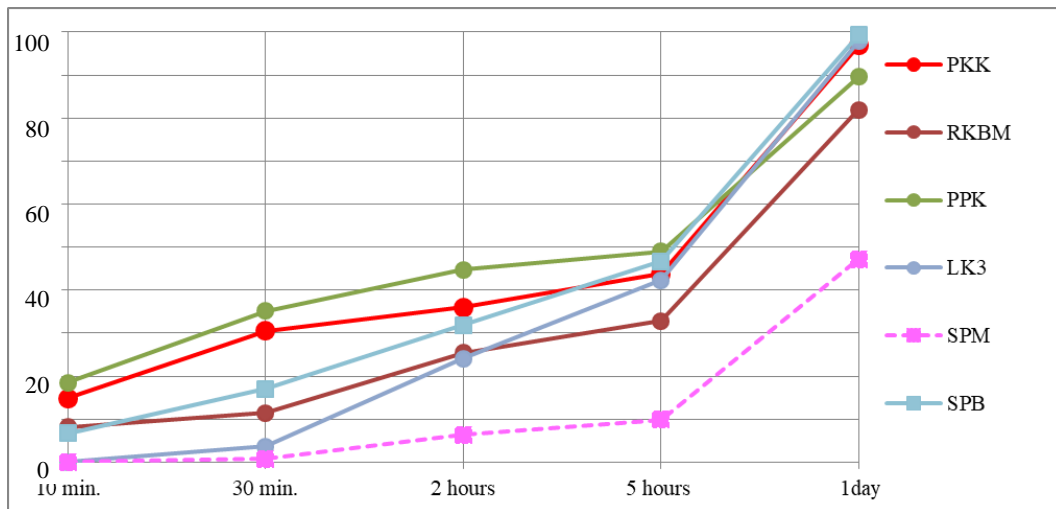
Figure III-2-26 Processing time of Teluk Bayur Port

(4)Comparison of Processing Time of Sixteen Ports

 The average processing time for each procedure is shown in the graph. Horizontal axis is 16 ports and Vertical axis is processing time. The table shows name of port, average processing time and number of procedure.

 The average processing time for each procedure is 5 hours 15minutes for PKK, 5 hours 30 minutes for RKBM, 4 hours for PPK, 7 hours 45 minutes for LK3, 31 hours 10minutes for SPM and 7 hours for SPB.

 The result of each procedure is as follows;

PKK : Processing was completed within 12 hours at all ports, and the average processing time was 5 hours and 15 minutes.

RKBM: Processing was completed within 12 hours at all ports, and the average processing time was 5 hours 30 minutes.

PPK : Processing was completed within 12 hours at all ports, and the average processing time was 4 hours.

LK3 : Processing was completed within 12 hours at all ports, and the average processing time was 7 hours and 45 minutes.

SPM : Processing time of SPM varies greatly from 14hours to 88hours. SPM procedures take longer to process than others because SPM submission time indicated in Monitoring INAPORTNET is the reply time for ship agent registration.

SPB : Processing was completed within 12 hours at all ports, and the average processing time was 7 hours. The average processing time is long only at Banten Port, and 10 out of 40 cases per month require more than one day of processing time, of which the longest is 600 hours (24 days) in some cases.

	Port	Process Time	Number
1	Ambon	6:22:59	237
2	Balikpapan	5:48:25	1,219
3	Banjarmasin	4:46:20	342
4	Banten	5:39:38	45
5	Belawan	4:20:43	343
6	Bitung	5:22:26	194
7	Gresik	4:36:49	485
8	Makassar	5:22:31	411
9	Palembang	4:53:36	158
10	Panjang	5:08:05	250
11	Pontianak	8:34:14	245
12	Sorong	5:52:14	120
13	Tanjung Emas	4:55:02	290
14	Tanjung Perak	4:46:44	1,045
15	Tanjung Priok	4:45:57	1,057
16	Teluk Bayur	5:57:17	124

PKK (Avarage Process Time)

Port	Time
Ambon	6:22
Balikpapan	5:48
Banjarmasin	4:46
Banten	5:39
Belawan	4:20
Bitung	5:22
Gresik	4:36
Makassar	5:22
Palembang	4:53
Panjang	5:08
Pontianak	8:34
Sorong	5:52
Tanjung Emas	4:55
Tanjung Perak	4:46
Tanjung Priok	4:45
Teluk Bayur	5:57

Source : Monitoring INAPORTNET Website

Figure III-2-27 PKK Processing time of Sixteen Ports

	Port	Process Time	Number
1	Ambon	6:24:54	88
2	Balikpapan	5:07:09	239
3	Banjarmasin	5:19:18	153
4	Banten	6:14:47	54
5	Belawan	5:39:02	253
6	Bitung	5:13:58	88
7	Gresik	4:12:09	215
8	Makassar	12:13:55	207
9	Palembang	4:47:19	142
10	Panjang	5:04:29	126
11	Pontianak	5:01:31	176
12	Sorong	10:16:16	22
13	Tanjung Emas	3:43:13	161
14	Tanjung Perak	4:54:15	803
15	Tanjung Priok	4:43:51	1,057
16	Teluk Bayur	12:25:21	100

RKBM (Avarage Process Time)

Port	Value
Ambon	6:24
Balikpapan	5:07
Banjarmasin	5:19
Banten	6:14
Belawan	5:39
Bitung	5:13
Gresik	4:12
Makassar	12:13
Palembang	4:47
Panjang	5:04
Pontianak	5:01
Sorong	10:16
Tanjung Emas	3:43
Tanjung Perak	4:54
Tanjung Priok	4:43
Teluk Bayur	12:25

Source : Monitoring INAPORTNET Website

Figure III-2-28 RKBM Processing time of Sixteen Ports

	Port	Process Time	Number
1	Ambon	2:42:12	199
2	Balikpapan	3:08:21	1,224
3	Banjarmasin	2:35:42	561
4	Banten	6:06:31	40
5	Belawan	4:59:14	349
6	Bitung	3:15:20	280
7	Gresik	3:30:05	852
8	Makassar	9:02:09	386
9	Palembang	3:06:25	362
10	Panjang	2:55:16	322
11	Pontianak	3:37:27	547
12	Sorong	3:12:38	91
13	Tanjung Emas	3:41:09	416
14	Tanjung Perak	5:41:17	1,460
15	Tanjung Priok	2:38:23	1,865
16	Teluk Bayur	9:57:51	232

PPK (Avarage Process Time)

Port	Value
Ambon	2:42
Balikpapan	3:08
Banjarmasin	2:35
Banten	6:06
Belawan	4:59
Bitung	3:15
Gresik	3:30
Makassar	9:02
Palembang	3:06
Panjang	2:55
Pontianak	3:37
Sorong	3:12
Tanjung Emas	3:41
Tanjung Perak	5:41
Tanjung Priok	2:38
Teluk Bayur	9:57

Source : Monitoring INAPORTNET Website

Figure III-2-29 PPK Processing time of Sixteen Ports

	Port	Process Time	Number
1	Ambon	7:46:53	220
2	Balikpapan	6:18:08	1,180
3	Banjarmasin	7:11:15	317
4	Banten	9:33:13	43
5	Belawan	5:16:07	414
6	Bitung	6:39:37	197
7	Gresik	6:58:41	622
8	Makassar	7:59:58	398
9	Palembang	6:27:11	178
10	Panjang	6:45:16	267
11	Pontianak	12:54:14	252
12	Sorong	16:20:14	85
13	Tanjung Emas	13:20:18	281
14	Tanjung Perak	8:30:36	1,117
15	Tanjung Priok	7:15:56	1,368
16	Teluk Bayur	7:29:35	134

Source : Monitoring INAPORTNET Website

Figure III-2-30 LK3 Processing time of Sixteen Ports

	Port	Process Time	Number
1	Ambon	37:19:58	109
2	Balikpapan	21:27:19	899
3	Banjarmasin	14:10:27	283
4	Banten	51:34:44	16
5	Belawan	52:26:40	154
6	Bitung	31:05:06	104
7	Gresik	37:14:59	363
8	Makassar	39:42:17	171
9	Palembang	28:11:59	105
10	Panjang	23:56:35	171
11	Pontianak	28:33:40	150
12	Sorong	43:36:32	82
13	Tanjung Emas	88:34:26	41
14	Tanjung Perak	38:42:03	653
15	Tanjung Priok	32:37:28	860
16	Teluk Bayur	41:51:24	67

Source : Monitoring INAPORTNET Website

Figure III-2-31 SPM Processing time of Sixteen Ports

	Port	Process Time	Number
1	Ambon	7:54:45	223
2	Balikpapan	6:08:13	1,174
3	Banjarmasin	8:51:07	312
4	Banten	63:02:49	28
5	Belawan	7:13:38	405
6	Bitung	6:04:30	202
7	Gresik	6:47:38	622
8	Makassar	6:03:05	404
9	Palembang	7:33:43	181
10	Panjang	8:42:21	268
11	Pontianak	6:59:14	262
12	Sorong	9:03:45	107
13	Tanjung Emas	6:27:55	328
14	Tanjung Perak	7:52:13	1,111
15	Tanjung Priok	5:35:45	1,372
16	Teluk Bayur	5:57:26	134

Source : Monitoring INAPORTNET Website

Figure III-2-32 SPB Processing time of Sixteen Ports

(5)Transition of Processing Time

The graph shows the change in procedure processing time every two months from September 2017 to March 2018 at Tanjung Priok Port and Makassar Port. The graph shows the cumulative percentage of the procedure on the vertical axis and the processing time on the horizontal axis.

[Processing Time of Tanjung Priok Port]

Processing time tends to be longer than in September 2017 in Tanjung Priok port. The difference between the data of September 2017 and the other data is large.

The percentage of completion of PKK within 10 minutes is about 70% in September 2017, about 30% in November 2017, about 25% in January 2018, and about 20% in March 2018. All PKK are completed within one day.
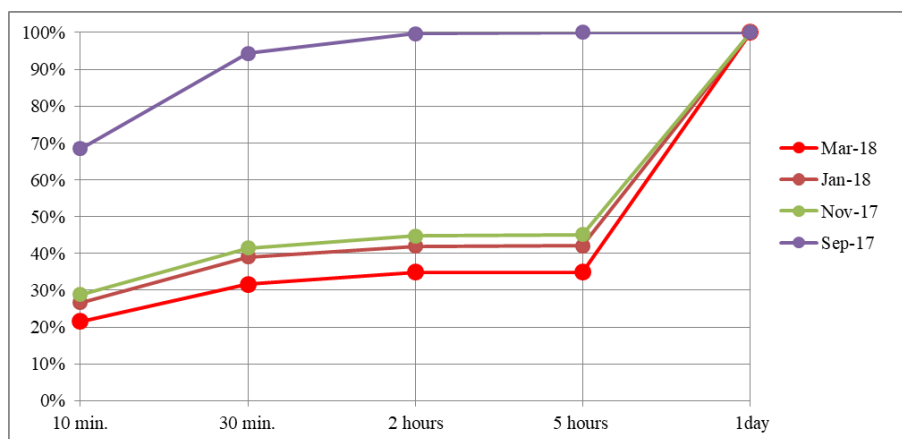
Figure III-2-33 Transition of PKK processing time at Tanjung Priok Port

The percentage of completion of RKBM within 10 minutes is 0%. About 70% of RKBM are completed within one day.
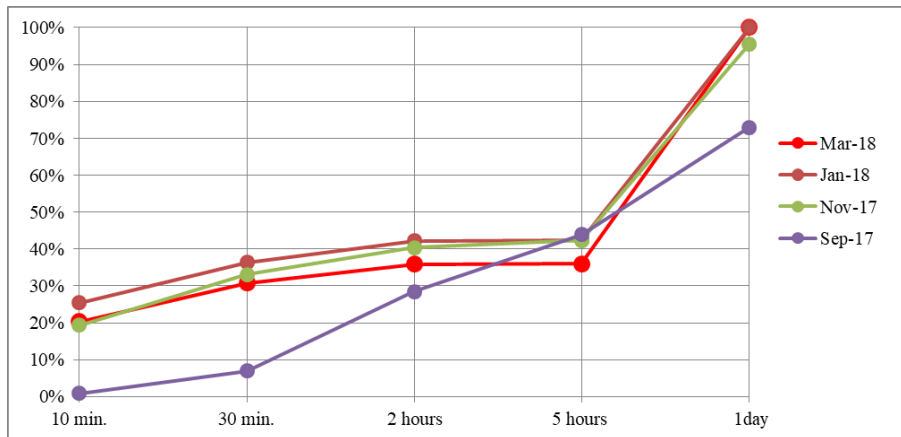
Figure III-2-34 Transition of RKBM processing time at Tanjung Priok Port

The percentage of PPK within 10 minutes is about 60% in September 2017, about 40% in November 2017, about 35% in January 2018, and about 40% in March 2018. All PPK are completed within one day.
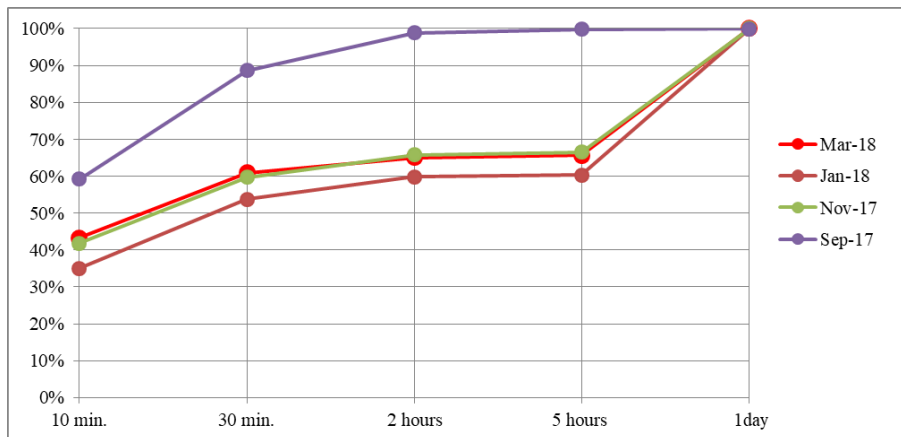
Figure III-2-35 Transition of PPK processing time at Tanjung Priok Port

The percentage of completion of LK3 within 10 minutes is 0%. All RKBM are completed within one day. The percentage of completion in September 2018 is higher than other seasons.
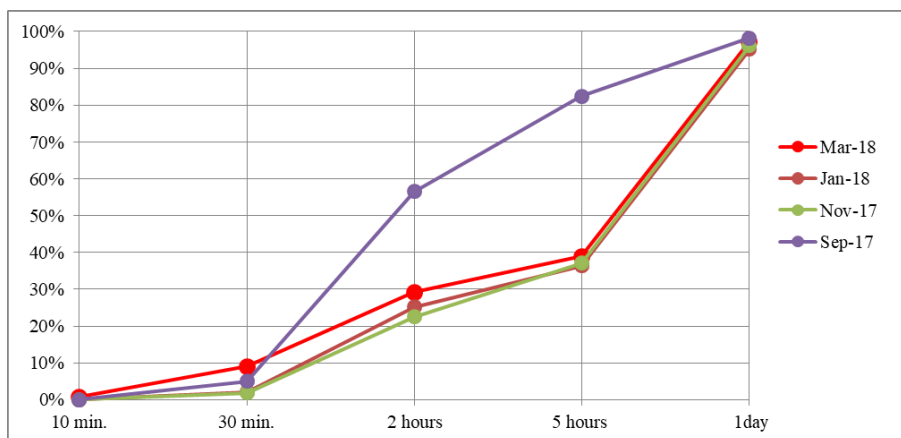
Figure III-2-36 Transition of LK3 processing time at Tanjung Priok Port

All SPB are completed within one day. The percentage in September 2017 is higher than other season's.
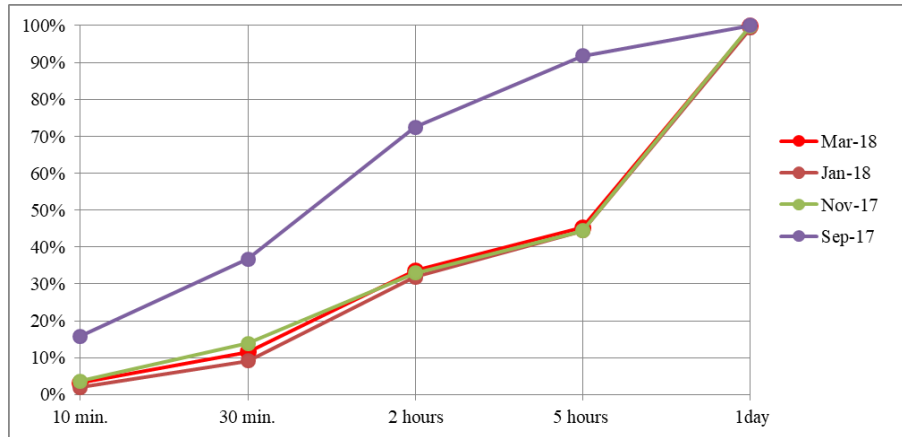
Figure III-2-37 Transition of SPB processing time at Tanjung Priok Port

[Processing Time of Makassar Port]

Processing time tends to be longer than in September 2017 in Makassar port. The difference between the data of September 2017 and the other data is large. The percentage of PKK within 2 hours is about 90% in September 2017, about 40 % in November 2017. There is little change from November 2017 to March 2018.
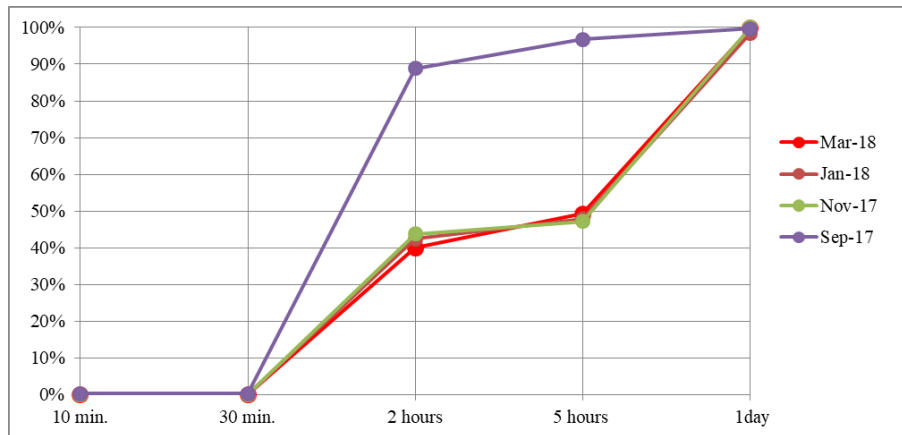
Figure III-2-38 Transition of PKK processing time at Makassar Port

The percentage of completion of RKBM within one day is about 40% in September 2017, about 90% after November 2017. There is little change from November 2017 to March 2018.
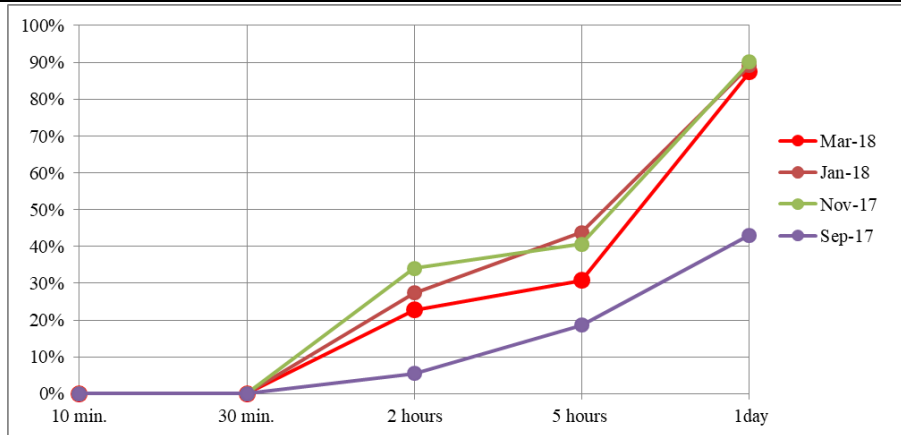
Figure III-2-39 Transition of RKBM processing time at Makassar Port

The percentage of completion of PPK within 2 hours is about 80% in September 2017, about 55% after November 2017. There is little change from November 2017 to March 2018.
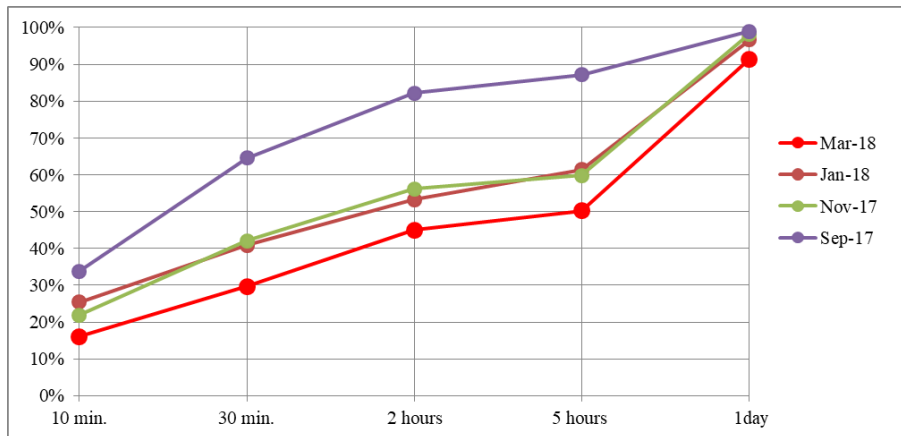
Figure III-2-40 Transition of PPK processing time at Makassar Port

The percentage of completion of LK3 within 5 hours is about 80% in September 2017, about 40% after November 2017. There is little change in the transition from November 2017 to March 2018.
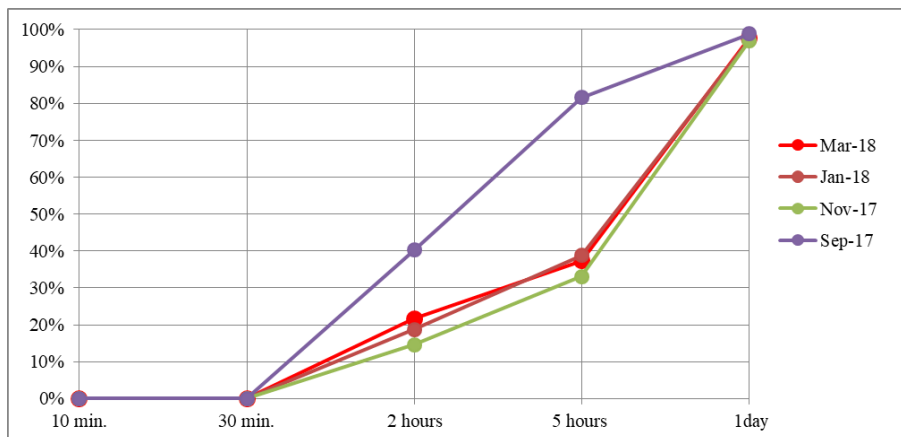
Figure III-2-41 Transition of LK3 processing time at Makassar Port

The percentage of completion of SPB within 5 hours is about 90% in September 2017, about 45% after November 2017. There is little change in the transition from November 2017 to March 2018.
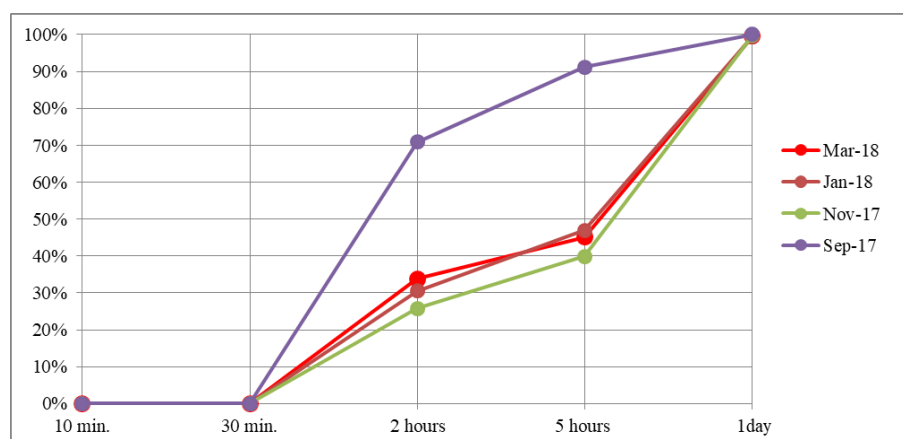
III-2-2 High-quality System that can Cover Wider Areas

III-2-2-1 Improvement of User Convenience

As the use of INAPORTNET has expanded, the demand for improving the convenience of users is also increasing. It is already pointed out in III-2-1-2 "Prompt Response when Problems Occur", that the system operator should think it important to accumulate and classify the inquiries systematically and to improve users' convenience.

In this section, three concrete examples are explained. These can be obtained by classifying the inquiries and should be determined through the consideration whether DGST should improve it or not.

(1)Addition of Automatic Checking Function of Validity Period of Ship's Certificates

This is a request from HM staff. As the classification of inquiry, it should be as follows; classification by users = all users, classification by services = departure procedure, classification by areas = nationwide.

Table III-2-3 is a checklist used by persons in charge at the HM office of Port of Tanjung Priok for confirming documents submitted by applicants on ships' entry and departure procedures. According to the person in charge, the HM office requires the applicants to submit ship's all certificates which they keep in the ship.

If the automatic checking function is added in INAPORTNET, as it will be used for all entry and departure approvals, the priority of the improvement is high. The next step is the degree of difficulty of improvement. In the current ship registration system (SIMKAPAL), it does not have a procedure to register data of ship's certificates. If DGST develop this procedure from the beginning, it will become a very large improvement. In addition, since the burden on the applicant's input work also increases, it cannot be said that it is an appropriate improvement.

On the other hand, the following method is conceivable. As a support function of HM's works, DGST can install in the subsystem of SPS online at the opportunity of its next upgrading, a mechanism which allows HM staff to input and check the certificate data of ships which are entering in and departing from the port. With this method, it is possible to check the expiration date for frequently entering ships.

Table III-2-3 HM's check list for ship's certificates

Checklist of Completeness and Validity of Letters and Documents in the Framework of the Issuing Shipping Approval Letters							
Name of Vessel				Number of ABK			
Flag				Call Sign			
Gross Tonnage(GT)				Production Year			
Master Name				Type of Vessel			
IMO				P / L / T			
Arrival Draft				Owner / Agent			
Departure Draft				Max Draft			

Letter and Document of Vessels			Verification Arrival			Verification Departure		
			Given in	Date	Apply Until	Given in	Date	Apply Until
Administrative Verification	1	Vessel's Nationality Letter						
	2	Measurement Letter						
	3	Annual "Pas"						
	4	Small "Pas"						
	5	Construction's Safety Certificate						
	6	Equipment's Safety Certificate						
	7	Radio's Safety Certificate						
	8	Passenger's Safety Certificate						
	9	Fast Ship/Boat's Safety Certificate						
	10	Load Line's Certificate						
	11	Crew's Safety Certificate						
	12	Fishing Ship's Crews and Safety Certificate						
	13	Fishing Permission Letter						
	14	Fish Carrier Permission Letter						
	15							
	16							
	17	IOPP/NOPP Certificate						
	18	NLS Certificate/ IMDG Code						
	19	ISPP Certificate						
	20	IAPP Certificate						
	21	CLC Bunker						
	22	Anti Fouling System						
	23	Oil Record Book						
	24	Hull						
	25	Machinery						
	26	Safe Management Certificate						
	27	Document of Compliance						
	28	International Ship Security Certificate						
	29	Ship Security Officer Certificate						
	30	Countious Synopsis Record Certificate						
	31	International Life Raft Certificate						
	32	Fire Extinguisher Certificate						
	33	CO2 Certificate						
	34	Last Port Clearance						
	35	Crew List						
	36	Ship News						
	37	Dangerous Goods Manifest						
	38	Derrating Certificate						
	39	PPKA/PKKA/RPT/DSB						
	40	Last PSC Inspection						
	41	Hull & Machinery Insurance						

Vessel Arrival : Time: From : To :

Reported By	Arrival	Departure
Date / Hour		
Harbour Master's Officials (Proper Name)		
Agent's Owner (Proper Name)		
Vessel Position		

Source: HM of Tanjung Priok Port

HMs also have reporting obligations (for example shown in Table III-2-4 as the port activity reports to DGST, same as PAs must submit LK 3 monthly report to DGST, These reports can be easily created by processing of INAPORTNET data like the monthly report of LK 3. It is desirable to utilize the INAPORTNET data actively on HMs' reports.

Table III-2-4 Example of HM's report

No.	BULAN (Month)	KAPAL MASUK (Ship In)				TOTAL KAPAL MASUK	KAPAL KELUAR (Ship out)				TOTAL KAPAL KELUAR
		BENDERA (Flag)		GT			BENDERA (Flag)		GT		
		RI (Indonesia)	ASING (Foreign)	BESAR (Big)	KECIL (Small)		RI (Indonesia)	ASING (Foreign)	BESAR (Big)	KECIL (Small)	
						REKAPITULASI LAPORAN KAPAL CLEARANCE IN/ OUT TAHUN 2016					
						Report of summary of ships' clearance in/ out in the year 2016					
1	January	930	293	1015	208	1223	296	947	1027	216	1243
2	Feburary	890	299	1000	189	1189	887	286	989	184	1173
3	March	946	325	1062	209	1271	936	338	1076	198	1274
4	April	983	305	1065	223	1288	912	325	1033	204	1237
5	May	756	293	1049	220	1269	1019	311	1094	236	1330
6	June	539	791	1092	238	1330	1071	335	1154	252	1406
7	July	702	252	823	131	954	740	241	833	148	981
8	August	1004	306	1110	200	1310	864	262	956	170	1126
9	September	1000	269	1066	203	1269	1022	265	1076	211	1287
10	October	415	68	238	245	1206	1110	268	1140	238	1378
11	November	1060	302	1139	223	1362	1065	292	1122	235	1357
12	December	990	275	1056	209	1265	1038	272	1094	216	1310
	TOTAL					14936					15102

Note: "Big" means 500 GT or more. "Small" means less than 500 GT.

Source: HM of Tanjung Priok

(2)Changing Procedure of Shipping Agent

In Ports of Belawan and Tanjung Perak, there are cases where shipping agents are changed at the time of port departure, but it is not possible with the current INAPORTNET. As the classification of inquiry, it should be as follows; classification by users = shipping company, classification by services = departure procedure, classification by areas = unknown except Ports of Belawan and Tanjung Perak.

As a procedure to respond the request, DGST should firstly grasp the frequency of occurrence in the 16 ports. In addition, they should estimate future increase or decrease by hearings from users etc. If it is expected to be frequent in the future, they should get the budget by grasping the approximate expenses for developing the additional function and the required time, and make the system improvement.

(3)Changing Procedure of Stevedoring Company

There are cases where stevedoring companies are changed. It can be responded as the procedure above.

III-2-2-2 Functions to Cover Non-standard Cases

(1)Re-design of Process Changing the Application Contents

Checking the submit time (application time) and the approval time according to the data of Monitoring INAPORTNET, we found some reversals of these times. The vender developed INAPORTNET said it is because users should re-submit the application without canceling the former one when it becomes necessary to modify the contents of the application after the approval. Approximately 10% of changes might occur in procedures such as PKK and PPK.

In these cases, users have to contact the system administrator to change the application. It is supposed that the approval would not be canceled or changed because the approval number is linked to the next procedure. Therefore, the approval time will be unchanged after the modification, but the submit time will be replaced with re-submit time.

These time reversals will affect to the analysis of data and the procedure control based on the data. In addition, owing to the system administrator will have to apply changes to data everytime, it will not only increase off-scoped works for system administrator but also increase the risk of data loss by mis-operation. Moreover, the situation that system administrator conducting such special treatment for 10% of all application is not appropriate situation for the system.

Therefore, in the case of the 10% will not expect to reduce, the procedure of modification after approval should be implemented into the system function. In this case, the re-submit time (of modification) and re-approval time will be recorded separately from former submit time and approval time.
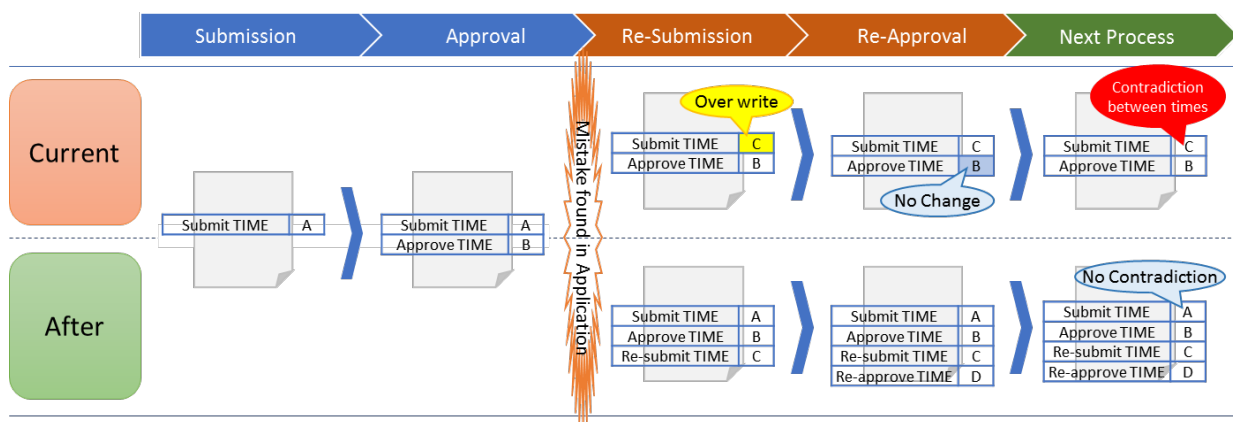
Source: JICA Project Team

Figure III-2-42 Re-design of process Changing the Application Contents

(2)Enhancement of System Function against Error Operation Flow

In addition to the workflow following the normal procedure, the workflow regarding to error operation such as human errors including mis-input or mis-operation, or system error including temporally network error or server freeze should be considered in the system design.

In general, following three cases should be considered as operation cases and especial "Sub-normal flow" and "abnormal flow" should be expected and corresponded as an error operation flow.

● Normal Flow: The workflow without any error

● Sub-normal Flow: The workflow with error that expected

● Abnormal Flow: The workflow with unexpected error

The total workflow of INAPORTNET is designed as a linear repetition of application (data input) and approval of each step, but not enough error operation flow such as application pullback by user (*) has designed as user function.

* It is expecting the implemented function and system flow that can access or control by users from regular system user interface (for example, the pullback by clicking the "submitted" button, or the modification by clicking the "approved" button).

As described in previous section, by adding functions such as application pullback or modification as user's function on error-prone process (the error such as mis-input or contents correction), it will be unnecessary to ask the system administrator to do exception handling every time, as well as reducing inquiry response for those users.

In particular, for the enhancement of system, the high necessity (frequent occurred) error operation flow will be selected by analysis of FAQ and 1) how to process (design of procedure) and 2) how to implement to the system function (design of system) will be considered.
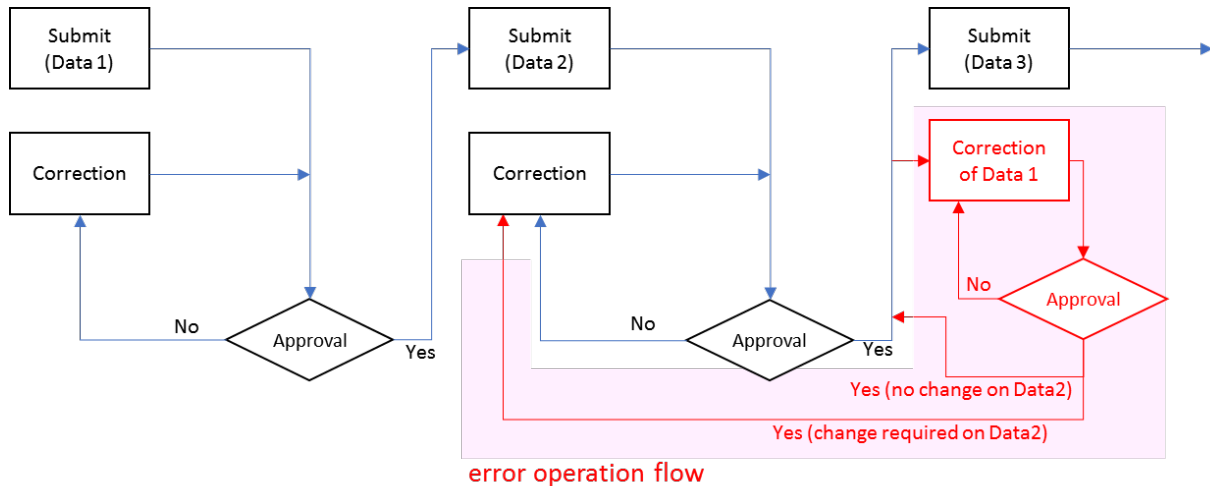
Source: JICA Project Team

Figure III-2-43 System function against error operation flow

III-2-2-3 Expansion of the Applications of INAPORTNET

(1)Responding to Procedures of Small Ships

In the current INAPORTNET, the following ship handlings are excluded by DGST regulation, HK103/3/11/DPJL-15.

a. People's Voyage Ship (using sailboats, motorized sailboats and simple motor boats)

b. Ship less than 35GT

c. Ship operating in the fixed area with less than 6 hour-voyage time

d. Fishing ship

Among these excluded ships, although it differs depending on the ports, a considerable number of small ships (ships smaller than 35 GT) are entering and leaving ports. According to PA of Makassar, the number of small ships entering the port is about 60 to 70 /month, which is equivalent to 15 to 18% of INAPORTNET handling ships (about 400 /month). For this reason, DGST has an intention to include the procedures of small ships in INAPORTNET in the future.

According to PA of Makassar, the arrival and departure procedures of small ships are basically the same as those of general ships. However, in many cases, cargo handling works and the like are carried out by their own, and in such cases there is no need for RKBM or the like. According to PA of Belawan, after receiving the approval of PA beforehand, applicants of small ships can omit the procedures of PKK, RKBM and LKK, and only do for PPK and LK 3. In this way, there are ports that impose simplified procedures for small ships.

Therefore the procedures for small ships should be digitized as follows. Firstly DGST should grasp the actual situation of the works at many ports. Then based on the viewpoint of simplification of procedures, the procedures for small ships should be standardized and digitized that are common throughout the country.

According to the Ordinance for Enforcement of the Act on Port Regulations in Japan, which stipulates procedures of the Harbor Master in Japan, the applications of port entry and departure are excluded for ships less than 20 GT. In case of a small ship, in general, a mooring place for the ship is secured at the port as the ship's base; she takes her berth within a certain range in the port; and she frequently enters and leaves the port.

Therefore the simplification of the port procedures for small ships can be considered taking account of this Japanese example..

It is also important to develop INAPORTNET that can deal with smartphones, taking into consideration that operators of small ships may not have PCs.

A concrete measure of the procedures of small ships is as follows.
- To grasp the actual situation of procedures at each port
- To examine the standardized procedure concerning the simplification of procedures
- To exchange opinions with the person in charge of PA ,HM and port users at each port
- To introduce the system

(2)Responding to Short Voyages

PA of Tanjung Priok pointed out that INAPORTNET may not be used due to the exclusion of voyages less than 6 hours. In this case, it is inconvenient for management of entry and departure of ships because the person in charge has to input the LK3 data for the monthly report. In this case, it might be included in the case of a voyage of 6 hours or more, but it is difficult to judge if it is declared as less than 6 hours.

Regarding the procedures of short voyages, it is also necessary to grasp the actual condition of the operations of major ports at first then to consider whether or not to incorporate the procedures into INAPORTNET based on the viewpoint of simplification of procedures.

The fact that there are some agents declaring that a voyage of 6 hours or longer is less than 6 hours in order to avoid using INAPORTNET is probably because the use of INAPORTNET is thought to be troublesome. In Japan, where port EDI is not mandatory, the operator of system services (Port and Harbor Bureau, MLIT of Japan) has been trying to improve convenience for users. For example, there are a function which allows users to copy and reuse past application data, a function of pull-down menus when users should select input items, and a function of appealing polite error messages in order to prevent mistakes.

Increasing the user-friendliness of INAPORTNET has proven to be the best way to promote expanded use in Indonesia. A concrete measure of the procedures of short voyages is as follows.

- Basically it is the same as small ships.
- Because of a short length, DGST should examine the digitization, viewing of the unification and simplification of procedures; for example, a package application of port entry and departure.

On the other hand, Minister for transportation's regulation No.PM 93 year 2013 stipulates that shipping companies must submit periodic reports of actual operational voyage results to DGST. But it is substantially exempted because INAPORTNET can accumulate each submission of LK 3 to the monthly and annual reports. This is considered to be a big merit for shipping companies/ agents to use INAPORTNET. DGST should clearly define this merit in the regulations and use it for the promotion of the use of INAPORTNET.

III-2-3 Expansion of INAPORTNET Implementation Ports

III-2-3-1 Expansion of INAPORTNET Implementation Ports

INAPORTNET is operated at 16 ports according to the provisions of MOT. Cooperation with the PELINDO system is indispensable since the business of port operator (PELINDO) is incorporated in the port entry and exit procedure. The PELINDO system is not operated other than 16 ports, therefore it is an obstacle to expanding the target port.

In order to expand the implemented ports, each PELINDO should be encouraged to spread the PELINDO system. In case of difficulty, DGST should consider the next best policy. Specifically, the following methods are conceivable.

- When the system becomes widespread, personnel expenses can be reduced, and much merit can be expected for PELINDO. DGST should encourage PELINDOs to deploy the PELINDO systems actively to the ports other than 16 ports. INAPORTNET will be deployed sequentially from the ports in which the PELINDO system is already operated.

- In order to deploy INAPORTNET at the port which PELINDO does not progress to deploy the PELINDO system due to their special conditions, or the port operated by other than PELINDO, DGST should consider the measures below. Supposing of future development, it is necessary to consider which method is appropriate before the implementation.

Alternative 1) A measure to incorporate the businesses implemented in the PELINDO system into INAPORTNET

Alternative 2) A measure to improve INAPORTNET in order to input the data manually by applicants, which would be delivered from the PELINDO system, if the PELINDO system was operated

Currently DGST supervises the following four types of ports:

- 4 main ports stipulated by PM 35 year 2012 that each PA administers each port (Belawan, Tanjung Priok, Tanjung Perak, Makassar);

- Port of Batam stipulated by PM93 year 2018;

- 90 commercial ports stipulated by PM 36 year 2012 (amended by PM 135 year 2015 and PM76 year 2018) that KSOPs administer the ports (Table III-2-5); and

- 165 non-commercial ports stipulated by KM 62 year 2010 (amended by PM 44 year 2011, PM 130 year 2015 and PM77 year 2018) that the POUs (Port Organizer Unit) administer the ports (Table III-2-5).

DGST should expand implementation of INAPORTNET to other ports after examining the current situation regarding ships' clearance procedures by shipping agents, PAs and HMs at each port.

Table III-2-5 Commercial Ports and Non-Commercial Ports supervised by DGST

(1) Commercial ports stipulated by PM No.36 year 2012 (amended by PM No.135 year 2015 and PM No.76 year 2018)

KSOP Class 1 (Total 9)			KSOP Class 2 (Total 17)			KSOP Class 3 (Total 16)		
No.	Port	Location of office	No.	Port	Location of office	No.	Port	Location of office
1	Dumai	Dumai, Riau	1	Tanjung Pinang	Tanjung Pinang, Kepulauan Riau	1	Kuala Tanjung	Batubara, Sumatera Utama
2	Panjang	Panjang, Lampung	2	Teluk Bayur	Padang, Sumatera Barat	2	Pekanbaru	Pekanbaru, Riau
3	Banten	Banten, Banten	3	Tanjung Buton	Siak, Riau	3	Kijang	Bintan, Kepulautan Riau
4	Tanjung Emas	Semarang, Jawa Tengah	4	Palembang	Palembang, Sumatera Selatan	4	Talang Duku	Muaro Jambi, Jambi
5	Banjarmasin	Banjarmasin, Kalimantan Selatan	5	Cirebon	Cirebon, Jawa Barat	5	Pulau Baai	Bengkulu, Bengkulu
6	Balikpapan	Semayang, Kalimantan Timur	6	Patimban	Subang, Jawa Barat	6	Sunda Kelapa	Jakarta Utara, DKI Jakarta
7	Tanjung Balai Karimun	Karimun, Kepulauan Riau	7	Cilacap	Cilacap, Jawa Tengah	7	Tanjung Wangi	Banyuwangi, Jawa Timur
8	Ambon	Ambon, Maluku	8	Gresik	Gresik, Jawa Timur	8	Lembar	Lombok Barat, Nusa Tenggara Barat
9	Sorong	Sorong, Papua Barat	9	Benoa	Benoa, Bali	9	Kupang	Kupang, Nusa Tenggara Timur
			10	Pontianak	Pontianak, Kalimantan Barat	10	Sampit	Kotawaringin Timur, Kalimantan Tengah
			11	Samarinda	Samarinda, Kalimantan Timur	11	Kotabaru-Batulicin	Kotabaru, Kalimantan Selatan
			12	Bontang	Bontang, Kalimantan, Timur	12	Tarakan	Tarakan, Kalimantan Utara
			13	Bitung	Bitung, Sulawesi Utara	13	Manado	Manado, Sulawesi Utara
			14	Teluk Pale	Palu, Sulawesi Tengah	14	Pare-pare	Makassar, Sulawesi Selatan
			15	Kendari	Kendari, Sulawesi Tenggara	15	Gorontalo	Gorontalo, Gorontalo
			16	Ternate	Ternate, Maluku Utara	16	Biak	Biak Numfor, Papua
			17	Jayapura	Jayapura, Papua			
KSOP Class 4 (Total 48)								
Port names are omitted								

(2) Non-commercial ports stipulated by PM No.62 year2010 (amended by PM No.44 year2011, PM No130 year2015 and PM No.77 year2018)

Port Organizer Unit Class 1 (Total 4)					
No.	Port	Location of office	No.	Port	Location of office
1	Tanjung Uban	Tanjung Uban, Kepulauan Riau	3	Mamuju	Mamuju, Surawesi Barat
2	Bau-Bau	Bau-Bau, Sulawesi Tenggara	4	Tobelo	Halmahera Utara, Maluku Utara
Port Organizer Unit Class 2 (Total 40)					
Port names are omitted					
Port Organizer Unit Class 3 (Total 121)					
Port names are omitted					

Source: Minister for Transportation's Regulation No. PM 76 year 2018 and PM 77 year 2018

III-2-3-2 Additional Functions Dealing with Cargo Information

INAPORTNET has entered into Phase 2 by the enforcement of Minister for Transportation's Regulation No.PM 120 year 2017 (December 29, 2017). It stipulates the implementation of delivery order electronically (Delivery Order Online) for imported goods in order to improve the flow of goods and lower logistics costs at the port. In this regulation, PELINDOs are obliged to establish DO online service systems and to cooperate with INSW, INAPORTNET and other related systems.

DO online refers to Electronic Delivery Order, which electronically issues a "Cargo Delivery Certificate" from shipping company / agent to shipper. According to DGST, as shown in Figure III -2-44, it enables PA to supervise the smooth movement of containers from not only the delivery process but also from unloading to gate-out. According to the second JCC document (April 9th 2018), DGST plans to digitize the movement of export containers similarly in the future.

The aim of DO online is to enable the government to grasp real time cargo information including location and process time for loading/unloading, clearance and gate-in/gate-out of each container and calculate berth/yard occupancy ratio as a part of the PPIs.

According to the Ministerial regulation, DO online is going to be expanded to the other ports after being deployed at four main ports (Belawan, Tanjung Priok, Tanjung Perak, Makassar). DGST should formulate a strategy for its application and expansion in a fully planned manner. The current INAPORTNET system can deal with cargo information such as units and types of cargo. However, DGST should take appropriate measures to ensure soundness and correctness of cargo data input in INAPORTNET.
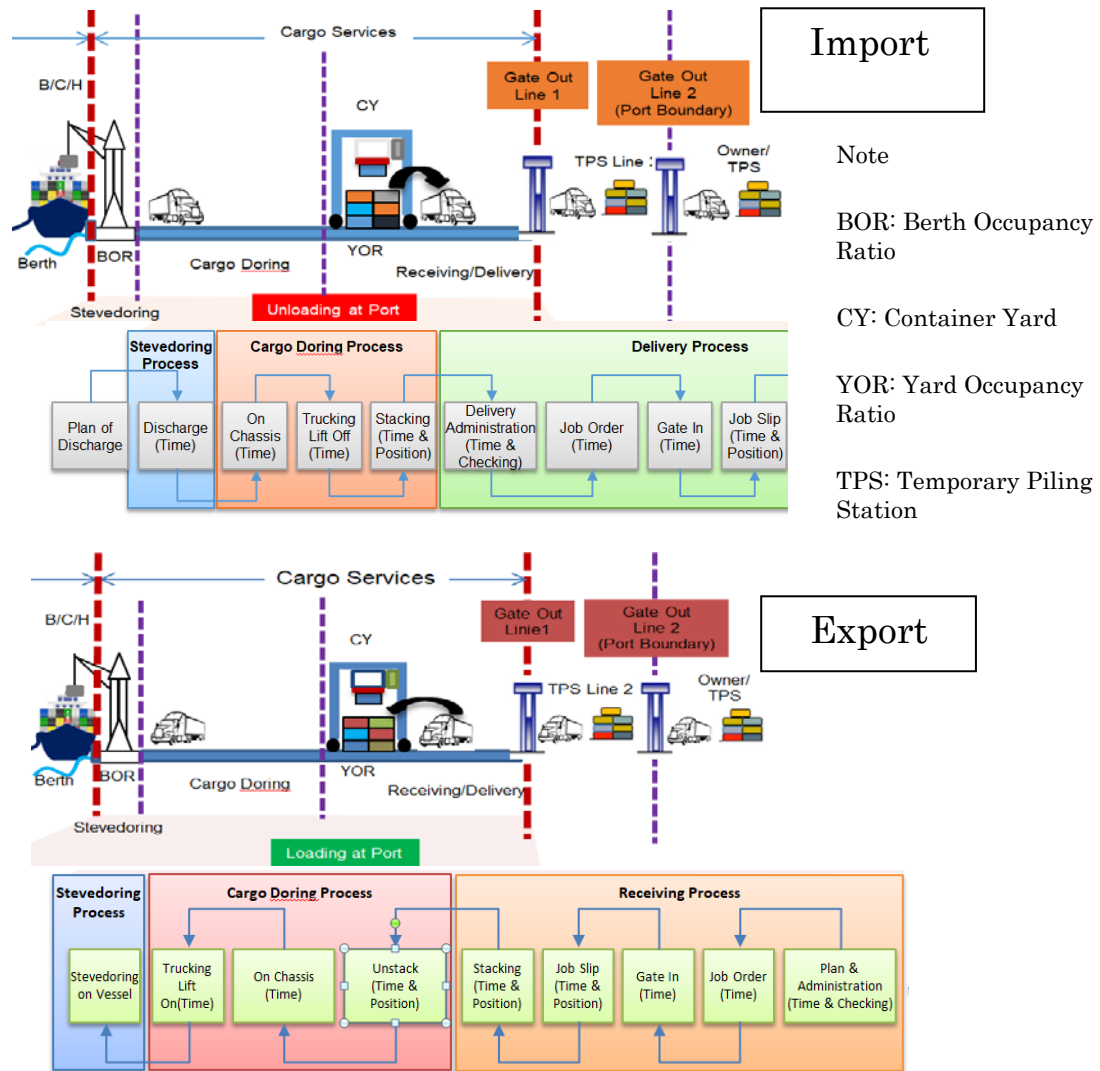
Source: DGST

Figure III-2-44 Scheme of Import & Export Cargo Services

In order to manage cargo information, cargo classification is also important. Minister for transportation's regulation No.PM 93 year 2013 stipulates the cargo classification shown in Table III-2-6. However, it is different from the actual classification of cargo in INAPORTNET. In order to unify the nationwide cargo statistics in the future, it is necessary to consider and build up the consistent cargo classification, based on the cargo data collected by DO online.

Table III-2-6 Cargo/ Package/ Vessel Classification stipulated in PM 93 year 2013

1. DAFTAR JENIS MUATAN *Table of Cargo type*

#			#			#		
1	Beras	*Rice*	26	Elektronik	*Electronic*	52	Pasir Kwarsa	*Sand Quartz*
2	Gula Pasir	*Sugar*	27	Gaplek	*Cassava*	53	Pasir Besi	*Iron sand*
3	Gandum	*Wheat*	28	Kedaraan	*Vehicles*	54	Pasir Lain	*Other Sand*
4	Tepung Terigu	*Wheat flour*	29	Furniture	*Furniture*	55	Klinker	*Clinker*
5	Kedelai	*Soy*	30	Garam	*Salt*	56	Hasil Pertambangan	*Mining Results*
6	Kacang–kacangan	*Nuts*	31	Bahan Kimia	*Chemical Material*	57	Logos	*Logos*
7	Lada	*Pepper*	32	Barang Kerajinan	*Handicraft Goods*	58	Kayu Gergaji	*Saw Wood*
8	Cengkeh	*Clove*	33	Soda ash	*Soda ash*	59	Kayu Lapis	*Plywood*
9	Rempah–rempah	*Herbs & spices*	34	Zat asam	*Acid*	60	Rotan	*Rattan*
10	Kopi	*Coffee*	35	Mesin–mesin	*Machines*	61	Hasil Hutan Lainnya	*Other Forest Products*
11	Tembakau	*Tobacco*	36	Makanan Ternak	*Cattle fodder*	62	Ikan	*Fish*
12	Kakao	*Cocoa*	37	Baja/ Besi Beton	*Steel/ Concrete Iron*	63	Udang	*Shrimp*
13	The	*Tea*	38	Kertas	*Paper*	64	Ikan Asia	*Asian Fish*
14	Karet	*Rubber*	39	Makanan/ Minuman	*Food / Drink*	65	Rumput Laut	*Seaweed*
15	Kopra	*Copra*	40	Hasil Perindustrian lainnya	*Other Industry Products*	66	Hasil Laut Lainnya	*Other Sea Products*
16	Minyak Sawit	*Palm oil*	41	Crude oil	*Crude oil*	67	Sapi	*Cow*
17	Minyak Goreng	*Cooking oil*	42	Bahan Bakar Minyak	*Fuel oil*	68	Kerbau	*Buffalo*
18	Sayur–sayuran	*Vegetables*	43	Gas/ LNG	*Gas /LNG*	69	Kulit Hewan	*Animal skin*
19	Buah–buahan	*Fruits*	44	Aspal	*Asphalt*	70	Kulit Ternak Lainnya	*Other Livestock Leather*
20	Kapas	*Cotton*	45	Timah	*Lead*		Penumpang Umum	*General Passenger*
21	Hasil Pertanian dan Perkebunan tainnya	*Agricultural & Plantation Products*	46	Bauksit	*Bauxite*	71	Transmigrasi	*Transmigration*
22	Pupuk	*Fertilizer*	47	Tembaga	*Copper*	72	Turis	*Tourist*
23	Semen	*Cement*	48	Kaolin	*Kaolin*	73	TKI	*TKI*
24	Garmen	*Garments*	49	Nikel	*Nickel*	74	Lain–lain	*Others*
25	Teksitil	*Textile*	50	Alumunium	*Aluminum*			
			51	Batubara	*Coal*			

2. DAFTAR JENIS KEMASAN *Table of Package type*

#			#			#		
1	Bag (pak / karung)	*Bag. (pack/ sack)*	5	Drum	*Drum*	9	Dry Bulk	
2	Case (peti)	*Case (crate)*	6	Pallet	*Pallet*	10	Liquid Bulk	
3	Bale (bal/ bundal)	*Bale (Bal/Bundal)*	7	Petikemas	*Container*	11	Lain–lain	*Others*
4	Barel (kaleng)	*Barrel (cans)*	8	Barge	*Barge*			

3. DAFTAR TYPE KAPAL *Table of Ship type*

#			#			#		
1	Konvensional	*Conventional*	7	Tunda	*Tug*	13	Kapal Layar (1)	*Scooter*
2	Container (Petikemas)		8	Penumpang	*Passenger*	14	Kapal Layar Motor (1)	*Motor Scooter*
3	Semi Container (Petikemas)		9	Bulk (curah)	*Bulk*	15	Kapal Motor (1)	*Motor Boat*
4	Landing Craft		10	Tanker		16	Lain–lain	*Others*
5	Tongkang	*Barge*	11	Lash				
6	Roro	*Roro*	12	Ikan	*Fish*			

Source: PM93 year 2013

III-2-3-3 Integration into NSW

(1)Overview of INSW system

The Indonesian National Single Window (INSW) has been regulated in presidential regulation No.10/2008 is the Indonesian national system which enables a single submission of data and information, single and synchronous processing of data, and single decision-making of customs clearance. INAPORTNET is a part of activities for improving maritime trade in Indonesia as well as INSW and INAPORTNET should be integrated with INSW.

Out of those three functions which INSW enables, the single submission of data and information (SSI) is already complete its application development and has entered to the trial phase. Currently, the online application for custom clearance and food quarantine clearance are already in service, and users can check the status of applications. The development of INSW is "1st generation" and next generation plan is under consideration.

Main focus for INSW is to track the movement of import/export cargoes and provide the latest status information to users and is already covering 92% of all import/export cargoes.

INSW is covering the cargo clearance process regarding to the import/export of goods (as below figure) administrated by related government agencies.
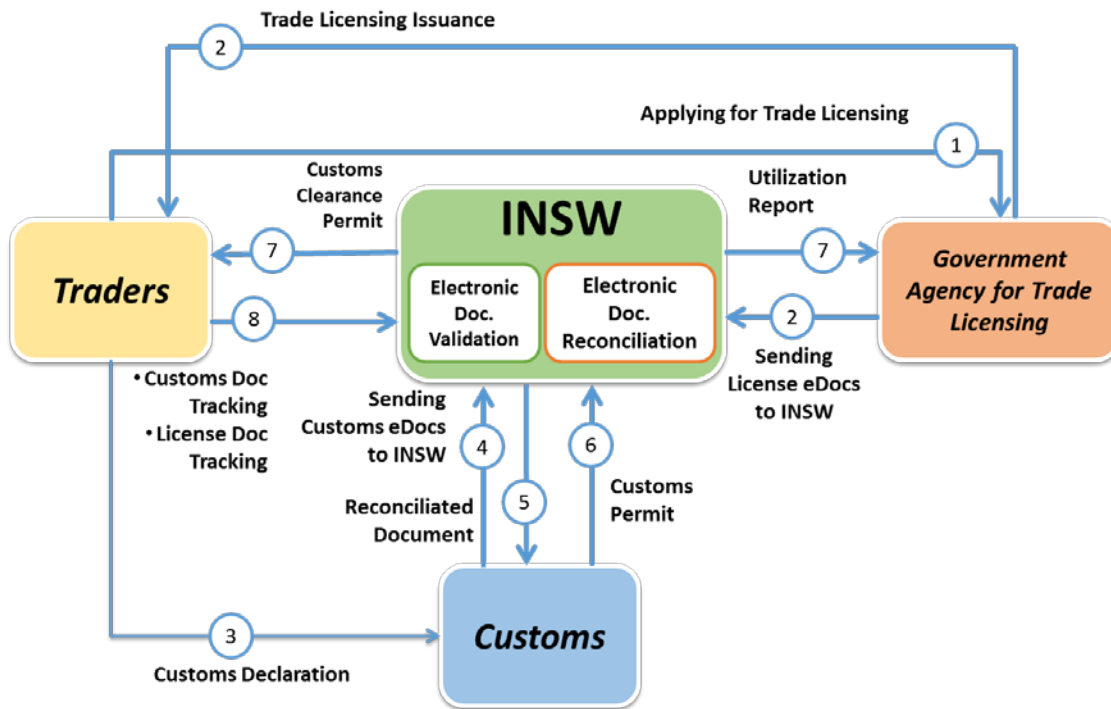
Figure III-2-45 INSW's roles in cargo clearance process (government agency perspective)

INSW is also cooperating with ASEAN Single Window (ASW), the pan-ASEAN activity for connecting the information of inter-ASEAN cargoes. INSW is already exchanging Certification of Origin among Singapore, Malaysia, Thailand and Vietnam.

(2)Connection between INSW and INAPORTNET

Instead of INAPORTNET focusing on vessel movement at ports, INSW is more focusing on information of cargo operation after entering the port. Currently, a port operator (PELINDO) has this information (such as actual berthing start/end time, actual load/unload time), and INAPORTNET is not collecting it. For this reason, INSW is temporarily collecting necessary information from PELINDO and operating its function.

On the other hand, since those port performance data are important to analyze for considering port related policy which will be promoted in all Indonesia, the data will be expected to connect with and collect by INAPORTNET. Therefore, as below figure, INAPORTNET will be expected to collect the necessary information from PELINDO system and provide it to INSW.
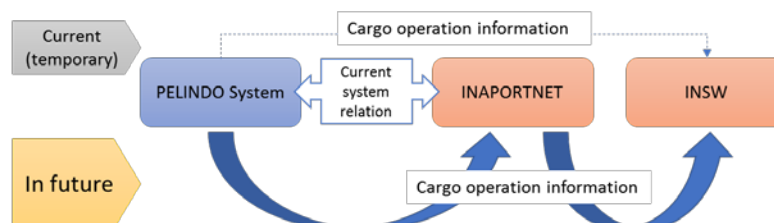
Source: JICA Project Team

Figure III-2-46 Connection image between INAPORTNET and INSW

Specifically, INAPORTNET phase 2 project (see next section) is underway as a next improvement step of port related procedure. Moreover, this will not only provide information to INSW, but also enable the analysis of important PPI such as dwelling time in INAPORTNET, and by collaboration with INSW such as the unification of user interface, it may accelerate the convenience of port user in the future.

III-2-4 New Port Administration by Making Use of INAPORTNET Data

III-2-4-1 Port Activities at Each Port and Share Information

Much of the information handled by INAPORTNET can be effectively applied to port administration and management work.

PA shall continuously analyze the activities of vessels at the port based on information (data) obtained by INAPORTNET in a predetermined format. The analyzed data shall be reported to Directorate General of Sea Transportation (DGST) and the results shall be shared with stakeholders.

(1)Data to be Analyzed

(a)Data Item

The JICA Project Team analyzed port activities of the four major ports using INAPORTNET data provided by PUSTIKOM. The data used for the analysis was May, June and July of 2017 and 2018. Table III-2-7 shows data items.

Table III-2-7 Data Items of INAPORTNET from PUSTIKOM

Data Items	Definition of Data Items
1. No. (No.)	・Serial number given for each ship
2. No. of PKK (NOMOR PKK)	・Number of PKK
3. No. of LK3 (NOMOR LK3)	・Number of LK3
4. Vessel Name (KAPAL)	・Name of Vessel
5. Ship Agent (PERSAAN)	・Ship agent
6. Vessel Type (JENIS KAPAL)	・Type of vessel
7. Vessel Size (DWT, GRT, LOA) (UKLAN (DWT, GRT, LOA))	・Vessel size (DWT, GRT, LOA)
● Status (STATUS)	・Information on liner or tramper
● Flag (BENDERA)	・Ship's flag
● Last Port (From, Arrival Date), (TIBA (DARI, TANGGAL))	・The name of the port (destination port) just before the port and the port entry time
● Next Port (To, Departure Date), (BERANKAT (KE, TANGAR))	・Next calling port and departure time
● Unloaded (Commodity Name, Commodity Type, Tonnage, Unit, Passenger), (BONGKAL (KOMODITI, JENIS, TON, UNIT, ORANG))	・Information on unloading cargos (commodity name, type, tonnage, number of units, number of passengers)
● Loaded (Commodity Name, Commodity Type, Tonnage, Unit, Passenger), (MUAT (COMODITI, JENIS, TON, UNIT, ORANG))	・Information on loading cargo (commodity name, type, tonnage, number of units, number of passengers)
● Ntpn (NTPN)	・Payment certificate of port dues/ fee. Attach at departure application.

The data input of INAPORTNET and the definition of data items are as follows.

1) The data of LK 3 is entered by the agent according to the procedures and input items prescribed by the government ordinance "Regulation No. PM 93 Year 2013".
2) Before applying using INAPORTNET, the voyage registration of the cargo vessel is already processed. Application for domestic vessel is RPK, application for ocean-going vessel is PKKA.
3) PKK is a port entry application form. When an agent applies for PA and accepts it, a PKK number is given.
4) Categories of domestic and ocean-going vessels can be sorted according to PKK number. (Example: PKK.DN.ID.JKT.1706.000148 (domestic vessel), PKK.LN.ID.JKT.1705.001278 (ocean-going vessel)).
5) Vessel information such as vessel type, vessel size, vessel's flag, navigation information etc., to be entered by the agent is automatically shifted from SIMKAPAL (ship database) by simply entering the vessel name and IMO number.
6) The ship database in which information on ship registration, ship specifications, owner, etc. are registered, the coastal ship is DITKAPEL (SIMKAPAL) and the ocean shipping vessel is called DITLALA (SIMLALA).
7) Information on Last / Next Port is entered the latest information by agent based on the voyage registration.
8) Information on loading and unloading cargoes is entered by the agent based on the cargo manifest.

(b)Summary of Analysis Method

The method to analyze INAPORTNET data will be summarized for reference.

(2)Preparation of a Regular Port Activity Report based on Analysis of INAPORTNET data

Ship clearance procedures by using INAPORTNET have been taking hold. Each Port Authority (PA) can grasp the latest status of vessel activities at the port based on the information handled by INAPORTNET.

PA shall analyze the port usage of ships and use the results to enhance port management. In addition, the results will be reported to DGST.

DGST can then grasp shipping usage status at each port according to reports from PAs and understand the latest status of port activities. In addition, a report shall be compiled in order to grasp nationwide port usage status.

This fundamental information on port usage is vital for nationwide port administration. It is also important information for port related companies.

(3)Items to be Shown for Port Activities

The following eight items were chosen as indicators for port activities. The reason for selecting each item and its significance is described below.

1）Number of calling vessels

Number of calling vessels is a basic value which shows the scale of activities of vessels in a port. A port with a large number of calling vessels is generally large in size and has a high level of cargo throughput. The share of domestic and oceangoing vessels is also analyzed in this item.

2）Number of calling vessels by vessel size (GRT)

Similar to 1) above, the number of calling vessels by vessel size indicates the scale of the port activities and also the size of the port facility because it shows the scale of ship size to be accommodated. From this data we can deduce the depth of the jetty, the depth of the navigation channel, the scale of the anchorage area, etc.

3） Number of calling vessels by vessel type

The number of calling vessels by type is useful for identifying the characteristics of the port. Vessels are categorized into nine vessel types: container vessel, bulk carriers by dry bulk and liquid bulk, general cargo vessel, Ro-Ro vessel, passenger vessel, tugboat, barge and other vessels. Based on the distribution of vessel type, we can grasp the characteristics of the port.

4） Arrival time/ departure time in a day (distribution of time, peak time)

This item shows the distribution of arrival/ departure time and the peak time periods. Since the patterns of arrival/ departure vessels are revealed, it is possible to improve port management and improve the processing time of arriving/departing vessels.

5） Port staying time (distribution of staying hours, average-median-mode of staying hours, maximum staying hours)

The port staying time of calling vessels is an indicator of congestion at a port and the degree of cargo handling efficiency. Longer port staying time indicates that the flow of cargo is not smooth and suggests inefficient handling operations. It is thus a useful index for assessing the efficiency of port operations.

6） Last port of call

This is an index which can be used to ascertain the level of connectivity with other ports. Since we can know the number of vessels coming from other ports, we can measure the strength of connectivity.

7） Next port of call

As with 6) above, it is an indicator that shows the strength of connectivity with other ports based on the number of vessels departing to the next port.

(4)Improvement of Data Quality

The INAPORTNET data obtained from PUTIKOM is mainly the data used for ship clearance procedures. Therefore, agents must input data correctly in order to ensure that decisions are made based on accurate data. However, although inaccurate inputs have been reduced compared to the initial stage of INAPORTNET, there remains significant room for improvement.

In order to ensure that data input in INAPORTNET (specifically cargo data) is accurate, the DGST should take measures to strengthen supervision and control over ship agents by PAs including capacity building for relevant PA officials (i.e., those who engage in or are expected to engage in operation of the INAPORTNET). By upgrading their knowledge and skills, PA officials will be able to identify incorrect data and applications submitted in INAPORTNET. In addition, it is recommended that experts who can provide continuous advice to PAs be deployed.

(5)Example: Port Activities of Major Four Ports

(a)   Tanjung Priok Port

i) Number of calling vessels and share of domestic and ocean-going vessels

Table III-2-8 shows the number of calling vessels by domestic and ocean-going at Tanjung Priok port from May to July in 2017 and 2018. The ratio of domestic and oceangoing vessels is 75% for domestic vessels and 25% for ocean-going vessels. There are around 1,400 calling vessels in May, but the figure decreases to around 900 in June and then recovers in July. It seems that this situation is influenced by Ramadan.

Table III-2-8 Number of Calling Vessels and share of Domestic and Ocean-going Vessels

Month-Year Category	May-17		Jun-17		Jul-17		May-18		Jun-18		Jul-18	
	Number of Vessels	Share (%)	Number of Vessels	Share (%)	Number of Vessels	Share (%)	Number of Vessels	Share (%)	Number of Vessels	Share (%)	Number of Vessels	Share (%)
Domestic	1,054	76.5	752	75.6	878	74.8	1,034	76.2	691	76.19	1,017	76.0
Ocean-going	324	23.5	243	24.4	296	25.2	323	23.8	216	23.81	321	24.0
Sub-total	1,378	100	995	100	1,174	100	1,357	100	907	100	1,338	100

Source : JICA Project Team

The share of domestic and oceangoing vessels is shown in Figure III-2-47. In July 2018, 1,017 domestic vessels (76% of the total) and 321 oceangoing vessels (24%) called Tanjung Priok port.

Source: JICA Project Team

Figure III-2-47 Number of Calling Vessels at Tanjung Priok Port by Domestic and Oceangoing Vessels (July 2018)

ii) Number of calling vessels by type

Table III-2-9 shows the transition of the number of calling vessels by vessel type. After averaging the share of each ship type for 6 months, Container vessels had the largest share at 30%.

Table III-2-9 Number of Calling Vessels by Type

Vessel Type	Tanjung Priok												Average Share (%)
	May-17		Jun-17		Jul-17		May-18		Jun-18		Jul-18		
	Numbers of Vessels	Share (%)	Numbers of Vessels	Share (%)	Numbers of Vessels	Share (%)	Numbers of Vessels	Share (%)	Numbers of Vessels	Share (%)	Numbers of Vessels	Share (%)	
CONTAINER SHIP	403	29.2	315	31.7	354	30.2	410	30.2	260	28.7	394	29.4	30
GENERAL CARGO	168	12.2	121	12.2	136	11.6	135	9.9	96	10.6	131	9.8	11
DRY BULK	31	2.2	20	2.0	35	3.0	31	2.3	19	2.1	41	3.1	2
LIQUID BULK	64	4.6	58	5.8	63	5.4	74	5.5	71	7.8	85	6.4	6
RO-RO	80	5.8	63	6.3	90	7.7	76	5.6	46	5.1	88	6.6	6
Passenger	69	5.0	51	5.1	68	5.8	55	4.1	57	6.3	67	5.0	5
Tug Boat	221	16.0	144	14.5	154	13.1	214	15.8	125	13.8	183	13.7	14
Barge	214	15.5	139	14.0	153	13.0	203	15.0	116	12.8	174	13.0	14
Others	128	9.3	84	8.4	121	10.3	159	11.7	117	12.9	175	13.1	11
Total	1,378	100	995	100	1,174	100	1,357	100	907	100	1,338	100	100

Source : JICA Project Team

Figure III-2-48 shows a graph of the number of calling vessels by type in July 2018 at Tanjung Priok port. Container ships are the largest number in 394 calls.
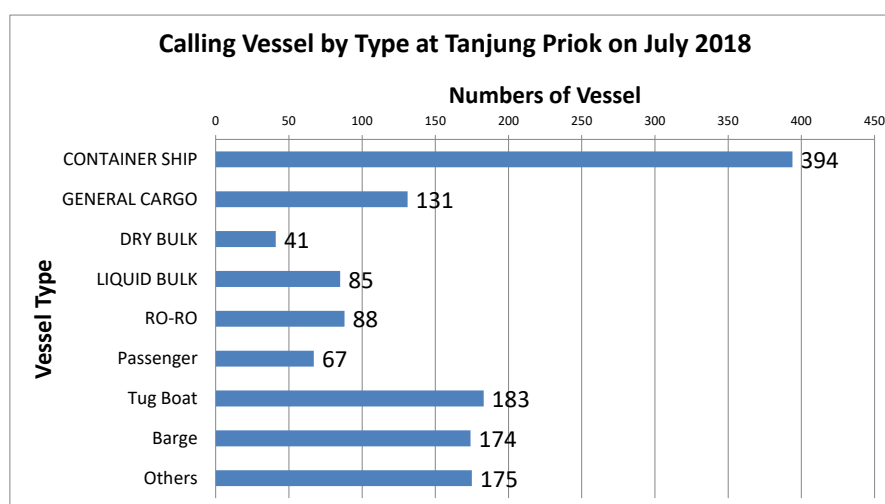
Source : JICA Project Team

Figure III-2-48 Number of Calling Vessels by Type（Tj. Priok, July 2018）

iii) Number of calling vessels by size (GRT)

The value of distribution of calling vessel size such as average, median, mode, and the largest size during three months from May to July in 2017 and 2018 are shown in the Table III-2-10. The average value was 10,000 GRT, the median was 4,200 GRT, the mode was 0 to 5,000 GRT, and the average value of the largest hull form was 98,800 GRT.

Table III-2-10 Value of Vessel Size Distribution (GRT)   Unit: Gross tonns

Indicator	Tanjung Priok						
	May-17	Jun-17	Jul-17	May-18	Jun-18	Jul-18	Average
Average	9,619	7,589	10,723	10,489	10,869	10,928	10,036
Median	3,557	4,152	5,526	3,869	3,668	4,365	4,190
Mode	0~5,000	0~5,000	0~5000	0～5,000	0 ~ 5,000	0~5,000	0~ 5,000
Maximum Size	95,263	52,467	95,263	128,929	111,249	109,712	98,814

Source : JICA Project Team

The vessel size distribution of Tanjung Priok Port in July 2018 is shown in Figure III-2-49. The mode value was 0 to 5,000 GRT range; 695 vessels (or 49.3% of the total) called the port.
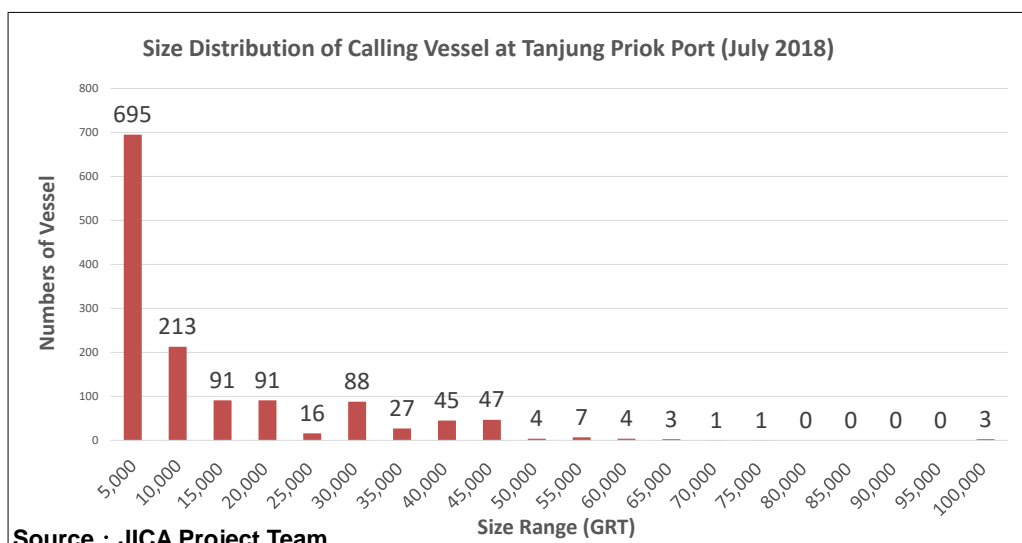
Figure III-2-49 Distribution of Calling Vessel Size (GRT) (July 2018)

iv) Arrival/ departure time distribution, peak time

Time distribution by arrival / departure time is shown in Table III-2-11. The peak of arrival time in July 2018 was from 8: 00 to 9: 00 in which 108 vessels called. The peak departure time was from 23:00 to 24:00 (338 vessels). Graphs showing arrival time distribution and departure time distribution in July 2018 are Figure III-2-50 and Figure III-2-51 respectively.

Table III-2-11 Arrival/ Departure Time Distribution (Tj. Priok, July 2018)

O'clock in a Day / Number of Vessels		1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	24:00
May-17	Arrival	11	38	29	30	24	58	74	49	135	41	93	43	60	41	59	81	84	75	57	47	65	38	45	101
	Departure	6	44	55	33	21	51	46	32	51	51	51	17	41	40	45	47	65	52	52	58	74	96	98	209
Jun-17	Arrival	9	44	26	23	20	31	66	43	79	34	42	21	42	36	39	66	34	41	51	47	39	35	54	73
	Departure	1	39	30	33	15	24	27	34	82	21	46	21	32	23	30	43	53	53	29	50	47	57	39	166
Jul-17	Arrival	12	43	31	38	26	50	69	46	104	40	69	37	50	41	51	78	51	40	63	38	52	40	38	67
	Departure	10	31	32	31	22	41	44	32	76	33	53	16	30	30	18	47	79	67	60	64	59	74	63	162
May-18	Arrival	11	71	28	29	27	58	84	44	80	42	73	37	62	57	59	69	63	60	81	57	68	48	70	79
	Departure	9	57	37	39	18	29	34	34	101	28	52	14	26	17	40	47	56	65	52	54	65	66	70	347
Jun-18	Arrival	24	58	16	28	33	33	27	20	54	28	60	28	50	35	35	56	35	28	40	32	41	31	49	66
	Departure	5	27	24	27	10	14	26	23	52	34	45	8	18	26	21	21	62	29	40	39	44	54	35	223
Jul-18	Arrival	16	78	24	26	25	68	73	38	108	42	74	38	67	51	57	80	74	50	75	46	59	39	43	87
	Departure	6	36	38	51	25	29	42	47	69	37	34	16	40	30	26	48	55	36	63	67	74	77	54	338

Source: Prepared by OCDI

Time Distribution of Arrival Vessels at Tanjung Priok Port in July 2018
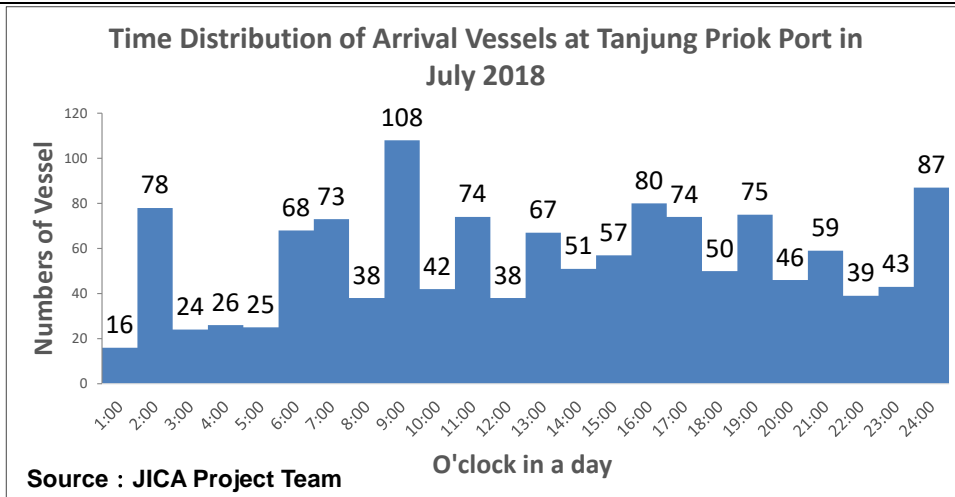
Figure III-2-50 Distribution of Arrival Time

Time Distribution of Departure Vessels at Tanjung Priok Port in July 2018
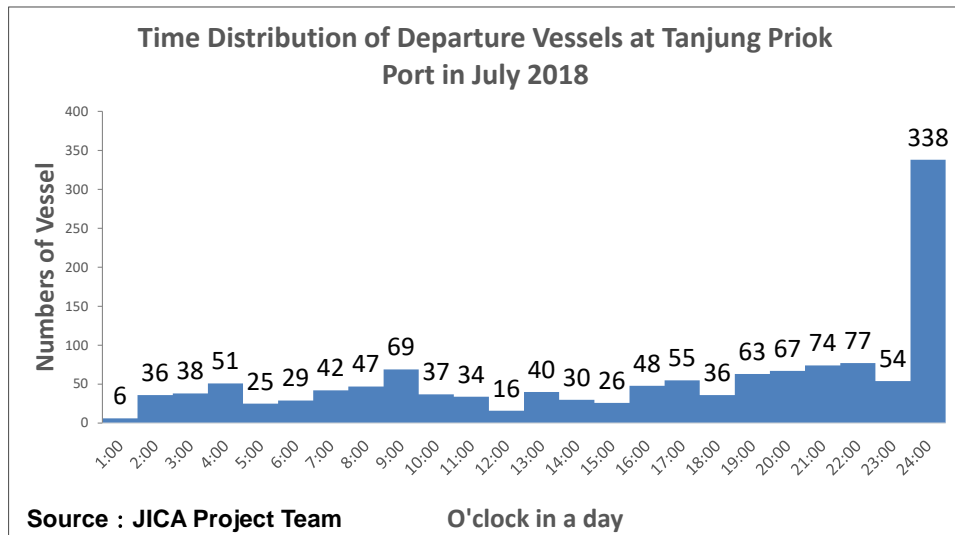
Figure III-2-51 Distribution of Departure Time

v) Port staying time: average, median, mode, maximum staying time

The values of port staying time such as average value, median value, mode value and maximum port staying time (May, June, July, 2017 and 2018) are shown in Table III-2-12. The Average value is 96 hours 59 minutes, Median is 45 hours 35 minutes, Mode is 24 to 30 hours while staying times of 30 to 36 hours were recorded twice and staying times of 24 to 36 hours and 42 to 48 hours were each recorded once. The average value for Maximum staying time was 3,575 hours and 25 minutes.

Table III-2-12 Indicators of Port Staying Time

Indicator	Tanjung Priok						
	May-17	**Jun-17**	**Jul-17**	**May-18**	**Jun-18**	**Jul-18**	**Average**
Average	88:59	87:13	107:34	89:15	105:06	103:48	96:59
Median	46:00	46:00	48:00	48:00	41:00	44:30	45:35
Mode	24～36	42～48	30～36	30～36	24～30	24～30	
Maximum Staying Time	2597:30	2068:00	2604:00	4427:00	3075:00	6669:00	3573:25

Source：JICA Project Team

Figure III-2-52 shows a graph of the port staying time in July 2018. From this figure, it can be seen that the mode time is 24 to 30 hours and the number of vessels is 124 vessels.
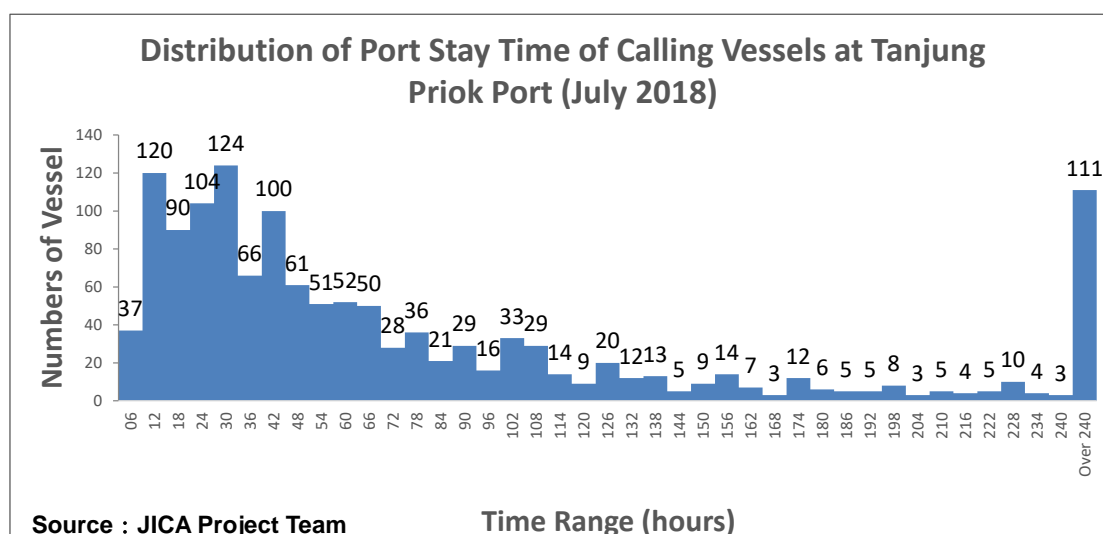
Figure III-2-52 Distribution of Port Staying Time (Tj. Priok, July 2018)

vi) Last port: Number of arrival vessels from the last port

In order to analyze connectivity among ports, the number of calling vessels from 24 ports of TOL LAUT Initiative was analyzed and the results are shown in Table III-2-13 and Figure III-2-53. Based on the analysis result of July 2018, LAST PORT and the number of vessels are as follows, PONTINAK (70 vessels), PALEMBANG (55 vessels), TANJUNG PERAK (52 vessels), BANJARMASIN (40 vessels), BELAWAN (37 vessels), BALIKPAPAN (KARIANGAU) (25 ships), MAKASSAR (25 ships), BATAMU / BATU AMBAR (24 ships), JAMBI, SUMATRA (20 vessels), TANJUNG EMAS, SEMARANG (18 vessels), SAMPIT (12 vessels), BITUN), TELUK BAYUL (8 ships), KUPANG (6 ships), TANJUNG PRIOK (4 ships), SOLONG (3 ships), KENDARI (2 ships), MALAHAYATI (1 vessel).

Table III-2-13 Number of Calling Vessels from last ports of TOL LAUT 24 Ports

No.	Last Ports	Tanjung Priok					
		May-17	Jun-17	Jul-17	May-18	Jun-18	Jul-18
1	MALAHAYATI	0	0	0	0	0	1
2	BELAWAN	36	26	39	45	17	37
3	BATU AMBAR	0	0	0	0	0	24
4	TELUK BAYUR	11	8	11	11	4	8
5	JAMBI	0	0	0	0	0	20
6	PALEMBANG	58	48	46	66	49	55
7	PANJANG	84	50	91	87	52	96
8	TANJUNG PRIOK	5	2	7	0	4	4
9	TANJUNG EMAS	0	0	0	0	0	18
10	TANJUNG PERAK	63	46	56	52	40	52
11	PONTIANAK	88	63	73	66	39	70
12	SAMPIT	2	11	3	1	3	12
13	BANJARMASIN	42	32	37	48	28	40
14	KARIANGAU	0	0	0	0	0	25
15	PALARAN	0	0	0	0	0	26
16	TENAU/KUPANG	0	0	0	0	0	6
17	MAKASSAR	32	24	23	31	21	25
18	PANTOLOAN	0	1	0	1	1	0
19	KENDARI	0	0	0	0	1	2
20	BITUNG	4	6	2	6	3	11
21	AMBON	0	0	0	1	1	0
22	TERNATE	0	0	0	0	0	0
23	SORONG	1	1	2	1	2	3
24	JAYAPURA	0	0	0	0	2	0
25	Others	952	677	784	941	640	803
	Total	**1,378**	**995**	**1,174**	**1,357**	**907**	**1,338**

Source : JICA Project Team
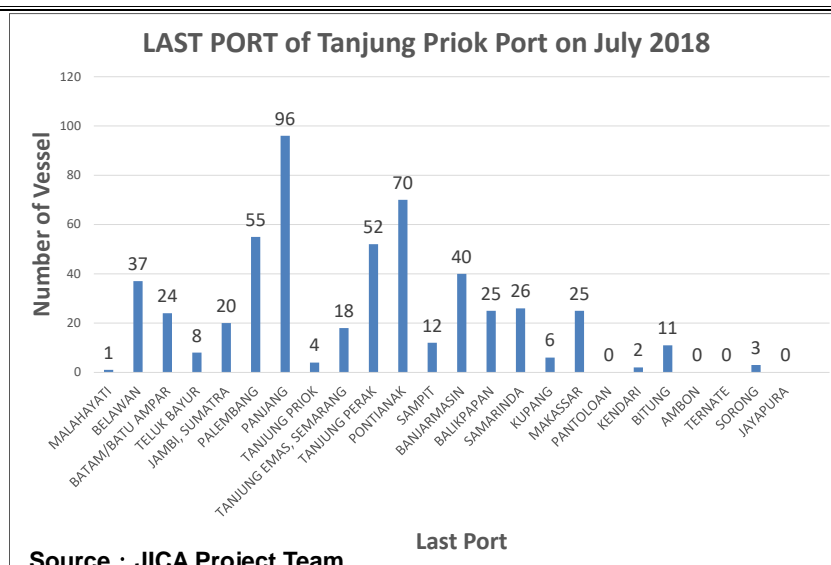
Figure III-2-53 Number of Vessels from TOL LAUT Ports (July 2018)

vii) Next port: Number of departure vessels to the next port

In order to analyze connectivity among ports, the number of departure vessels to 24 ports of TOL LAUT Initiative was analyzed and the results are shown in Table III-3-1-8 and Figure III-2-54. Based on the analysis result of July 2018, number of departure vessels to NEXT PORT are as follows, TANJUNG PERAK (112 vessels), PANJANG (93 vessels), PALEMBANG (62 vessels), PONTIANAK (53 vessels), BELAWAN (44 vessels), BANJARMASIN (40 vessels), MAKASSAR (33 vessels), TANJUNG EMAS, SEMARANG (30 vessels), JAMBI (24 vessels), BATAMU/BATU AMBAR (22 vessels), SAMARINDA (22 vessels), BALIKPAPAN (15 vessels), TELUK BAYUL (13 vessels), SAMPIT (10 vessels), KUPAN (5 vessels), SOLONG (5 vessels), MALAHAYATI (2 vessels), BITUN (2 vessels), AMBON (2 vessels), TANJUNG PRIOK (1 vessel), TERNATE (1 vessel).

Table III-2-14 Number of Departure Vessels to Next Port of TOL LAUT 24 Ports

No.	Next Ports	Tanjung Priok					
		May-17	Jun-17	Jul-17	May-18	Jun-18	Jul-18
1	MALAHAYATI	0	0	0	0	0	2
2	BELAWAN	45	0	36	41	22	44
3	BATU AMBAR	0	0	0	0	0	22
4	TELUK BAYUR	14	0	15	14	7	13
5	JAMBI	0	0	0	0	0	24
6	PALEMBANG	62	0	59	60	40	62
7	PANJANG	95	0	95	85	49	93
8	TANJUNG PRIOK	3	20	2	1	0	1
9	TANJUNG EMAS	0	0	0	0	0	30
10	TANJUNG PERAK	120	44	107	121	79	112
11	PONTIANAK	84	0	72	60	48	53
12	SAMPIT	10	0	3	12	7	10
13	BANJARMASIN	46	3	48	45	27	40
14	KARIANGAU	0	0	0	0	0	15
15	PALARAN	0	0	0	0	0	22
16	TENAU/KUPANG	0	0	0	0	0	5
17	MAKASSAR	33	0	28	31	23	33
18	PANTOLOAN	0	8	0	0	0	0
19	KENDARI	0	8	0	0	0	0
20	BITUNG	3	11	1	0	0	2
21	AMBON	1	9	0	2	0	2
22	TERNATE	0	5	2	0	0	1
23	SORONG	2	6	1	1	1	5
24	JAYAPURA	1	2	0	0	0	0
25	Others	859	231	705	884	604	747
	Total	**1,378**	**347**	**1,174**	**1,357**	**907**	**1,338**

Source : JICA Project Team
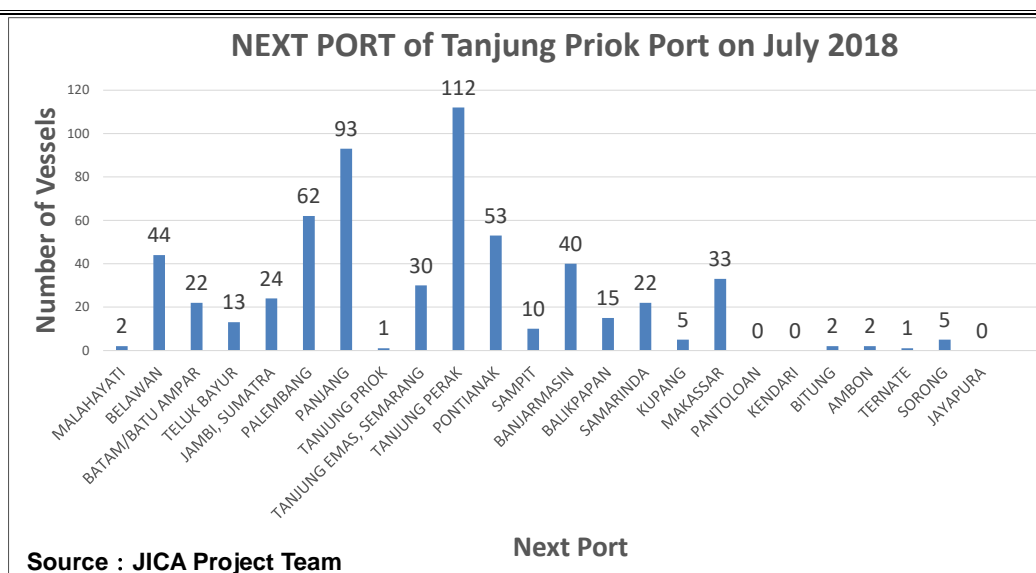
Figure III-2-54 Distribution of Departure Vessels to Next Port of TOL LAUT 24Ports

(b)Makassar Port

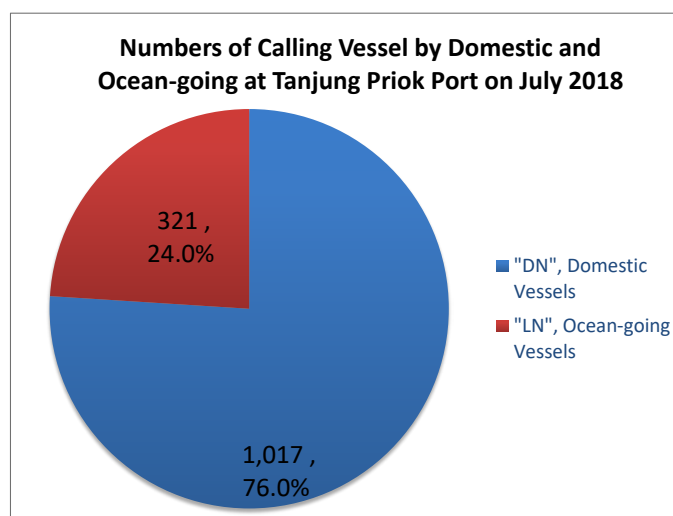i) Number of calling vessels and share of domestic and ocean-going vessels

Table III-2-15 shows the number of calling vessels by domestic and ocean-going at Makassar port from May to July in 2017 and 2018. Domestic vessels account for 95% of all calling vessels while ocean-going vessels account for 5%. The average number of calling vessels in May and July is 354 while the number drops 14% to 305 in June.

Table III-2-15 Number of Calling Vessels and share of Domestic and Ocean-going Vessels

Month-Year Category	May-17		Jun-17		Jul-17		May-18		Jun-18		Jul-18	
	Number of Vessels	Share (%)	Number of Vessels	Share (%)	Number of Vessels	Share (%)	Number of Vessels	Share (%)	Number of Vessels	Share (%)	Number of Vessels	Share (%)
Domestic	357	94.9	331	95.4	375	96.9	344	94.0	278	94.9	339	95.5
Ocean-going	19	5.1	16	4.6	12	3.1	22	6.0	15	5.1	16	4.5
Sub-total	376	100	347	100	387	100	366	100	293	100	355	100

Source : JICA Project Team

ii) Number of calling vessels by type

Table III-2-16 shows the transition of the number of calling vessels by vessel type. As a result of averaging the share of each ship type for 6 months, Container vessel was the largest share at 28%. Similarly, it was 15% General cargo vessel, 4% Dry bulk, 13% Liquid bulk, 10% Ro Ro, 13% Passenger vessel, 3% Tug boat, 3% Barge and 10% others.

Table III-2-16 Number of Calling Vessels by Type

Vessel Type	Makassar												Average Share (%)
	May-17		Jun-17		Jul-17		May-18		Jun-18		Jul-18		
	Numbers of Vessels	Share (%)	Numbers of Vessels	Share (%)	Numbers of Vessels	Share (%)	Numbers of Vessels	Share (%)	Numbers of Vessels	Share (%)	Numbers of Vessels	Share (%)	
CONTAINER SHIP	115	30.6	94	27.1	96	24.8	104	28.4	72	24.6	105	29.6	28
GENERAL CARGO	49	13.0	44	12.7	56	14.5	62	16.9	41	14.0	50	14.1	15
DRY BULK	15	4.0	12	3.5	14	3.6	15	4.1	11	3.8	15	4.2	4
LIQUID BULK	33	8.8	35	10.1	44	11.4	48	13.1	42	14.3	46	13.0	13
RO-RO	72	19.1	72	20.7	81	20.9	34	9.3	31	10.6	40	11.3	10
Passenger	12	3.2	19	5.5	21	5.4	39	10.7	47	16.0	48	13.5	13
Tug Boat	18	4.8	18	5.2	13	3.4	16	4.4	9	3.1	9	2.5	3
Barge	16	4.3	16	4.6	13	3.4	12	3.3	9	3.1	8	2.3	3
Others	46	12.2	37	10.7	49	12.7	36	9.8	31	10.6	34	9.6	10
Total	376	100	347	100	387	100	366	100	293	100	355	100	100

Source : JICA Project Team

iii) Number of calling vessels by size (GRT)

The value of distribution of calling vessel size such as average, median, mode, and the maximum vessel size on three months from May to July in 2017 and 2018 are shown in the Table III-2-17. The average value was 7,427 GRT, the median was 5,623 GRT, the mode was 0 to 5,000 GRT, and the average value of the maximum vessel size was 33,769 GRT.

Table III-2-17 Value of Vessel Size Distribution (GRT)   Unit: Gross tonns

Indicator	Makassar						
	May-17	Jun-17	Jul-17	May-18	Jun-18	Jul-18	Average
Average	7,329	7,551	7,116	7,343	7,557	7,665	7,427
Median	5528.5	5553	5176	5,367	6,022	6,093	5,623
Mode	0~5,000	0~5,000	0~5,000	0〜5,000	0 ~ 5,000	0 ~ 5,000	0~ 5,000
Maximum Size	32,287	35,884	33,280	35,613	33,338	32,210	33,769

Source : JICA Project Team

iv) Arrival/ departure time distribution, peak time

Time distribution by arrival / departure time is shown in Table III-2-18. There were two peak arrival times in July 2018: 06:00 ~ 07:00 (26 vessels) and 23:00 ~ 24:00 (28 vessels). The peak departure time was from 23:00 to 24:00 (32 vessels) although the number of departing vessels begins to increase from 18:00.

Table III-2-18 Arrival/ Departure Time Distribution (Makassar)

O'clock in a Day / Number of Vessels		1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	24:00
May-17	Arrival	2	13	6	8	8	7	24	15	30	17	19	11	26	19	10	21	19	8	12	22	11	10	24	34
	Departure	9	26	7	13	5	5	15	16	10	7	12	18	8	14	11	20	17	17	17	15	18	22	26	48
Jun-17	Arrival	5	11	6	11	10	10	31	16	20	6	13	10	14	17	19	22	21	15	9	20	9	12	13	27
	Departure	7	15	17	13	4	14	9	20	10	4	6	12	9	12	17	14	26	18	10	26	15	19	28	22
Jul-17	Arrival	10	21	9	12	8	6	34	19	19	7	15	12	19	21	16	13	26	18	11	16	11	13	14	37
	Departure	7	12	9	10	12	8	11	24	9	11	8	12	23	15	17	20	19	20	19	25	20	16	30	30
May-18	Arrival	7	26	11	3	5	12	31	12	26	9	15	9	21	21	16	16	16	17	12	13	12	12	17	27
	Departure	14	18	19	12	9	7	10	13	9	1	12	21	7	14	19	20	27	21	14	17	18	12	30	22
Jun-18	Arrival	11	14	10	10	3	13	25	9	15	16	16	12	13	9	7	8	10	9	10	10	18	12	9	24
	Departure	6	18	9	9	9	5	13	14	8	3	4	11	13	9	15	14	22	13	10	16	12	10	19	31
Jul-18	Arrival	5	16	18	7	4	15	26	16	6	7	19	23	10	20	19	17	11	14	19	16	18	7	14	28
	Departure	9	15	15	7	15	7	9	9	11	8	8	13	12	11	20	15	17	18	26	27	13	20	18	32

Source : JICA Project Team

v) Port staying time: average, median, mode, maximum staying time

The value of port staying time such as average value, median value, mode value and maximum port staying time (May, June, July, 2017 and 2018) are shown in Table III-2-19. The Average value is 103 hours 57 minutes, Median is 34 hours and 29 minutes, Mode is 0 to 6 hours while staying times of 30 to 36 hours were recorded 4 times and staying times of 4 to 6 hours and 30 to 36 hours one time each. The average value for Maximum staying time was 4,654 hours and 20 minutes.

Table III-2-19 Values of Port Staying Time

Indicator	Makassar						
	May-17	Jun-17	Jul-17	May-18	Jun-18	Jul-18	Average
Average	91:36	85:29	114:20	96:06	98:08	138:03	103:57
Median	30:27	37:30	28:00	42:00	37:00	32:00	34:29
Mode	4～6	0～6	0～6	30～36	0～6	0～6	
Maximum Staying Time	2657:00	2628:00	4595:30	3636:30	1551:00	12858:00	4654:20

Source : JICA Project Team

vi) Last port: Number of arrival vessels from the last port

In order to analyze connectivity among ports, the number of calling vessels from 24 ports of TOL LAUT Initiative was analyzed and the results are shown in Table III-2-20. In the analysis result of July 2018, LAST PORT and the number of vessels are as follows, TANJUNG PERAK (52 vessels), TANJUNG PRIOK (33 vessels), KENDARI (7 vessels), MAKASSAR (2 vessels), SOLONG (2 vessels), JAYAPURA (2 vessels), PANTOLOAN BITUN (1 vessel), AMBON (1 vessel) and TERNATE (1 vessel).

Table III-2-20 Number of Calling Vessels from Last Ports of TOL LAUT 24 Ports

No.	Last Ports	Makassar					
		May-17	Jun-17	Jul-17	May-18	Jun-18	Jul-18
1	MALAHAYATI	0	0	0	0	0	0
2	BELAWAN	0	2	0	1	1	0
3	BATU AMBAR	0	0	0	0	0	0
4	TELUK BAYUR	1	0	0	0	0	0
5	JAMBI	0	0	0	0	0	0
6	PALEMBANG	0	0	0	0	0	0
7	PANJANG	1	0	0	2	2	0
8	TANJUNG PRIOK	39	25	26	31	31	33
9	TANJUNG EMAS	0	0	0	0	0	0
10	TANJUNG PERAK	107	100	97	103	103	108
11	PONTIANAK	0	0	1	2	2	0
12	SAMPIT	2	1	0	0	0	0
13	BANJARMASIN	2	7	5	6	6	0
14	KARIANGAU	0	0	0	0	0	0
15	PALARAN	0	0	0	0	0	0
16	TENAU/KUPANG	0	0	0	0	0	0
17	MAKASSAR	4	7	6	6	6	2
18	PANTOLOAN	5	6	6	0	0	1
19	KENDARI	10	5	10	7	7	7
20	BITUNG	1	0	0	4	4	1
21	AMBON	1	0	0	2	0	1
22	TERNATE	0	1	0	0	0	1
23	SORONG	3	3	5	4	4	2
24	JAYAPURA	2	3	1	3	3	2
25	Others	198	187	230	195	197	197
	Total	376	347	387	366	366	355

Source : JICA Project Team

vii) Next port: Number of departure vessels to the next port

In order to analyze connectivity among ports, the number of departure vessels to 24 ports of TOL LAUT Initiative was analyzed and the results are shown in Table III-2-21. Based on the analysis result of July 2018, number of departure vessels to NEXT PORT are as follows, TANJUNG PERAK (47 vessels), TANJUNG PRIOK (28 vessels), KENDARI (14 vessels), AMBON (12 vessels ships), SOLONG (7 vessels ships), BITUN (6 vessels ships), PANTOLOAN (5 vessels), TERNATE (4 vessels), BANJARMASIN (3 vessels), JAYAPURA (2 vessels), PONTIANAK (1 vessel).

Table III-2-21 Number of Departure Vessels to Next Port of TOL LAUT 24 Ports

| No. | Last Ports | Makassar | | | | | |
		May-17	Jun-17	Jul-17	May-18	Jun-18	Jul-18
1	MALAHAYATI	0	0	0	0	0	0
2	BELAWAN	1	0	0	0	0	0
3	BATU AMBAR	0	0	0	0	0	0
4	TELUK BAYUR	0	0	0	0	0	0
5	JAMBI	0	0	0	0	0	0
6	PALEMBANG	0	0	0	0	0	0
7	PANJANG	0	0	0	0	0	0
8	TANJUNG PRIOK	34	20	29	29	29	28
9	TANJUNG EMAS	0	0	0	0	0	0
10	TANJUNG PERAK	50	44	48	38	38	47
11	PONTIANAK	0	0	0	0	0	1
12	SAMPIT	0	0	0	0	0	0
13	BANJARMASIN	2	3	4	7	7	3
14	KARIANGAU	0	0	0	0	0	0
15	PALARAN	0	0	0	0	0	0
16	TENAU/KUPANG	0	0	0	0	0	0
17	MAKASSAR	0	0	0	0	0	0
18	PANTOLOAN	6	8	5	5	5	5
19	KENDARI	10	8	13	8	8	14
20	BITUNG	10	11	7	6	6	6
21	AMBON	13	9	14	13	0	12
22	TERNATE	5	5	4	2	2	4
23	SORONG	7	6	6	6	6	7
24	JAYAPURA	5	2	2	2	2	2
25	Others	233	231	255	250	263	226
	Total	**376**	**347**	**387**	**366**	**366**	**355**

Source : JICA Project Team

(c)Tanjung Perak Port

i) Number of calling vessels and share of domestic and ocean-going vessels

Table III-2-22 shows the number of calling vessels by domestic and ocean-going at Tanjung Perak port from May to July in 2017 and 2018. Domestic vessels account for 85% of all calling vessels while ocean-going vessels account for 15%. A total number of 1,400 calling vessels was recorded in May but decreased to around 900 in June and then recovered to more than 1,000 in July.

Table III-2-22 Number of Calling Vessels and share of Domestic and Ocean-going Vessels

| Month-Year / Category | May-17 | | Jun-17 | | Jul-17 | | May-18 | | Jun-18 | | Jul-18 | |
	Number of Vessels	Share (%)	Number of Vessels	Share (%)	Number of Vessels	Share (%)	Number of Vessels	Share (%)	Number of Vessels	Share (%)	Number of Vessels	Share (%)
Domestic	908	83.2	767	84.8	867	85.3	987	84.8	653	84.4	976	85.6
Ocean-going	183	16.8	138	15.2	149	14.7	177	15.2	121	15.6	164	14.4
Sub-total	1,091	100	905	100	1,016	100	1,164	100	774	100	1,140	100

Source : JICA Project Team

ii) Number of calling vessels by type

Table III-2-23 shows the transition of the number of calling vessels by vessel type. After averaging the share of each ship type for 6 months, Container vessel had the largest share at 33%.

Table III-2-23 Number of Calling Vessels by Type

Vessel Type	Tanjung Perak												Average Share (%)
	May-17		Jun-17		Jul-17		May-18		Jun-18		Jul-18		
	Numbers of Vessels	Share (%)	Numbers of Vessels	Share (%)	Numbers of Vessels	Share (%)	Numbers of Vessels	Share (%)	Numbers of Vessels	Share (%)	Numbers of Vessels	Share (%)	
CONTAINER SHIP	396	36.3	303	33.5	353	34.8	382	32.8	244	31.5	383	33.6	33
GENERAL CARGO	216	19.8	192	21.2	198	19.5	228	19.6	131	16.9	226	19.8	19
DRY BULK	32	2.9	29	3.2	26	2.6	38	3.3	22	2.8	33	2.9	3
LIQUID BULK	86	7.9	72	8.0	91	9.0	86	7.4	75	9.7	87	7.6	8
RO-RO	139	12.7	128	14.1	157	15.5	116	10.0	80	10.3	107	9.4	10
Passenger	24	2.2	18	2.0	21	2.1	50	4.3	40	5.2	58	5.1	5
Tug Boat	69	6.3	54	6.0	57	5.6	101	8.7	63	8.1	80	7.0	8
Barge	63	5.8	47	5.2	47	4.6	81	7.0	47	6.1	61	5.4	6
Others	66	6.0	62	6.9	65	6.4	82	7.0	72	9.3	105	9.2	9
Total	1,091	100	905	100	1,015	100	1,164	100	774	100	1,140	100	100

Source : JICA Project Team

iii) Number of calling vessels by size (GRT)

The value of distribution of calling vessel size such as average, median, mode, and the maximum vessel size on three months from May to July in 2017 and 2018 are shown in the Table III-2-24. The average value was 7,741 GRT, the median was 4,113 GRT, the mode was 0 to 5,000 GRT, and the average value of the maximum vessel size was 51,309 GRT.

Table III-2-24 Value of Vessel Size Distribution (GRT)

Unit: Gross tonns

Indicator	Tanjung Perak						Average
	May-17	Jun-17	Jul-17	May-18	Jun-18	Jul-18	
Average	7,661	7,589	7,427	7,608	8,328	7,835	7,741
Median	4,357	4,152	4,314	3,668	4,036	4,152	4,113
Mode	0~5,000	0~5,000	0~5,000	0~5,000	0~5,000	0~5,000	0~5,000
Maximum Size	52,467	52,467	52,467	51,130	51,255	48,065	51,309

Source : JICA Project Team

iv) Arrival/ departure time distribution, peak time

Time distribution by arrival / departure time is shown in Table III-2-25. The peak arrival time in July 2018 was from 8:00 to 9:00 (238 vessels). The peak departure time was from 23:00 to 24:00 (151 vessels).

Table III-2-25 Arrival/ Departure Time Distribution (Tj. Perak, July 2018)

O'clock in a Day / Number of Vessels		1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	24:00
May-17	Arrival	11	22	13	16	25	21	71	19	266	22	57	14	62	22	33	38	116	22	34	9	43	27	35	93
	Departure	14	34	32	14	13	18	57	74	77	16	28	40	31	22	36	48	56	62	66	51	56	52	71	123
Jun-17	Arrival	5	14	21	4	18	26	46	14	210	15	32	19	54	19	29	38	103	20	50	15	23	17	29	84
	Departure	17	39	11	10	18	15	51	52	52	5	28	25	33	29	36	41	56	54	57	43	49	38	44	102
Jul-17	Arrival	5	29	12	11	23	24	57	12	209	32	47	14	46	19	41	47	130	21	39	24	36	24	35	79
	Departure	13	29	16	11	11	23	48	55	71	21	25	40	34	35	50	51	53	51	46	47	67	62	45	112
May-18	Arrival	22	14	18	10	19	28	90	18	207	49	60	18	45	48	38	59	81	57	57	24	37	22	28	115
	Departure	1	40	18	19	13	19	46	50	77	20	26	26	31	33	48	58	80	63	67	56	69	63	53	188
Jun-18	Arrival	9	15	11	9	16	21	52	8	134	31	44	19	38	21	22	36	52	45	33	13	27	8	31	79
	Departure	1	27	18	7	8	13	49	49	58	13	20	18	25	27	25	42	46	26	42	27	34	40	37	122
Jul-18	Arrival	9	24	19	9	28	25	69	22	238	41	47	12	66	37	37	43	83	55	62	13	53	15	20	113
	Departure	3	53	34	12	9	6	44	70	88	22	18	21	37	32	44	69	83	43	76	42	71	69	43	151

Source : JICA Project Team

v) Port staying time: average, median, mode, maximum staying time

The values of port staying time such as average value, median value, mode value and maximum port staying time (May, June, July, 2017 and 2018) are shown in Table III-2-26. The Average value is 168 hours 34 minutes, Median is 61 hours 05 minutes, Mode is 6 to 12 hours which occurred 3 times, while staying times of 12 to 18 hours and 18 to 24 hours were recorded 2 times each. The average value for Maximum staying time was 8,379 hours and 04 minutes.

Table III-2-26 Values of Port Staying Time

Indicator	Tanjung Perak						
	May-17	Jun-17	Jul-17	May-18	Jun-18	Jul-18	Average
Average	131:48	126:31	194:35	181:00	199:27	178:05	168:34
Median	53:47	55:00	58:45	66:00	75:00	58:00	61:05
Mode	12～18	18～24	6～12, 12～18	18～24	6～12	6～12	
Maximum Staying Time	26016:00	2335:30	5144:00	5856:55	4756:00	6166:00	8379:04

Source : JICA Project Team

vi) Last port: Number of arrival vessels from the last port

In order to analyze connectivity among ports, the number of calling vessels from 24 ports of TOL LAUT Initiative was analyzed and the results are shown in Table III-2-27. In the analysis result of July 2018, LAST PORT and the number of vessels are as follows, BANJARMASIN (126 vessels), TANJUNG PRIOK (125 vessels), MAKASSAR (52 vessels), SAMPIT (32 vessels), KENDARI (21 vessels), AMBON (14 vessels), SOLONG (11 vessels), PONTIANAK (9 ships), PANTOLOAN (8 ships), BELAWAN (7 ships), TANJUNG PERAK (5 ships), PANJANG (4 ships), BITUN (3 ships), JAYAPURA (3 ships), PALEMBANG (1 vessel) , TERNATE (1 vessel).

Table III-2-27 Number of Calling Vessels from Last Ports of TOL LAUT 24 Ports

No.	Last Ports	Tanjung Perak					
		May-17	Jun-17	Jul-17	May-18	Jun-18	Jul-18
1	MALAHAYATI	0	0	0	0	0	0
2	BELAWAN	10	6	6	9	5	7
3	BATU AMBAR	0	0	0	0	0	0
4	TELUK BAYUR	0	0	0	0	0	0
5	JAMBI	0	0	0	0	0	0
6	PALEMBANG	7	1	1	4	3	1
7	PANJANG	5	5	4	2	2	4
8	TANJUNG PRIOK	116	96	105	125	89	125
9	TANJUNG EMAS	0	0	0	0	0	0
10	TANJUNG PERAK	6	4	5	0	3	5
11	PONTIANAK	11	9	14	12	3	9
12	SAMPIT	32	31	34	48	31	32
13	BANJARMASIN	111	87	97	112	65	126
14	KARIANGAU	0	0	0	0	0	0
15	PALARAN	0	0	0	0	0	0
16	TENAU/KUPANG	0	0	0	0	0	0
17	MAKASSAR	61	46	51	41	38	52
18	PANTOLOAN	4	3	3	9	1	8
19	KENDARI	20	19	18	20	10	21
20	BITUNG	1	3	2	2	2	3
21	AMBON	12	11	18	11	13	14
22	TERNATE	4	4	7	3	0	1
23	SORONG	4	4	5	9	5	11
24	JAYAPURA	5	4	3	4	4	3
25	Others	682	572	643	753	500	718
	Total	1,091	905	1,016	1,164	774	1,140

Source : JICA Project Team

vii) Next port: Number of departure vessels to the next port

In order to analyze connectivity among ports, the number of departure vessels to 24 ports of TOL LAUT Initiative was analyzed and the results are shown in Table III-3-28. Based on the analysis result of July 2018, number of departure vessels to NEXT PORT are as follows, BANJARMASIN (123vessels), MAKASSAR (111 vessels), TANJUNG PRIOK (52 vessels), SAMPIT (31 vessels), PONTIANAK (11 vessels), KENDARI (10 vessels), BELAWAN (9 vessels), PANJANG (8 vessels), BITUN (7 vessels), PANTOLOAN (3 vessels), JAYAPURA (3 vessels), TANJUNG PERAK (2 vessels), AMBON (1 vessel).

Table III-2-28 Number of Departure Vessels to Next Port of TOL LAUT 24 Ports

| No. | Last Ports | Tanjung Perak | | | | | |
		May-17	Jun-17	Jul-17	May-18	Jun-18	Jul-18
1	MALAHAYATI	0	0	0	0	0	0
2	BELAWAN	11	6	8	7	4	9
3	BATU AMBAR	0	0	0	0	0	0
4	TELUK BAYUR	1	0	0	0	0	0
5	JAMBI	0	0	0	0	0	0
6	PALEMBANG	8	3	5	2	4	0
7	PANJANG	4	2	2	4	7	8
8	TANJUNG PRIOK	67	47	56	60	43	52
9	TANJUNG EMAS	0	0	0	0	0	0
10	TANJUNG PERAK	0	0	0	0	2	2
11	PONTIANAK	11	14	14	12	4	11
12	SAMPIT	35	36	29	40	35	31
13	BANJARMASIN	110	95	104	119	66	123
14	KARIANGAU	0	0	0	0	0	0
15	PALARAN	0	0	0	0	0	0
16	TENAU/KUPANG	0	0	0	0	0	0
17	MAKASSAR	117	93	105	109	62	111
18	PANTOLOAN	2	2	2	4	0	3
19	KENDARI	8	7	5	9	6	10
20	BITUNG	7	10	4	7	5	7
21	AMBON	1	2	1	2	1	1
22	TERNATE	1	0	0	3	0	0
23	SORONG	0	0	0	0	1	0
24	JAYAPURA	0	0	2	1	0	3
25	Others	708	588	679	785	534	769
	Total	1,091	905	1,016	1,164	774	1,140

Source : JICA Project Team

(d)Belawan Port

i)Number of calling vessels and share of domestic and ocean-going vessels

Table III-2-29 shows the number of calling vessels by domestic and ocean-going at Belawan port from May to July in 2017 and 2018. Domestic vessels accounted for 73% of all calling vessels while ocean-going vessels account for 27% in May, Jun, July 2017 and May in 2018, but in June and July 2018, the trend was reversed with ocean-going vessels accounting for 78% of the total and domestic vessels 22%.

Table III-2-29 Number of Calling Vessels and Share of Domestic/ Ocean-going Vessels

Month-Year Category	May-17		Jun-17		Jul-17		May-18		Jun-18		Jul-18	
	Number of Vessels	Share (%)	Number of Vessels	Share (%)	Number of Vessels	Share (%)	Number of Vessels	Share (%)	Number of Vessels	Share (%)	Number of Vessels	Share (%)
Domestic	236	70.7	199	73.2	218	74.9	287	73.4	25	21.2	32	23.4
Ocean-going	98	29.3	73	26.8	73	25.1	104	26.6	93	78.8	105	76.6
Sub-total	334	100	272	100	291	100	391	100	118	100	137	100

Source : JICA Project Team

ii) Number of calling vessels by type

Table III-2-30 shows the transition of the number of calling vessels by vessel type. After averaging the share of each ship type for 6 months, Container vessels had the largest share at 30%. It is worth nothing that this port features more liquid bulk carriers than the other three ports.

Table III-2-30 Number of Calling Vessels by Type

Vessel Type	Belawan												Average Share (%)
	May-17		Jun-17		Jul-17		May-18		Jun-18		Jul-18		
	Numbers of Vessels	Share (%)	Numbers of Vessels	Share (%)	Numbers of Vessels	Share (%)	Numbers of Vessels	Share (%)	Numbers of Vessels	Share (%)	Numbers of Vessels	Share (%)	
CONTAINER SHIP	79	23.7	67	24.6	63	21.6	88	22.5	36	30.5	51	37.2	30
GENERAL CARGO	45	13.5	39	14.3	46	15.8	48	12.3	27	22.9	26	19.0	18
DRY BULK	37	11.1	25	9.2	26	8.9	31	7.9	10	8.5	9	6.6	8
LIQUID BULK	67	20.1	55	20.2	60	20.6	60	15.3	41	34.7	42	30.7	27
RO-RO	7	2.1	6	2.2	7	2.4	6	1.5	0	0.0	0	0.0	1
Passenger	5	1.5	6	2.2	7	2.4	5	1.3	0	0.0	0	0.0	0
Tug Boat	44	13.2	32	11.8	38	13.1	65	16.6	0	0.0	3	2.2	6
Barge	42	12.6	30	11.0	34	11.7	50	12.8	0	0.0	3	2.2	5
Others	8	2.4	12	4.4	10	3.4	38	9.7	4	3.4	3	2.2	5
Total	334	100	272	100	291	100	391	100	118	100	137	100	100

Source : JICA Project Team

iii) Number of calling vessels by size (GRT)

The value of distribution of calling vessel size such as average, median, mode, and the maximum vessel size on three months from May to July in 2017 and 2018 are shown in the Table III-2-31. The average value was 9,510 GRT, the median was 6,523 GRT, the mode was 0 to 5,000 GRT, and the average value of the maximum vessel size was 64,335 GRT.

Table III-2-31 Value of Vessel Size Distribution (GRT)

Unit: Gross tonns

Indicator	Belawan						
	May-17	Jun-17	Jul-17	May-18	Jun-18	Jul-18	Average
Average	8,631	8,583	9,029	7,953	11,712	11,154	9,510
Median	5169.5	4735	5172	3,497	10,607	9,957	6,523
Mode	0~5,000	0~5,000	0~5,000	0~ 5,000	0~ 5,000	0 ~ 5,000	0~ 5,000
Maximum Size	164,796	35,998	63,515	44,127	41,254	36,318	64,335

Source : JICA Project Team

iv) Arrival/ departure time distribution, peak time

Time distribution by arrival / departure time is shown in Table III-2-32. The peak of arrival time in July 2018 was from 10:00 to 11:00 (12 vessels). The peak departure time was from 18:00 to 19:00 (19 vessels).

Table III-2-32 Arrival/ Departure Time Distribution (Belawan, July 2018)

O'clock in a Day / Number of Vessels		1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	24:00
May-17	Arrival	31	7	13	8	6	6	17	6	16	7	16	21	19	14	17	23	15	11	18	8	12	8	12	23
	Departure	1	27	10	11	5	12	7	20	10	1	5	2	6	5	12	6	8	34	35	22	14	18	26	37
Jun-17	Arrival	13	9	7	6	4	7	12	8	12	6	16	12	22	16	22	11	20	13	16	4	11	0	17	8
	Departure	4	23	8	5	2	7	5	12	5	1	5	4	7	4	7	7	18	31	13	19	27	10	14	34
Jul-17	Arrival	17	7	7	6	4	7	10	9	26	7	23	9	14	12	18	16	29	6	23	6	9	3	12	11
	Departure	1	6	9	6	4	4	6	15	6	1	3	4	11	4	12	5	7	22	39	29	22	21	18	36
May-18	Arrival	28	11	9	5	8	10	30	6	15	6	29	30	30	17	24	24	21	13	17	10	2	15	15	16
	Departure	2	20	11	0	0	1	8	18	13	2	6	5	14	15	20	14	21	24	43	45	26	24	33	26
Jun-18	Arrival	0	1	5	4	3	3	5	0	4	2	5	7	8	6	11	9	4	5	7	3	4	7	6	9
	Departure	0	9	2	4	2	0	2	5	3	2	0	3	9	8	6	1	3	9	7	10	6	6	7	14
Jul-18	Arrival	3	6	1	1	3	4	4	3	5	7	12	7	8	6	10	6	5	9	10	5	7	4	6	5
	Departure	1	9	1	5	2	0	1	15	2	0	1	2	3	7	3	6	8	8	19	14	7	7	6	10

Source : JICA Project Team

v) Port staying time: average, median, mode, maximum staying time

The values of port staying time such as average value, median value, mode value and maximum port staying time (May, June, July, 2017 and 2018) are shown in Table III-2-33. The Average value is 131 hours 48 minutes, Median is 59 hours 09 minutes, Mode is 24 to 30 hours while staying times of 30 to 36 hours, 36 to 42 hours, 48 to 54 hours and 18 to 24 hours were recorded 2 times each. The average value for Maximum staying time was 4,711 hours and 30 minutes.

Table III-2-33 Values of Port Staying Time

Indicator	Belawan						
	May-17	Jun-17	Jul-17	May-18	Jun-18	Jul-18	Average
Average	138:10	214:35	168:41	116:52	81:35	70:56	131:48
Median	62:30	78:00	62:00	54:55	48:30	49:00	59:09
Mode	36～42	36～42	30～36	24～30	24～30	30～36, 48～54	
Maximum Size	3578:00	8798:30	9391:00	5190:30	402:00	909:00	4711:30

Source : JICA Project Team

vi) Last port: Number of arrival vessels from the last port

In order to analyze connectivity among ports, the number of calling vessels from 24 ports of TOL LAUT Initiative was analyzed and the results are shown in Table III-2-34. In the analysis result of July 2018, only 6 vessels have entered the port from TANJUNG PRIOK Port.

Table III-2-34 Number of Calling Vessels from Last Ports of TOL LAUT 24 Ports

No.	Last Ports	Belawan					
		May-17	Jun-17	Jul-17	May-18	Jun-18	Jul-18
1	MALAHAYATI	0	0	0	0	0	0
2	BELAWAN	4	4	8	2	0	0
3	BATU AMBAR	0	0	0	0	0	0
4	TELUK BAYUR	8	6	6	7	0	0
5	JAMBI	0	0	0	0	0	0
6	PALEMBANG	13	12	10	12	0	0
7	PANJANG	2	2	2	1	0	0
8	TANJUNG PRIOK	38	33	36	43	3	6
9	TANJUNG EMAS	0	0	0	0	0	0
10	TANJUNG PERAK	9	8	7	8	0	0
11	PONTIANAK	0	2	2	2	0	0
12	SAMPIT	6	2	4	8	0	0
13	BANJARMASIN	0	2	0	0	0	0
14	KARIANGAU	0	0	0	0	0	0
15	PALARAN	0	0	0	0	0	0
16	TENAU/KUPANG	0	0	0	0	0	0
17	MAKASSAR	1	1	0	0	0	0
18	PANTOLOAN	0	0	0	0	0	0
19	KENDARI	0	0	0	0	0	0
20	BITUNG	0	0	2	0	0	0
21	AMBON	2	0	0	0	0	0
22	TERNATE	0	0	0	0	0	0
23	SORONG	0	0	0	0	0	0
24	JAYAPURA	0	0	0	0	0	0
25	Others	251	200	214	308	115	131
	Total	**334**	**272**	**291**	**391**	**118**	**137**

Source : JICA Project Team

vii) Next port: Number of departure vessels to the next port

In the analysis result of July 2018, there is no departure vessel to 24 ports.

Table III-2-35 Number of Departure Vessels to Next Port of TOL LAUT 24 Ports

No.	Last Ports	Belawan					
		May-17	Jun-17	Jul-17	May-18	Jun-18	Jul-18
1	MALAHAYATI	0	0	0	0	0	0
2	BELAWAN	0	0	8	6	0	0
3	BATU AMBAR	0	0	0	0	0	0
4	TELUK BAYUR	11	7	8	10	0	0
5	JAMBI	0	0	0	0	0	0
6	PALEMBANG	10	11	9	8	0	0
7	PANJANG	0	0	0	6	1	0
8	TANJUNG PRIOK	39	32	33	39	0	0
9	TANJUNG EMAS	0	0	0	0	0	0
10	TANJUNG PERAK	9	6	6	8	1	0
11	PONTIANAK	0	3	0	4	0	0
12	SAMPIT	2	0	2	2	0	0
13	BANJARMASIN	0	0	1	1	0	0
14	KARIANGAU	0	0	0	0	0	0
15	PALARAN	0	0	0	0	0	0
16	TENAU/KUPANG	0	0	0	0	0	0
17	MAKASSAR	1	0	0	0	0	0
18	PANTOLOAN	0	0	0	0	0	0
19	KENDARI	0	0	0	0	0	0
20	BITUNG	0	0	0	0	0	0
21	AMBON	0	0	0	0	0	0
22	TERNATE	0	0	0	0	0	0
23	SORONG	0	0	0	0	0	0
24	JAYAPURA	0	0	0	0	0	0
25	Others	262	213	224	307	116	137
	Total	334	272	291	391	118	137

Source : JICA Project Team

(6)Development of Statistics Utilizing INAPORTNET Data

It is possible to utilize INAPORTNET data for statistics. Currently, each PA periodically reports the main items to DGST, but it is possible to construct a system in which monthly data from INAPORTNET is compiled.

In the near future, by incorporating the program in the INAPORTNET system, data of 16 ports will be collected on a weekly and monthly basis, and the activity status of each port can be grasped at the office of DGST.

III-2-4-2 Sharing Port Activity Status with Port Performance Indicators

(1)Background

It is important discuss the advantages of port performance indicators and how they will be implemented in Indonesian ports. The PPI to be practiced in Indonesia are closely associated with maritime economic strategy. President Ir. H. Joko Widod has repeatedly mentioned the need to enhance the "Maritime Axis" including maritime and port infrastructure in order to stimulate economic development in eastern Indonesia and eliminate income disparities across regions through enhancement of logistics and connectivity between different islands. PPIs can be used to identify the strength and weakness of maritime and port infrastructure in terms of productivities and thus is a useful tool which will allow the central and local government to strategically identify, select and concentrate core infrastructure projects in the most efficient manner. The central and local government can easily identify prioritized infrastructure project to be implemented for strengthening competitiveness by applying common PPIs as the objective evaluation criterions to designated ports. Through such

practices, valuable governmental resources including its budget and personnel could be deployed in the most strategic and efficient manner.

Accordingly, the Directorate-General of Sea Transportation has already conducted several measures to address this issue. A regulation titled as "PORT OPERATIONAL SERVICES PERFORMANCE STANDARD IN COMMERCIAL PORT" (HK.103/2/18/DJPL-16) was entered into effect on July 12nd, 2016. This regulation was formulated in order to measure Port Performance Indicators (PPIs) including:

- Vessel Waiting Time (Waiting Time/WT);
- Pilot Services Time (Approach Time/AT);
- Effective Time (Effective Time Compares to Berth Time /ET:BT);
- Work Productivity (T/G/J, B/C/H and B/S/H);
- Container Receiving/Delivery;
- Dock Usage Level (Berth Occupancy Ratio/BOR);
- Warehouse/Shed Usage Level (Shed Occupancy Ratio/SOR);
- Yard Usage Level (Yard Occupancy Ration/YOR) ; and
- Operation Equipment Readiness.

In order to measure PPIs at each port, port organizer, who is Main Port Authority or Harbor Master and Port Authority, stipulate port operational service performance standard for port and or terminal, and terminal operator/port Terminal (such as PELINDO) is obligated to convey a report of port operational service performance (PPIs) to port organizer evert month. The reported PPIs are evaluated by Port Organizer every three months. Such evaluation results are reported periodically to Director-General and Director of Port. In the beginning of the year 2018, port authorities including Makassar, Tanjung Perak, Belawan, Panjang, Banten, Sorong, Ambon, Tanjung Emas and Pontianak, set up their own port operational service performance by themselves considering characteristics of ports activities within their jurisdiction. However, there are some remaining challenges for measurement and evaluation of port operational performance.

First, there is no means for port organizer Main Port Authority or Harbor Master and Port Authority) to verify the correctness of the port operational service performance report submitted by terminal operator/port Terminal (such as PELINDO). This is because the DGST has not yet made the best use of cargo data and vessel traffic data acquired by the INAPORTNET in order to verify the correctness of the report sufficiently: the only thing for port organizers regarding report on port operational performance (PPIs) is to receive an original result provided by terminal operator/port Terminal.

Second, there is no means for port organizer Main Port Authority or Harbor Master and Port Authority) to verify appropriateness and efficiency of port operational service performance standard set by their own. Basically, PPIs are relative indicators that allow for comparison across ports and/or time. Without comparison across ports and/or time, PPIs themselves never have any policy insight or implication for advancing port and sea traffic administration.

In Indonesia, necessary IT Infrastructure and legal institution has been implemented at the national level; Indonesia has already adopted good devices including INAPORTNET which makes it possible to acquire MANIFEST DATA easily, MASTER DATABASE OF PORT, SIMLALA and MASTER DATABASE OF VESSEL. INAPORTNET should be utilized for port organizers to evaluate port operational service performance and propose necessary measures to increase the performance by their own as regulators.

(2)Recommended Measures

Hence, the JICA expert recommends that Each PA and HM monitor port performance by applying appropriate Port Performance Indicators (PPIs) through relevant data acquired through the INAPORTNET and take appropriate measures based on the PPIs as following manners:

- As the first step for enhancement of sea traffic and port administration by PPIs, the DGST should determine appropriate indicator(s) to be measured based on data acquired through INAPORTNET (LK3 and Monitoring INAPORTNET).
- Each PA and HM should make every effort to enhance port performance by improving values of PPIs. Furthermore, each PA and HM should conduct analysis on relevance between PPIs and situation surrounding ports and sea transportation. The results of analysis and actions to be taken should be reported to the Director-General of the DGST.
- Based on the submitted reports, the DGST should release PPIs for each port monthly. Furthermore, the DGST should identify necessary policy measures to be taken based on the report and PPIs prepared by each PA and HM every three months. Each PA and HM should take necessary policy actions based on instructions by the DGST. The DGST should continuously supervise and control such activities taken by PAs and HMs.
- The DGST should determine PPIs to be additionally implemented and develop methods for better measurement and practice of PPIs.

(3)Possible Indicators and Sample Analysis

(a)Possible Indicators

The JICA expert team provides some possible indicators to be measured and sample analysis as follows.

The following five indicators should be adopted: Vessel Calls, Average of the Number of Vessels staying in port at moment, Average Port Staying Hours (Average Vessel Turning Around Time), Number of Calling Vessels from/to 24 ports, and Average Process Hours for PKK and SPB.

Such five indicators are classified into the following categories:

Table III-2-36 Five Port Performance Indicators (PPIs) and their Classification

Category		Definition	Proposed Indicators
Operational port performance	Output	It expresses the amount of cargo a terminal handles over a period of time, without specifying the resources utilized. When output is expressed in monetary units, financial indicators are built. Examples: Annual traffic or throughput (t/year; TEUs/year)	Vessel Call (Foreign/Domestic)
	Productivity	It is related to the work rate of the various resources a terminal has. That is, productivity can be defined as the amount of cargo (output) that a terminal handles per unit of time and resource. Examples: Berthing facility productivity (TEUs/m y year); Vessel productivity at port(TEUs/h); Crane productivity (movements/h)	Average Port Staying Hours (Foreign/Domestic)
	Utilization	It is the ratio (expressed in percentage form) between the utilization of a given resource and the maximum utilization possible over a period of time. Examples: Berth facility utilization (% of occupancy)	Average of the number of Vessels staying in port at moment (Foreign/Domestic)
Efficiency		It is the utilization of ratios that express the coefficient between a result (output) – traffic- and a resource (input) –infrastructure and equipment-.	
Capacity		It is the maximum traffic a port terminal can handle in a given scenario	
Level of Service		It provides a measure of the quality perceived by system clients and users.	Average Process Time for Vessel Arrival/Departure Procedures (PKK/SPB) Number of Calling Vessels from/to 24 ports

Source: JICA Project Team

i)Vessel Calls

The number of Vessel Calls should be regularly reported.

How to Calculate

The number of Vessel Calls should be regularly reported. Such report should be subdivided into foreign voyage and domestic voyage; and subdivided into types of vessels (i.e. container vessels).

Reason to choose this indicator

The number of vessel calls stands for frequency, thus is good measurement of shipping connectivity which is one of the most important policy domain in Indonesia.

Future Improvement for Measurement

While the number of Liner Vessel Callings is quite important for good measurement of shipping connectivity in Indonesia, this indicator cannot be compiled only through INAPORTNET data. This is because there is no distinction between liners and trampers in data processed by INAPORTNET. Hence, some process in INAPORTNET should be revised so that such distinction should be easily and clearly identified in data processed by INAPORTNET.

ii)Average of the Number of Vessels staying in port at moment

The number of average number of vessels staying in port at moment should be regularly reported.

How to Calculate

This indicator will be calculated by dividing the aggregate port staying hours in a month by (the number of days in a month * 24).

Reason to choose this indicator

This indicator represents the extent to which port facilities are utilized. By dividing this number by the number of berthing facilities, so-called Berth Occupancy Ratio will be further compiled. In general, Berth Occupancy Ratio over .65 represents the situation where port facilities are over-crowded.

Future Improvement for Measurement

While Berth Occupancy Ratio is quite important for good measurement of port facilities utilization at each port in Indonesia, this indicator cannot be compiled through INAPORTNET data. The INAPORTNET should be revised to acquire relevant information regarding the number and specification of berthing facilities from SIMKEPEL or PELINDO system in order to compile Berth Occupancy Ratio, which is better performance indicator for utilization.

iii)Average Port Staying Hours (Average Vessel Turning Around Time)

Average Port Staying Hours represents the opportunity loss and/or cost for vessel operators and/or owners. The shorter port staying hours is, the better port performance is.

How to Calculate

This indicator will be obtained by dividing aggregate port stay hours by the number of vessel calls.

Reason to choose this indicator

This indicator is quite important for vessel operators/owners to determine where their vessel will make a call on. Every port all over the world is straggling to reduce vessel turning around time in order to invite liner and/or tramper vessels in order to activate her economy.

Future Improvement for Measurement

This indicator is quite different between liner shipping and tramper shipping. This indicator cannot be compiled only through INAPORTNET data because there is no distinction between liners and trampers in data processed by INAPORTNET. Hence, some process in INAPORTNET should be revised so that such distinction should be easily and clearly identified in data processed by INAPORTNET.

iv) Number of Calling Vessels from/to 24 ports

The number of vessel callings from/to the 24 strategic ports should be reported.

How to Calculate

This indicator will be obtained by aggregating number of vessel callings from/to the 24 strategic ports.

Reason to choose this indicator

This indicator is quite corresponding to the target of "Sea Toll" policy which emphasizes importance of strengthening logistics and connectivity among the wide and insular country.

Future Improvement for Measurement

In order to evaluate shipping connectivity in more precise manner, loop voyage for liner shipping should be taken into consideration. Hence, the INAPORTNET should be revised to pull out not only the point-to-point voyage information but also loop voyage information.

v) Average Process Hours for PKK and SPB

Average Process Hours for PKK and SPB should be regularly reported.

How to Calculate

This indicator will be obtained through dividing aggregate processing hours for approval of PKK and permission of SPB by respective numbers of applications.

Reason to choose this indicator

Average processing hours for PKK represents the service level and efficiency of duties of port authority. Average processing hours for SPB represents the service level and efficiency of duties of harbor master.

Future Improvement for Measurement

Average processing hours both for PKK and SPB are more important and crucial to operators/agents/owners of liner shipping than to those of tramper shipping. Hence average processing hours for the both procedures should be compiled for liners and trampers distinctively. On the other hand, there is no distinction between liners and trampers in data processed by INAPORTNET. Hence, some process in INAPORTNET should be revised so that such distinction should be easily and clearly identified in data processed by INAPORTNET.

(b) Sample Analysis

i) Preconditions for Analysis

The JICA expert team conducted sample calculation for some possible indicators including Vessel Calls, Average of the Number of Vessels staying in port at moment, Average Port Staying Hours (Average Vessel Turning Around Time) and Number of Calling Vessels from/to 24 ports. This calculation was conducted by utilizing data acquired through the INAPORTNET between January 2017 and October 2018. Adopted preconditions for these calculations are depicted as follows:

● Vessels to be analyzed: the number of vessels with less than 14 days (336 hours) of port staying time;

- We have aggregated the relevant data for each month from January 2017 to October 2018 by using LKK data the DGST provided. The voyage data is classified based on date and time of <u>arrival</u> (not departure, the JICA expert team extracted and converted the data from the original LKK data.) ;

- "Domestic Vessel" is defined as the vessels which have the code "DN" in their LKK number;

- "Foreign Vessel" is defined as the vessels which have the code "LN" in their LKK number; and

- "Container vessels" is defined as the vessels where they are classified as "container ship" in LKK applications.

ii)Results of Test Calculation

Ship Call (Foreign)

			JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Belawan	All Vessel	2018	73	77	88	88	106	86	100	93	97	94		
		2017	87	70	87	90	95	73	73	94	87	88	86	91
		Conparison	−16.1%	10.0%	1.1%	−2.2%	11.6%	17.8%	37.0%	−1.1%	11.5%	6.8%		
	Container	2018	33	33	39	38	44	32	42	41	40	40		
		2017	41	34	33	31	35	26	23	30	34	40	37	39
		Conparison	−19.5%	−2.9%	18.2%	22.6%	25.7%	23.1%	82.6%	36.7%	17.6%	0.0%		
Tj. Priok	All Vessel	2018	306	282	320	307	316	220	305	310	296	272		
		2017	248	247	290	288	322	231	299	308	309	300	301	329
		Conparison	23.4%	14.2%	10.3%	6.6%	−1.9%	−4.8%	2.0%	0.6%	−4.2%	−9.3%		
	Container	2018	173	159	178	164	170	130	161	171	168	160		
		2017	153	136	159	162	167	140	160	170	165	157	171	186
		Conparison	13.1%	16.9%	11.9%	1.2%	1.8%	−7.1%	0.6%	0.6%	1.8%	1.9%		
Tj. Perak	All Vessel	2018	161	150	167	166	181	111	158	156	153	148		
		2017	118	123	151	152	176	134	146	148	160	149	162	180
		Conparison	36.4%	22.0%	10.6%	9.2%	2.8%	−17.2%	8.2%	5.4%	−4.4%	−0.7%		
	Container	2018	112	102	107	106	111	79	104	100	96	89		
		2017	78	73	95	103	107	88	91	101	106	100	105	117
		Conparison	43.6%	39.7%	12.6%	2.9%	3.7%	−10.2%	14.3%	−1.0%	−9.4%	−11.0%		
Makassar	All Vessel	2018	9	15	15	20	25	12	16	17	18	16		
		2017	14	17	18	17	18	16	13	18	14	19	16	19
		Conparison	−35.7%	−11.8%	−16.7%	17.6%	38.9%	−25.0%	23.1%	−5.6%	28.6%	−15.8%		
	Container	2018	3	3	3	3	3	2	1	2	4	2		
		2017	5	5	4	7	4	4	4	5	3	4	4	4
		Conparison	−40.0%	−40.0%	−25.0%	−57.1%	−25.0%	−50.0%	−75.0%	−60.0%	33.3%	−50.0%		

Source: JICA Project Team

Ship Call (Domestic)

			JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Belawan	All Vessel	2018	239	233	247	243	276	200	246	240	214	215		
		2017	223	199	248	210	220	178	200	251	234	253	268	242
		Conparison	7.2%	17.1%	−0.4%	15.7%	25.5%	12.4%	23.0%	−4.4%	−8.5%	−15.0%		
	Container	2018	49	47	45	42	43	30	43	39	44	37		
		2017	39	30	44	47	45	37	46	50	47	59	46	47
		Conparison	25.6%	56.7%	2.3%	−10.6%	−4.4%	−18.9%	−6.5%	−22.0%	−6.4%	−37.3%		
Tj. Priok	All Vessel	2018	950	912	1,026	1,028	1,010	644	920	944	1,015	1,041		
		2017	738	778	989	977	1,013	683	830	943	932	1,088	1,044	963
		Conparison	28.7%	17.2%	3.7%	5.2%	−0.3%	−5.7%	10.8%	0.1%	8.9%	−4.3%		
	Container	2018	201	202	225	224	231	130	203	223	229	218		
		2017	207	193	234	222	228	162	185	222	206	227	216	210
		Conparison	−2.9%	4.7%	−3.8%	0.9%	1.3%	−19.8%	9.7%	0.5%	11.2%	−4.0%		
Tj. Perak	All Vessel	2018	709	712	851	784	808	531	813	878	847	793		
		2017	444	560	791	741	817	638	729	831	797	912	832	812
		Conparison	59.7%	27.1%	7.6%	5.8%	−1.1%	−16.8%	11.5%	5.7%	6.3%	−13.0%		
	Container	2018	242	251	289	254	251	154	240	271	260	244		
		2017	238	238	291	268	275	196	223	265	255	275	277	264
		Conparison	1.7%	5.5%	−0.7%	−5.2%	−8.7%	−21.4%	7.6%	2.3%	2.0%	−11.3%		
Makassar	All Vessel	2018	358	311	365	320	329	253	328	324	314	291		
		2017	336	313	336	328	334	319	354	365	362	377	360	339
		Conparison	6.5%	−0.6%	8.6%	−2.4%	−1.5%	−20.7%	−7.3%	−11.2%	−13.3%	−22.8%		
	Container	2018	121	102	117	108	102	66	106	99	108	92		
		2017	89	97	109	104	112	89	90	118	114	113	124	110
		Conparison	36.0%	5.2%	7.3%	3.8%	−8.9%	−25.8%	17.8%	−16.1%	−5.3%	−18.6%		

Source: JICA Project Team

Average Port Staying Hours (Foreign)

			JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Belawan	All Vessel	2018	52.2	57.2	53.2	54.6	75.9	60.7	66.2	58.5	63.6	64.4		
		2017	59.9	57.6	66.8	74.6	80.0	84.8	70.2	87.1	81.4	75.2	67.7	73.9
		Conparison	−12.9%	−0.7%	−20.3%	−26.7%	−5.2%	−28.4%	−5.7%	−32.9%	−21.9%	−14.4%		
	Container	2018	42.0	42.5	42.5	45.5	48.0	44.0	43.0	43.0	44.0	41.0		
		2017	42.7	48.0	47.5	46.0	44.1	45.0	45.0	45.0	43.0	45.0	43.0	48.0
		Conparison	−1.6%	−11.5%	−10.5%	−1.1%	8.9%	−2.2%	−4.4%	−4.5%	2.3%	−8.9%		
Tj. Priok	All Vessel	2018	44.4	48.6	43.4	47.1	52.6	44.5	43.7	44.3	47.4	35.0		
		2017	40.9	48.1	46.1	48.8	46.5	40.9	44.4	44.4	44.3	44.8	44.9	50.1
		Conparison	8.4%	0.9%	−5.7%	−3.4%	13.0%	8.8%	−1.6%	−0.2%	7.1%	−21.9%		
	Container	2018	30.9	29.7	27.1	28.7	36.7	30.8	31.4	28.8	28.7	28.2	0.0	0.0
		2017	31.4	33.1	31.1	31.3	32.1	31.7	32.0	37.2	29.3	30.3	30.6	34.5
		Conparison	−1.5%	−10.5%	−12.9%	−8.3%	14.4%	−3.0%	−1.9%	−22.5%	−2.2%	−6.8%		
Tj. Perak	All Vessel	2018	50.9	44.7	43.6	45.5	57.5	50.1	40.9	45.5	48.0	44.9		
		2017	55.1	63.1	50.3	51.0	52.7	58.3	59.5	37.7	51.3	44.3	54.0	63.5
		Conparison	−7.6%	−29.2%	−13.3%	−10.8%	9.1%	−14.0%	−31.3%	20.6%	−6.5%	1.5%		
	Container	2018	24.7	21.5	21.9	20.2	28.6	29.2	26.0	24.9	22.4	20.7		
		2017	31.9	39.6	32.0	30.8	26.6	29.1	22.9	22.8	30.2	27.0	24.6	38.5
		Conparison	−22.8%	−45.6%	−31.7%	−34.6%	7.7%	0.4%	13.8%	9.3%	−25.9%	−23.2%		
Makassar	All Vessel	2018	86.5	105.7	99.8	101.7	126.9	99.8	68.0	108.8	82.3	76.7		
		2017	109.3	113.5	91.4	72.5	83.6	82.9	74.0	79.0	83.2	96.4	74.1	105.2
		Conparison	−20.9%	−6.9%	9.2%	40.2%	51.8%	20.3%	−8.1%	37.8%	−1.1%	−20.4%		
	Container	2018	33.2	33.6	18.3	36.0	43.2	36.0	9.5	22.5	32.3	25.0		
		2017	21.2	26.9	13.9	14.8	20.9	34.4	22.0	33.4	25.7	38.0	25.6	29.4
		Conparison	56.4%	25.1%	31.7%	142.7%	106.2%	4.5%	−56.8%	−32.7%	26.0%	−34.1%		

Source: JICA Project Team

Average Port Staying Hours (Domestic)

			JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Belawan	All Vessel	2018	59.2	53.8	61.2	66.1	76.8	85.1	79.2	83.0	88.9	89.3		
		2017	95.9	90.2	103.0	89.9	86.2	99.2	74.0	79.7	69.4	69.4	64.6	79.2
		Conparison	−38.3%	−40.4%	−40.6%	−26.4%	−10.9%	−14.2%	7.0%	4.1%	28.0%	28.8%		
	Container	2018	59.7	54.6	50.0	57.4	59.5	60.7	56.0	62.9	66.2	66.5		
		2017	52.1	49.2	49.4	52.3	61.6	71.3	70.9	81.4	83.2	76.1	78.0	75.5
		Conparison	14.5%	10.9%	1.2%	9.7%	−3.5%	−14.8%	−21.0%	−22.8%	−20.4%	−12.6%		
Tj. Priok	All Vessel	2018	61.8	65.8	61.4	68.5	73.9	76.1	65.8	59.3	62.6	53.7		
		2017	69.1	71.1	65.2	63.8	70.8	72.7	72.8	66.2	61.9	62.4	67.3	68.4
		Conparison	−10.6%	−7.4%	−5.8%	7.2%	4.4%	4.7%	−9.6%	−10.4%	1.1%	−14.0%		
	Container	2018	70.3	74.1	74.4	75.6	75.8	109.4	67.3	64.3	63.3	62.1		
		2017	77.8	75.2	70.2	70.6	72.0	80.2	83.3	68.2	76.7	68.3	69.7	84.2
		Conparison	−9.7%	−1.5%	6.0%	7.1%	5.4%	36.3%	−19.2%	−5.8%	−17.5%	−9.1%		
Tj. Perak	All Vessel	2018	82.6	84.4	88.8	85.7	88.2	95.2	77.2	80.4	81.5	76.2		
		2017	72.4	89.3	88.2	85.6	85.5	80.3	85.6	81.5	90.2	82.0	79.1	89.0
		Conparison	14.1%	−5.5%	0.6%	0.0%	3.2%	18.5%	−9.8%	−1.3%	−9.7%	−7.0%		
	Container	2018	83.0	72.7	75.2	74.5	77.7	96.5	63.6	68.8	68.6	65.1		
		2017	86.6	91.5	80.1	79.2	76.2	79.6	85.7	73.4	80.2	74.0	72.6	84.1
		Conparison	−4.2%	−20.5%	−6.1%	−5.9%	2.0%	21.3%	−25.7%	−6.4%	−14.4%	−11.9%		
Makassar	All Vessel	2018	53.4	50.7	50.1	55.1	63.2	57.5	44.1	52.7	55.7	48.1		
		2017	43.9	56.0	50.8	49.7	47.6	60.3	50.4	51.9	57.5	57.5	52.1	57.4
		Conparison	21.4%	−9.3%	−1.3%	10.9%	32.8%	−4.6%	−12.6%	1.4%	−3.1%	−16.3%		
	Container	2018	52.5	36.8	27.8	42.6	49.2	56.7	36.0	43.8	49.0	52.4		
		2017	26.6	34.1	22.9	25.3	30.6	49.2	30.3	32.9	39.4	38.3	31.2	40.1
		Conparison	97.4%	8.2%	21.4%	68.7%	60.8%	15.2%	18.7%	33.3%	24.1%	36.8%		

Source: JICA Project Team

Average of the number of Vessels staying in port at moment (Foreign)

			JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Belawan	All Vessel	2018	5.1	6.6	6.3	6.7	10.8	7.3	8.9	7.3	8.6	8.1		
		2017	7.0	6.0	7.8	9.3	10.2	8.6	6.9	11.0	9.8	8.9	8.1	9.0
		Conparison	−26.9%	9.2%	−19.4%	−28.3%	5.8%	−15.6%	29.1%	−33.6%	−12.9%	−8.6%		
	Container	2018	1.3	1.5	1.7	1.8	2.1	1.6	2.0	2.1	2.0	2.0		
		2017	1.9	1.5	1.4	1.8	1.5	1.2	1.1	1.2	1.5	1.8	1.7	1.6
		Conparison	−32.3%	−2.3%	21.9%	0.6%	41.9%	32.0%	77.8%	76.2%	30.7%	10.9%		
Tj. Priok	All Vessel	2018	18.3	20.4	18.7	20.1	22.3	13.6	17.9	18.5	19.5	12.8		
		2017	13.6	17.7	18.0	19.5	20.1	13.1	17.9	18.4	19.0	18.1	18.8	22.2
		Conparison	33.8%	15.2%	4.0%	3.0%	10.9%	3.6%	0.4%	0.4%	2.6%	−29.1%		
	Container	2018	7.2	7.0	6.5	6.5	8.4	5.6	6.8	6.6	6.7	6.1		
		2017	6.5	6.7	6.7	7.0	7.2	6.2	6.9	8.5	6.7	6.4	7.3	8.6
		Conparison	11.4%	4.7%	−2.5%	−7.1%	16.5%	−9.9%	−1.2%	−22.0%	−0.5%	−5.0%		
Tj. Perak	All Vessel	2018	11.0	10.0	9.8	10.5	14.0	7.7	8.7	9.5	10.2	8.9		
		2017	8.7	11.6	10.2	10.8	12.5	10.9	11.7	7.5	11.4	8.9	12.1	15.4
		Conparison	26.1%	−13.7%	−4.1%	−2.6%	12.2%	−28.8%	−25.6%	27.1%	−10.6%	0.8%		
	Container	2018	3.7	3.3	3.1	3.0	4.3	3.2	3.6	3.3	3.0	2.5		
		2017	3.3	4.3	4.1	4.4	3.8	3.6	2.8	3.1	4.4	3.6	3.6	6.1
		Conparison	10.8%	−24.0%	−23.1%	−32.7%	11.7%	−9.9%	30.1%	8.3%	−32.9%	−31.7%		
Makassar	All Vessel	2018	1.0	2.4	2.0	2.8	4.3	1.7	1.5	2.5	2.1	1.6		
		2017	2.1	2.9	2.2	1.7	2.0	1.8	1.3	1.9	1.6	2.5	1.6	2.7
		Conparison	−49.1%	−17.9%	−9.0%	64.9%	110.8%	−9.7%	13.1%	30.1%	27.2%	−33.0%		
	Container	2018	0.1	0.2	0.1	0.2	0.2	0.1	0.0	0.1	0.2	0.1		
		2017	0.1	0.2	0.1	0.1	0.1	0.2	0.1	0.2	0.1	0.2	0.1	0.2
		Conparison	−6.1%	−25.0%	−1.2%	4.0%	54.6%	−47.7%	−89.2%	−73.1%	68.0%	−67.1%		

Source: JICA Project Team

Average of the number of Vessels staying in port at moment (Domestic)

			JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Belawan	All Vessel	2018	19.0	18.6	20.3	22.3	28.5	23.6	26.2	26.8	26.4	25.8		
		2017	28.7	26.7	34.3	26.2	25.5	24.5	19.9	26.9	22.6	23.6	24.0	25.8
		Conparison	−33.8%	−30.2%	−40.9%	−14.9%	11.8%	−3.6%	31.7%	−0.5%	17.1%	9.4%		
	Container	2018	3.9	3.8	3.0	3.3	3.4	2.5	3.2	3.3	4.0	3.3		
		2017	2.7	2.2	2.9	3.4	3.7	3.6	4.3	5.5	5.4	6.0	5.0	4.8
		Conparison	43.9%	73.7%	3.5%	−1.9%	−7.8%	−31.0%	−26.2%	−39.8%	−25.5%	−45.2%		
Tj. Priok	All Vessel	2018	78.9	89.3	84.6	97.7	100.3	68.1	81.4	75.3	88.2	75.2		
		2017	68.5	82.3	86.6	86.6	96.3	68.9	81.2	83.9	80.1	91.3	97.6	88.5
		Conparison	15.1%	8.5%	−2.3%	12.8%	4.1%	−1.2%	0.2%	−10.3%	10.1%	−17.7%		
	Container	2018	19.0	22.3	22.5	23.5	23.5	19.7	18.4	19.3	20.1	18.2		
		2017	21.6	21.6	22.1	21.8	22.1	18.1	20.7	20.4	21.9	20.8	20.9	23.8
		Conparison	−12.3%	3.1%	1.9%	8.0%	6.8%	9.4%	−11.4%	−5.3%	−8.3%	−12.7%		
Tj. Perak	All Vessel	2018	78.8	89.4	101.6	93.3	95.8	70.2	84.4	94.9	95.8	81.2		
		2017	43.2	74.5	93.8	88.1	93.8	71.2	83.9	91.0	99.9	100.5	91.4	97.1
		Conparison	82.2%	20.1%	8.3%	5.8%	2.1%	−1.3%	0.6%	4.3%	−4.0%	−19.2%		
	Container	2018	27.0	27.2	29.2	26.3	26.2	20.6	20.5	25.0	24.8	21.4		
		2017	27.7	32.4	31.3	29.5	28.2	21.7	25.7	26.2	28.4	27.3	27.9	29.8
		Conparison	−2.5%	−16.2%	−6.7%	−10.8%	−6.9%	−4.7%	−20.1%	−4.3%	−12.7%	−21.9%		
Makassar	All Vessel	2018	25.7	23.5	24.6	24.5	28.0	20.2	19.4	22.9	24.3	18.8		
		2017	19.8	26.1	22.9	22.6	21.4	26.7	24.0	25.5	28.9	29.1	26.0	26.1
		Conparison	29.4%	−9.9%	7.2%	8.2%	30.9%	−24.4%	−19.0%	−10.0%	−15.9%	−35.4%		
	Container	2018	8.5	5.6	4.4	6.4	6.8	5.2	5.1	5.8	7.3	6.5		
		2017	3.2	4.9	3.4	3.7	4.6	6.1	3.7	5.2	6.2	5.8	5.4	5.9
		Conparison	168.4%	13.8%	30.3%	75.2%	46.4%	−14.5%	39.8%	11.8%	17.6%	11.4%		

Source: JICA Project Team

Connectivity with 24 Ports (Number of Calling Vessels from/to 24 ports) (Foreign)

			JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Belawan	Inbound	2018	1	0	2	2	2	0	2	4	3	5	0	0
		2017	1	0	3	1	4	5	5	4	3	1	2	0
		Conparison	0.0%		−33.3%	100.0%	−50.0%		−60.0%	0.0%	0.0%	400.0%		
	Outbound	2018	2	2	1	0	1	2	0	0	1	1	0	0
		2017	2	1	0	3	4	0	1	1	0	3	3	4
		Conparison	0.0%	100.0%			−75.0%					−66.7%		
Belawan (Container)	Inbound	2018	0	0	0	0	0	0	0	0	0	0	0	0
		2017	0	0	0	0	0	0	0	0	0	0	0	0
		Conparison												
	Outbound	2018	0	0	0	0	0	0	0	0	0	0	0	0
		2017	0	0	0	0	0	0	0	0	0	0	0	0
		Conparison												
Tj. Priok	Inbound	2018	10	8	15	18	17	14	17	19	15	15		
		2017	14	16	22	14	15	11	8	9	10	9	11	8
		Conparison	−28.6%	−50.0%	−31.8%	28.6%	13.3%	27.3%	112.5%	111.1%	50.0%	66.7%		
	Outbound	2018	100	95	97	88	101	60	85	85	86	79		
		2017	58	63	75	93	100	62	88	96	92	94	98	107
		Conparison	72.4%	50.8%	29.3%	−5.4%	1.0%	−3.2%	−3.4%	−11.5%	−6.5%	−16.0%		
Tj. Priok (Container)	Inbound	2018	5	3	6	10	11	8	9	10	10	11		
		2017	10	13	15	11	5	6	5	6	4	4	5	5
		Conparison	−50.0%	−76.9%	−60.0%	−9.1%	120.0%	33.3%	80.0%	66.7%	150.0%	175.0%		
	Outbound	2018	75	68	72	63	72	48	61	63	58	63		
		2017	46	41	54	64	70	49	62	70	67	66	74	78
		Conparison	63.0%	65.9%	33.3%	−1.6%	2.9%	−2.0%	−1.6%	−10.0%	−13.4%	−4.5%		
Tj. Perak	Inbound	2018	88	76	81	77	81	56	71	70	65	60	0	0
		2017	25	40	55	68	76	62	60	68	80	69	77	92
		Conparison	252.0%	90.0%	47.3%	13.2%	6.6%	−9.7%	18.3%	2.9%	−18.8%	−13.0%		
	Outbound	2018	26	26	31	39	35	26	36	39	33	38		
		2017	34	27	44	36	35	28	31	34	31	29	28	32
		Conparison	−23.5%	−3.7%	−29.5%	8.3%	0.0%	−7.1%	16.1%	14.7%	6.5%	31.0%		
Tj. Perak (Container)	Inbound	2018	77	67	70	64	65	50	57	56	51	49		
		2017	24	34	45	54	61	50	51	61	66	62	67	81
		Conparison	220.8%	97.1%	55.6%	18.5%	6.6%	0.0%	11.8%	−8.2%	−22.7%	−21.0%		
	Outbound	2018	24	23	25	30	28	23	26	27	29	27		
		2017	29	24	33	31	26	22	25	25	21	21	25	27
		Conparison	−17.2%	−4.2%	−24.2%	−3.2%	7.7%	4.5%	4.0%	8.0%	38.1%	28.6%		
Makassar	Inbound	2018	6	9	6	6	10	5	4	5	7	5		
		2017	5	5	10	8	7	10	6	11	7	8	8	9
		Conparison	20.0%	80.0%	−40.0%	−25.0%	42.9%	−50.0%	−33.3%	−54.5%	0.0%	−37.5%		
	Outbound	2018	1	0	1	1	2	1	4	0	2	1		
		2017	1	4	1	6	1	2	1	3	2		1	1
		Conparison	0.0%		0.0%	−83.3%	100.0%	0.0%	100.0%		−33.3%	−50.0%		
Makassar (Container)	Inbound	2018	3	3	3	3	3	2	1	1	4	2		
		2017	3	3	4	5	4	4	4	5	3	4	4	3
		Conparison	0.0%	0.0%	−25.0%	−40.0%	−25.0%	−50.0%	−75.0%	−80.0%	33.3%	−50.0%		
	Outbound	2018	0	0	1	1	0	0	0	0	0	0		
		2017	0	2	0	2	0	0	0	0	0	0	0	0
		Conparison				−50.0%								

Source: JICA Project Team

Connectivity with 24 Ports (Number of Calling Vessels from/to 24 ports) (Domestic)

			JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Belawan	Inbound	2018	108	102	110	126	135	100	128	146	115	114		
		2017	126	109	136	124	125	99	111	124	113	131	122	118
		Comparison	−14.3%	−6.4%	−19.1%	1.6%	8.0%	1.0%	15.3%	17.7%	1.8%	−13.0%		
	Outbound	2018	105	98	100	120	126	88	123	128	104	111		
		2017	122	112	124	120	111	90	95	110	114	126	111	104
		Comparison	−13.9%	−12.5%	−19.4%	0.0%	13.5%	−2.2%	29.5%	16.4%	−8.8%	−11.9%		
Belawan (Container)	Inbound	2018	39	39	41	38	42	26	38	32	35	31		
		2017	35	26	36	39	36	29	37	41	39	50	38	39
		Comparison	11.4%	50.0%	13.9%	−2.6%	16.7%	−10.3%	2.7%	−22.0%	−10.3%	−38.0%		
	Outbound	2018	34	35	37	32	37	21	34	31	33	29		
		2017	32	25	32	36	33	26	32	36	33	44	33	34
		Comparison	6.3%	40.0%	15.6%	−11.1%	12.1%	−19.2%	6.3%	−13.9%	0.0%	−34.1%		
Tj. Priok	Inbound	2018	470	450	502	503	493	323	474	458	480	441		
		2017	396	399	538	525	514	374	448	520	471	531	499	481
		Comparison	18.7%	12.8%	−6.7%	−4.2%	−4.1%	−13.6%	5.8%	−11.9%	1.9%	−16.9%		
	Outbound	2018	451	461	507	493	468	322	472	457	475	465		
		2017	411	418	529	499	514	346	455	505	484	513	520	482
		Comparison	9.7%	10.3%	−4.2%	−1.2%	−8.9%	−6.9%	3.7%	−9.5%	−1.9%	−9.4%		
Tj. Priok (Container)	Inbound	2018	168	173	190	188	194	104	170	188	187	175		
		2017	171	160	199	189	196	143	155	183	167	189	181	176
		Comparison	−1.8%	8.1%	−4.5%	−0.5%	−1.0%	−27.3%	9.7%	2.7%	12.0%	−7.4%		
	Outbound	2018	179	179	203	201	198	110	176	195	194	184		
		2017	177	168	204	199	205	143	164	200	185	204	199	190
		Comparison	1.1%	6.5%	−0.5%	1.0%	−3.4%	−23.1%	7.3%	−2.5%	4.9%	−9.8%		
Tj. Perak	Inbound	2018	359	359	422	401	392	251	419	411	396	390		
		2017	327	341	413	389	414	310	368	417	386	429	406	393
		Comparison	9.8%	5.3%	2.2%	3.1%	−5.3%	−19.0%	13.9%	−1.4%	2.6%	−9.1%		
	Outbound	2018	390	394	459	410	412	240	406	441	416	403		
		2017	355	359	454	399	434	330	372	422	405	445	437	414
		Comparison	9.9%	9.7%	1.1%	2.8%	−5.1%	−27.3%	9.1%	4.5%	2.7%	−9.4%		
Tj. Perak (Container)	Inbound	2018	153	161	178	166	160	96	167	164	167	158		
		2017	171	156	189	177	180	126	148	176	160	173	171	165
		Comparison	−10.5%	3.2%	−5.8%	−6.2%	−11.1%	−23.8%	12.8%	−6.8%	4.4%	−8.7%		
	Outbound	2018	186	184	206	184	178	106	174	184	181	176		
		2017	193	186	222	201	205	146	168	199	183	194	205	195
		Comparison	−3.6%	−1.1%	−7.2%	−8.5%	−13.2%	−27.4%	3.6%	−7.5%	−1.1%	−9.3%		
Makassar	Inbound	2018	201	182	211	181	180	117	183	184	179	167		
		2017	171	167	193	192	180	169	175	204	207	213	207	198
		Comparison	17.5%	9.0%	9.3%	−5.7%	0.0%	−30.8%	4.6%	−9.8%	−13.5%	−21.6%		
	Outbound	2018	173	162	174	153	141	99	151	152	146	142		
		2017	149	152	167	157	160	140	149	185	177	179	190	167
		Comparison	16.1%	6.6%	4.2%	−2.5%	−11.9%	−29.3%	1.3%	−17.8%	−17.5%	−20.7%		
Makassar (Container)	Inbound	2018	115	98	113	102	101	59	100	94	104	88		
		2017	85	86	105	101	109	87	87	113	107	108	118	106
		Comparison	35.3%	14.0%	7.6%	1.0%	−7.3%	−32.2%	14.9%	−16.8%	−2.8%	−18.5%		
	Outbound	2018	87	79	91	81	74	46	76	73	79	67		
		2017	61	73	86	83	90	72	73	94	91	90	100	83
		Comparison	42.6%	8.2%	5.8%	−2.4%	−17.8%	−36.1%	4.1%	−22.3%	−13.2%	−25.6%		

Source: JICA Project Team

(c)Example of Policy Implications through PPIs calculation

The following figure shows Average Port Staying Time for Domestic voyage Container Vessel at Makassar port. Red lines shows average port staying time for respective months of the year 2018 while Green Lines shows average port staying time for respective months of the year 2017. This figure implies that port staying time for container vessels at Makassar port is longer than previous year. In other words, port operation service performance in terms of port staying hours might be worse than the previous year. At least, port organizer as a regulator of port facilities and sea traffic administration should

-identify causes and reasons;

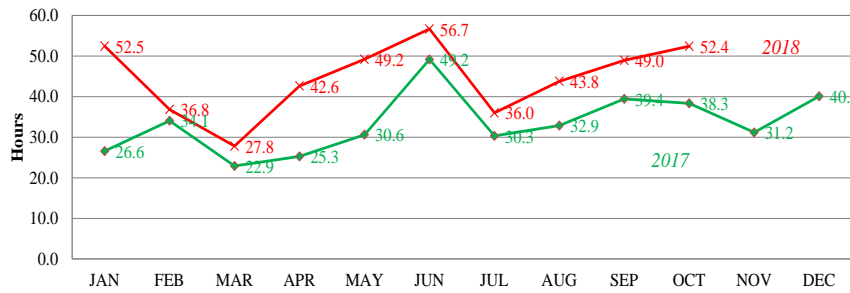-consider countermeasures for improving performance; and

-prepare Policy measures.

Figure III-2-55 Average Port Staying Time（Domestic voyage Container Vessel at Makassar)

Source: JICA Project Team

## III-2-5 Effective and Efficient Operation

III-2-5-1 Enhancement of Management and Operation Structure

Basically, the INAPORTNET system is operated with the structure of "DGST-PUSTIKOM-Vender", and the ships' entry and departure procedures are performed with the structure of "DGST-PAs-HMs". PAs attend to shipping companies/ shipping agents, stevedoring companies, and forwarding companies who are system users (applicants). In addition, there is a close relationship with PELINDOs in terms of system aspects and procedures. Moreover, the cooperation of data with the systems managed by DGST is indispensable.

It is PAs that carry out the registration of private users and substantially deal with inquiries. The formal inquiry window is the Helpdesk of MOT, but many users do not know about it and are asking to PAs. For this reason, as described in III-2-1-2, the inquiry/ response record cannot be preserved systematically.

As most of the inquiries are posted to PAs, they should organize these inquiries systematically and report them to DGST. And DGST should compile a unified inquiry record together with the inquiry / response record of the Helpdesk.

Here we would like to propose a concrete method for compiling and sharing inquiry information as shown in Figure III-2-56.
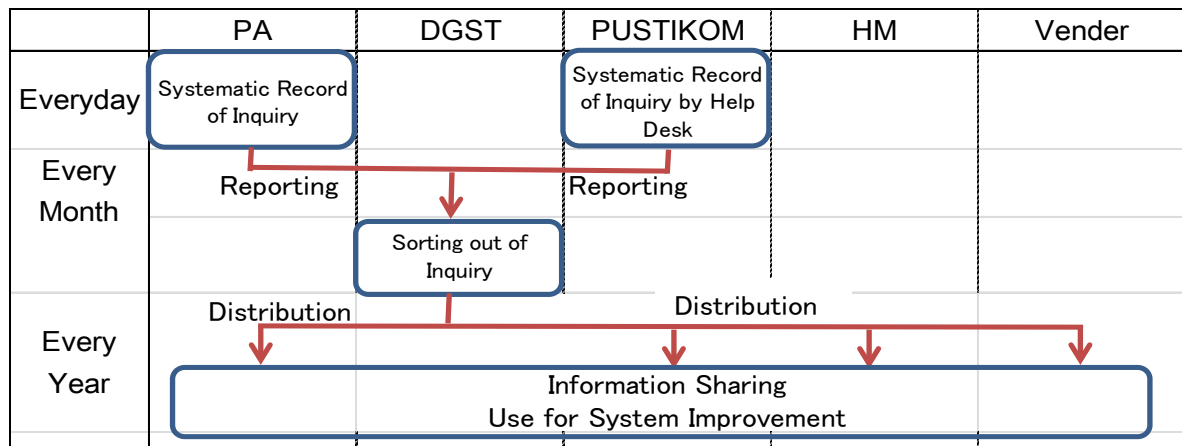
Source: Project Team

Figure III-2-56 Sharing of inquiry information

- PAs should record the results of inquiries and responses systematically and report to DGST, for example every month. Together with the record of the Helpdesk of MOT, DGST should compile a unified inquiry record. The system of classification should be prepared based on the past inquiry results, but here we propose the following classification.

  - Classification by users: Shipping company/ Shipping agent, Stevedoring company, Forwarding company, PELINDO, PA, HM
  - Classification by services: Registration of users, Arrival procedure, Departure procedure, Others
  - Classification by areas: Area of PELINDO 1,2,3,4
  - Classification by systems: Concerning INAPORTNET, Concerning other systems, Concerning Internet
  - Classification by questions: Input methods, Error interpretations, Responses by government agencies, System malfunctions, Others

- This classified inquiry/ response record should be shared with DGST, PUSTUKOM, PAs, HMs, and Vender. Each person in charge can refer to this record upon the system improvement in every year and the periodical full renewal.

-

III-2-5-2 Institutions for Sure INAPORTNET Implementation

With the start of operation of INAPORTNET, it is necessary to revise the institutions concerning ships' entry and departure procedures and to establish new institutions. For example, the provision as *"Submission of ship certificate to HM at the time of port entry"* prescribed in article 213 of the Shipping Law No. UU17 year 2008 is not compatible with the implementation of electronic procedures. Therefore, DGST should examine whether to abolish the obligation to submit original ship's certificates to HM, concerning the transition to the age of electronic procedures.

Currently HM inspects all the certificates of a leaving ship, but it is said that at least two types are acceptable. These are Ship's Safety Certificate stipulated by the article 126 of the Shipping Law UU No. 17 year 2008 and Ship's Certificate of Registration stipulated by the article 158 of the same law. These are mandatory by the law to be always carried with the ship.

In case of a domestic ship, it seems to be overlapping administrative acts in a sense that HM of each port confirms the same certificates every time it enters the port. However, in the case of a foreign ship, confirming the certificates at the first port of Indonesia will be appropriate as an administrative act.

In addition, the future expansion, improvement and renewal of INAPORTNET should be done based on a suitable regulation. Therefore, regarding the expansion, improvement and renewal of INAPORTNET, DGST should clarify the department in charge and stipulate its work in an organizational regulation.

Concrete measures are as follows.

- In line with the spirit of the simplification of procedures, DGST should clarify the certificates which must be confirmed at minimum and amend the laws and regulations so that the electronic copy can be attached to the application of port entry. In cases where HMs must confirm the original ones or other certificates, clarifying the reasons for its necessity, it is sufficient to respond individually in the approval of entrance permission.

- The department in charge of the expansion, improvement and renewal of INAPORTNET can be the current one; the Data and information division of Sea traffic and transportation department. But currently they are in charge of the operation of INAPORTNET and SIMLALA, therefore it is necessary to add a new division in charge of the expansion, improvement and renewal of INAPORTNET in the same department. Current Data and

information division has a structure of one section chief and five staff members under the supervision of a sub director and takes charge of legal affairs, INAPORTNET operation, and SIMLALA operation. In usual time, the newly established division is responsible for the analysis of inquiry/ correspondence, the management of periodic users' explanatory meetings and expansion / improvement of INAPORTNET. In case of full renewal, it can increase the staff and will be in charge of the basic plan, the exchange of users' opinion, the implementation plan, the renewal works etc.

III-2-5-3 Updates of the Current INAPORTNET System

Saying about ordinary information processing systems, technological innovation of hardware and software is remarkable, so it is said that a system might require a full renewal in roughly five to eight years.

Illustration on improvements for convenience and a full scale renewal is shown in Figure III-2-57. As shown in the figure, a small improvement by the regular budget is implemented every fiscal year, and a large-scale improvement is carried out as necessary, such as when users' request increases or when the operator should respond to a revision of regulations. In this figure, a major improvement should be done spending two years for preparation and planning, and two years for the repairing work of the system. Moreover, a full scale renewal should be started from the making of a basic policy. Then it should be done for a full scale renewal spending two years for preparation, two years for planning, two years for actual renewal work. It is important to clarify the basic policy when making a full scale renewal.

YEAR	1	2	3	4	5	6	7	8
Improvement by Regular Budget	Every Year Implementation except in Years of Large Scale Improvement and Full Renewal							
Large Scale Improvement		Making Plan Budget Acquisition		Implementation				
Full Renewal			Making Basic Policy		Making Plan Budget Acquisition		Implementation	

Source: Project Team

Figure III-2-57 Concept of system improvement / renewal

III-3 Short Term Improvement Plan

III-3-1 The Text of Short Term Improvement Plan

Measures to be taken for improving INAPORTNET aforementioned above are summarized as "Short Term Improvement Plan" as follows:

1. Aiming for a More Reliable System

The DGST should ensure stable and user-friendly operation of INAPORTNET all the time by taking the following measures.

1-1 To Provide Necessary Information for Easy System Use as Needed

Timely information should be provided to users such as Service status or Outage information by utilizing the INAPORTNET websites.

1-2 To Respond Appropriately and Promptly when Problems Occur

The DGST should accumulate knowledge based on requests by users, frequent problems and countermeasures to be taken for the implementation of INAPORTNET. Furthermore, such accumulated knowledge should be shared among relevant stakeholders. In addition, as recommended in the Urgent Technical Improvement Plan, helpdesk functions should be steadily strengthened.

1-3 To Avoid Interruption of Ship Clearance Procedures

24-hour/365-day-a-year application for vessel clearance should be ensured by continuously providing the updated information to INAPORTNET users including necessary procedures even when INAPORTNET operations must be temporarily suspended.

1-4 To Continuously Monitor Usage Conditions of INAPORTNET

The DGST should monitor and inform updated status of usage of INAPORTNET all the time because such information is quite useful for relevant stakeholders (i.e., private enterprises and government body related to vessel clearance). Furthermore, data analysis on usage conditions of INAPORTNET should be regularly conducted and shared with relevant stakeholders.

2. Aiming for a High-Quality System that can Cover Wider Areas

2-1 To Improve User Convenience

The DGST should continuously update and improve INAPORTNET functions and operations in a fully planned manner. The DGST should solicit opinions and requests regarding INAPORTNET and take them into consideration when updating and improving INAPORTNET.

2-2 To Add Functions to Cover non-Standard Cases

The current INAPORTNET system does not include certain features often requested by users such as those which can deal with changes in contents of application. The DGST should improve and revise the system taking into consideration necessities, frequency with which problems occur, difficulties and available budget.

2-3 To expand the Applications of INAPORTNET

The current INAPORTNET system lacks certain features including those which can deal with applications regarding short voyages of less than 6 hours and small vessels of less than 35GT. The DGST should improve and revise the system taking into consideration of necessities, frequency with which problems occur, difficulties and available budget.

3. To Expand Scope of INAPORTNET Implementation

3-1 To Expand Ports of INAPORTNET Implementation

The current INAPORTNET system is operating in the sixteen ports in accordance with the Minister's regulation published in the year 2015. The INAPORTNET can also be implemented at ports other than the sixteen ports provided a stable internet connection is available. The DGST should expand implementation of INAPORTNET to other ports after examining the current situation regarding vessel clearance procedures by ship agents, PAs and HMs at each port.

3-2 To Add Functions Dealing with Cargo Information

Phase 2 of INAPORTNET encompasses features grasping cargo information such as updated status and dwelling time of each container box at Tanjung Priok port. The DGST should formulate a strategy for its application and expansion in a fully planned manner. The current INAPORTNET system can deal with cargo information such as units and types of cargo. However, the DGST should take appropriate measures to ensure soundness and correctness of cargo data input in INAPORTNET.

3-3 To Strengthen Integration with other MOT System

The current INAPORTNET system is exchanging data with other information systems including other databases operated by the DGST including SIMLALA and SIMKEPEL and the database administered by the PELINDO.

3-4 To Strengthen Integration with INSW

The DGST should take all the necessary measures to strengthen connectivity with the INSW taking into consideration technical specifications and scheduled updates of the INSW.

4. Aiming for a New Port Administration by Making Use of INAPORTNET Data

4-1 To Analyze Port Activities and Share Results in a Regular Report

Each PA should continuously and regularly conduct analysis on port activities in the prescribed forms commonly used across the ports. Analysis results should be shared among relevant stakeholders.

4-2 To Enhance Port Administration by Port Performance Indicators (PPIs)

Each PA and HM should monitor port performance by applying appropriate Port Performance Indicators (PPIs) and take appropriate measures based on the PPIs.

5. Aiming for Effective and Efficient Operation

5-1 To enhance Management and Operation Structure

In order to enhance the management and operation structure, PAs should record the results of inquiries and responses systematically and report to DGST every month. Together with the record of the Helpdesk of MOT, the DGST should compile a unified inquiry record.

5-2 To Prepare Related Institutions for INAPORTNET Implementation

The DGST should continuously reform relevant rules and regulations regarding implementation of INAPORTNET in order to ensure sustainable operation of INAPORTNET.

5-3 To Prepare Updates of the Current INAPORTNET System

The DGST should periodically update the INAPORTNET system reflecting advancement of state-of-art ICT in order to ensure sustainable operation of the system. Furthermore, the DGST should revise the current system reflecting current situation surrounding sea transportation and ports.

III-3-2 Action Plan

The JICA expert team identified the four actions to be implemented as follows. These actions which are significantly important among respective recommended measures described as short term improvement Plan, should be conducted steadily.

III-3-2-1 Improvement of Information Provided on the INAPORTNET Website

(1)Recommended Measures

Provide timely information for users such as Service status or Outage information to users by utilizing INAPORTNET websites.

(2)Background

The INAPORTNET related procedures will be temporarily transferred to manual operation on occasion due to system suspensions. In such cases, it is necessary to inform INAPORTNET users of

system suspension through the website as well as through an environment independent from INAPORTNET infrastructure such as Mobile e-mail.

Currently, users can access (without user login) the system login page of INAPORTNET system (http://inaportnet.dephub.go.id/site/login) and the INAPORTNET website (http://inaportnet.000webhostapp.com) which provides the instructions of INAPORTNET including user manuals. However, timely information such as outage information is not provided yet on those websites.

(3)Recommended Practices

To ensure the smooth transition to manual operation, provide timely information for users such as Service status or Outage information by utilizing the INAPORTNET websites. The information which is expected to be added is as follows.

Latest information of INAPORTNET	System/function upgrade, Notice of user meetings (seminar, workshop), Regulations and circulars
System service status	Service status, Outrage information, Maintenance schedule
Reference information for data input	Code information used in INAPORTNET, Definition of input data (e.g. Definition of arrival/departure time)
Other	FAQ, Analysis result of inquiries

(4)Image of Information Provided on the Website

Figure III-3-1 Image of information provided on the website

Source: JICA Project Team

(5)Timeline

year	1		2	3	4	5
Formulation of cooperation structure	▨					
Improvement Design	▨					
Development of website		▨				
Operation of website, upgrade			▨	▨	▨	▨

(6)Relevant Directorate in Charge

 (a)Main Directorate in charge

Directorate of Sea Traffic & Sea Transportation

- Budgeting for website operation
- Coordination between directorates
- Determination of information update

 (b)Relevant Directorate

PUSTIKOM

- Operation and update of information in the website
- Information collection of system operation status

Directorate of Port

- Update information of the related code
- Notification regarding system outage of SIMKEPEL

Directorate of Shipping and Seafarers

- Update information of the related code
- Notification regarding system outage of SIMKAPAL

Port Authority

- Notification of System (user environment) outage
- Acceptance of user inquiry/request and notification to Directorate of Sea Traffic & Sea Transportation

Harbor Master

- Notification of System (user environment) outage
- Acceptance of user inquiry/request and notification to Directorate of Sea Traffic & Sea Transportation

III-3-2-2 Grasping the Usage Situation of INAPORTNET and Utilizing Data

(1)Recommended Measures

The data on port entry and departure including the time when the Port Authority/Harbor Master received the input data from the shipping agency, the time the Port Authority/Harbor Master approved the application etc. are saved in the server. The difference between the application time and approval time for the main six procedures (PKK, RKBM, PPK, LK 3, SPM, SPB) for the month of March 2018 was analyzed in order to better understand the application process.

(2)Background

INAPORTNET covers entry and departure procedures at the following 16 major ports: Ambon, Balikpapan, Banjarmasin, Banten, Belawan, Bitung, Gresik, Makassar, Palembang, Pontianak, Sorong, Tanjung Emas, Tanjung Perak, Tanjung Priok, Teluk Bayur. Data on application time, response time, and information on registered companies is shown on the INAPORTNET Website. By analyzing these available data, usage situation of INAPORTNET can be grasped.

(3)Analysis

Of the analysis results, the data of Tanjung Priok Port in March 2018 is shown as an example. Most applications for PKK procedure were submitted in the time range from 3 AM to 12 PM while approval from the Port Authority was generally given from 9 AM to 6 PM.
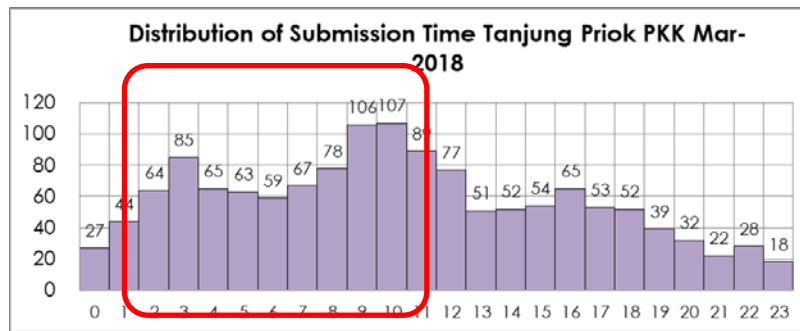
Figure III-3-2 PKK application time zone at Tanjung Priok port (March 2018)
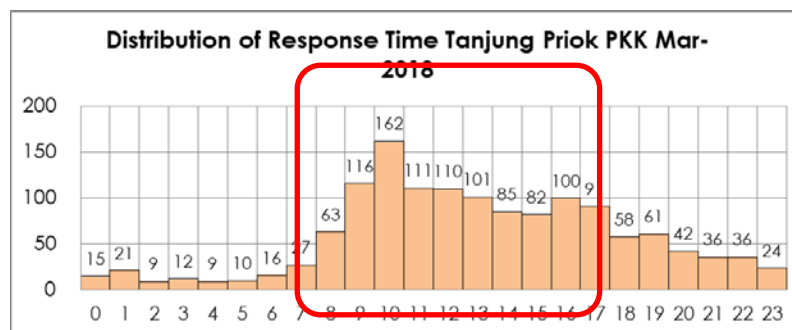

Figure III-3-3 PKK approval time zone at Tanjung Priok port (March 2018)

We analyzed the situation of the main 6 procedures (PKK, RKBM, PPK, LK 3, SPM, SPB) at Tanjung Priok port. The figure below shows the difference between the application time and approval time of each procedure, which shows the time required for each procedure. For example, 20% of PKK

applications were approved within 10 minutes, 30% within 30 minutes, 35% within 2 hours, and 35% within 5 hours; almost all procedures are completed within 1 day from application.
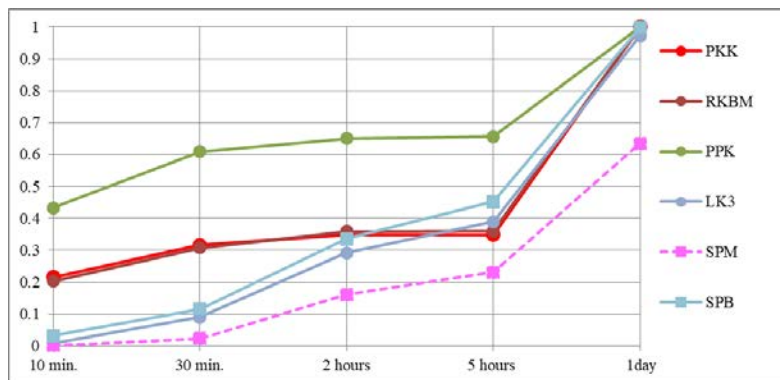

Figure III-3-4 Tanjung Prick port processing time (March, 2018)

We compared the average procedure time of PPK at the 16 major ports. The number of PKK procedures in March 2018 varies from 45 to 1,219 depending on the port.

The average procedure time for all PKKs at the 16 ports is found to be 5 hours and 15 minutes.
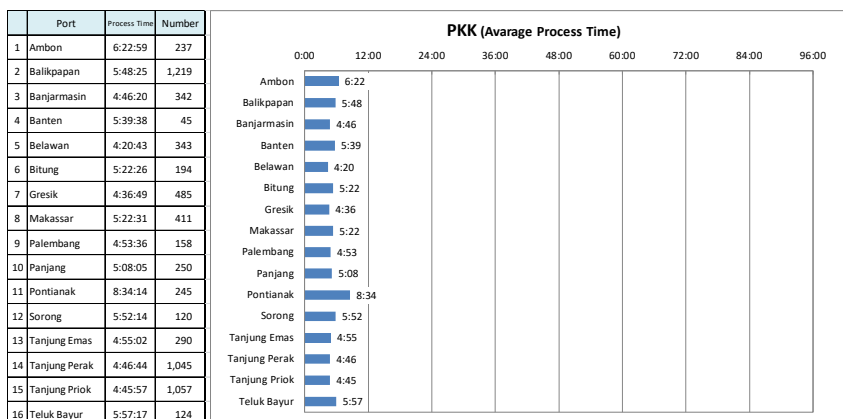

	Port	Process Time	Number
1	Ambon	6:22:59	237
2	Balikpapan	5:48:25	1,219
3	Banjarmasin	4:46:20	342
4	Banten	5:39:38	45
5	Belawan	4:20:43	343
6	Bitung	5:22:26	194
7	Gresik	4:36:49	485
8	Makassar	5:22:31	411
9	Palembang	4:53:36	158
10	Panjang	5:08:05	250
11	Pontianak	8:34:14	245
12	Sorong	5:52:14	120
13	Tanjung Emas	4:55:02	290
14	Tanjung Perak	4:46:44	1,045
15	Tanjung Priok	4:45:57	1,057
16	Teluk Bayur	5:57:17	124

Figure III-3-5 Comparison of PKK processing time at major 16 ports (March 2018)

(4)Recommended Practices

We prepared manuals and gave lectures on analyzing INAPORTNET data to relevant staff. We will continue to monitor the usage situation of INAPORTNET in order to grasp the average processing hours and time zone tendencies for PKK and other procedures. Furthermore, by understanding the processing time which is the difference between application time and approval time, appropriate Port Performance Indicators can be established.

(5)Relevant Directorate in Charge

　(a)Main Directorate in Charge

Directorate of Sea Traffic & Sea Transportation

● Monitoring INAPORTNET Web site Management

(b)Relevant Directorate

<u>PUSTIKOM</u>

● Development of posting program on INAPORTNET website and collecting data

<u>PORT Authority</u>

● Usage as management information

<u>Harbor Master</u>

● Usage as management information

III-3-2-3 Analysis on Port Activities and Regular Report

(1)Recommended Measures

Each PA should continuously and regularly conduct analysis on port activities in the prescribed forms commonly used across the ports. Analysis results should be shared among relevant stakeholders.

(2)Background

Data acquired through implementation of INAPORTNET is useful and insightful for evidenced-based port administration and business practices in ports.

(3)Items to be Analyzed

Vessel Calls (by vessel types, by vessel sizes in terms of GRT) [Monthly]	The number of vessel calls by vessel types (such as container, dry-bulk, liquid-bulk, general cargo, Ro-Ro and passenger) indicates characteristics of the port. The number of vessel calls by vessel sizes is indicative of the size of port facilities at the port such as berthing facilities and channel depths).
Vessel Arrival Time and Departure Time [with those distributions and most frequent time-slot, Monthly]	The distribution and frequency of Vessel Arrival/Departure Time can be useful for enhancing port administration and management including facilitation of readiness acceptance of vessels.
Port Staying Hours [in hours, Monthly Average]	The port staying hours indicate the extent of congestion and efficiency.
Vessel Calls (by origin ports / destination ports)	The number of vessel calls (by origin/destination ports) represents the extent of connectivity with other ports.

(4)Recommended Practices

1) Each PA should continuously and regularly conduct analysis on port activities in the prescribed forms in order to improve its daily port administration. The result of analysis and its activities should be regularly (monthly) reported to the Director-General of the DGST.

2) Based on the reports, the DGST should monthly compare port activities across the targeted ports and grasp nation-wide port activities. Furthermore, the DGST should regularly (monthly) release those results to the public.

3) In order to ensure that data input in INAPORTNET (specifically cargo data) is accurate, the DGST should take measures to strengthen supervision and control over ship agents by PAs including capacity building for relevant PA officials (i.e., those who engage in or are expected to

engage in operation of the INAPORTNET). By upgrading their knowledge and skills, PA officials will be able to identify incorrect data and applications submitted in INAPORTNET. In addition, it is recommended that experts who can provide continuous advice to Pas be deployed.

4) The DGST should consider additional items to be analyzed after soundness and correctness of data input in INAPORTNET is ensured through aforementioned measures.

(5)Timeline

Conduct analysis and release results to public	Establishment of policy and legislation for implementation of PPIs	Go-Live	Go-Live, Evaluation and Improvement	Full-Implementation	Full-Implementation
Ensure soundness and correctness of data input in INAPORTNET	Establishment of policy and legislation for implementation of PPIs	Go-Live	Go-Live, Evaluation and Improvement	Establishment of policy and legislation	Go-Live and Evaluation
Add items to be analyzed				Establishment of policy and legislation	Go-Live and Evaluation

(6)Relevant Directorate in Charge

　(a)Main Directorate in Charge

Directorate of Port

● Regularly (monthly) conduct analysis and release results to public
● Establishment of policy and legislation for implementation of analysis and report on port activities including deployment of expert(s) with knowledge of port statistics, sea transportation and port activities in order to continuously provide advice to PAs.
● Supervision of activities by PAs regarding analysis and report of port activities

　(b)Relevant Directorate

Directorate of Sea Traffic & Transportation

● Providing INAPORTNET data

PUSTIKOM

● Development of program for analysis as necessary

Port Authority

● Analysins on port activities and report to DGST

(7)Examples

The following table and figures show distribution and frequency of vessel arrival/departure times at Tanjung Perak port in June 2017. According to the figures, vessel arrivals are highly concentrated between 9am-10am. The PA of Tanjung Perak should firstly check soundness and correctness of application data in INAPORTNET in order to verify that there is no major difference between real

situation and what INAPORTNET data shows and implies. If there is no major error in application data of LK3, the PA and HM should verify that there is no major problem such as delays and danger caused by vessel traffic congestion.

Time	0	1	2	3	4	5	6	7	8	9	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Arrival	5	14	21	4	18	26	46	14	210	15	32	19	54	19	29	38	103	20	50	15	23	17	29	84
Departure	17	39	11	10	18	15	51	52	52	5	28	25	33	29	36	41	56	54	57	43	49	38	44	102

Time Disteibution of Arrival Vessels at Tanjung Perak Port in June 2017

Number of Vessels / O'clock in a day

Time Destribution of Departure Vessels at Tanjung Perak Port in June 2017

Number of Vessels / O'clock in a day
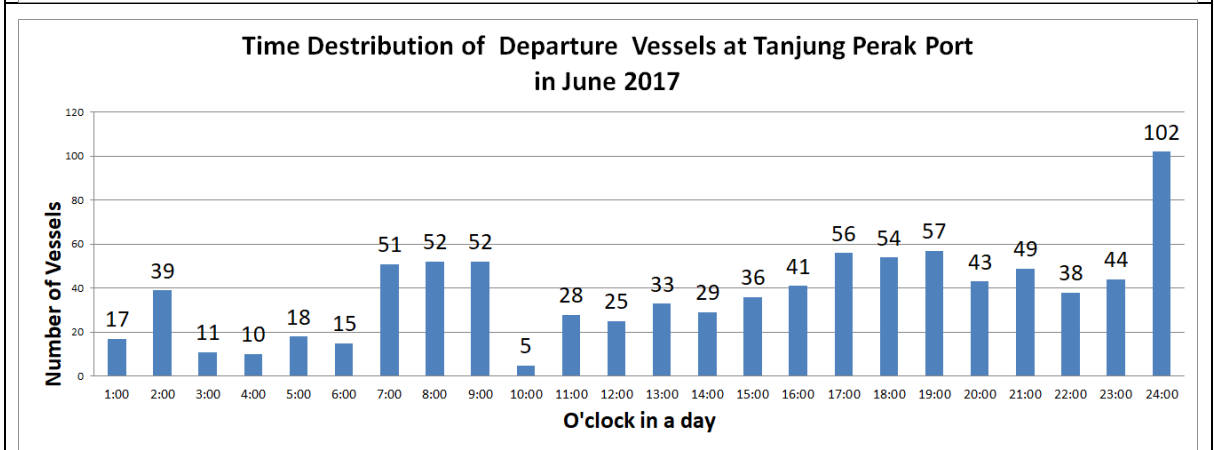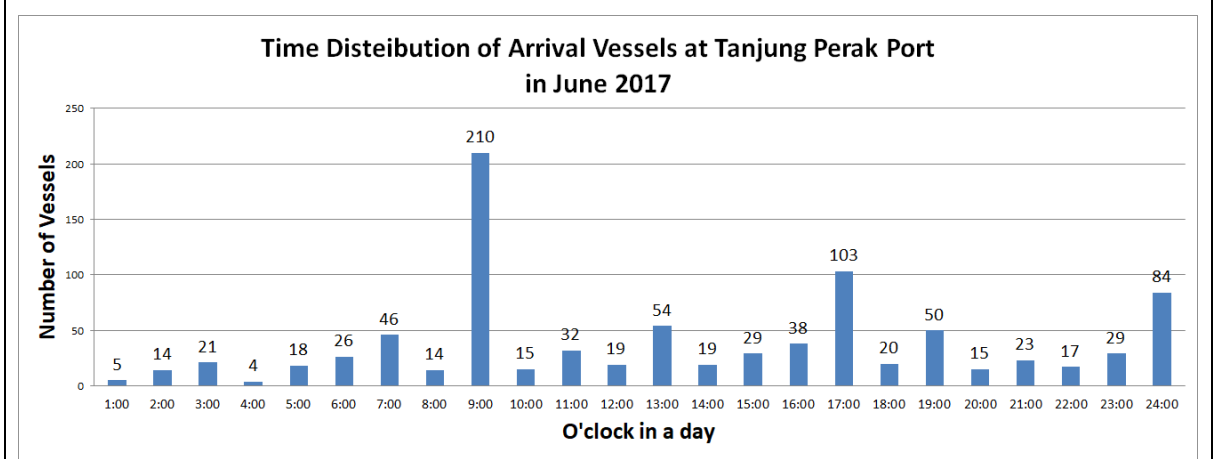
III-3-2-4 Enhancement of Sea Traffic and Port Administration by Port Performance Indicators (PPIs)

(1)Recommended Measures

Each PA and HM should monitor port performance by applying appropriate Port Performance Indicators (PPIs) through relevant data acquired through the INAPORTNET and take appropriate measures based on the PPIs.

(2)Background

Ensuring a certain level of efficiency at ports is important for the sustainable growth of Indonesian industries. Specifically, minimization of transportation costs incurred by trade, minimization of lead time, ensuring reliability of movements of goods/cargos such as time accuracy and quality of service are strongly desired by Indonesian industries. Hence, measurement of efficiency is necessary for benchmarking activities at ports. Furthermore, such measurement should be open to the public including private enterprises and various stakeholders surrounding the ports so as to make

port performance the best by bringing continuous awareness to relevant people for enhancing port operation performance.

By making best use of data acquired through INAPORTNET, implementation of above measures would be much easier in Indonesia compared with other countries.

(3)PPIs to be Implemented

Vessel Calls [Monthly]	The number of vessel calls indicates frequency, and thus is good measurement of shipping connectivity.
Number of Vessels staying in port at moment [Monthly Average]	This indicator represents the extent to which port facilities are utilized. By dividing this number by the number of berthing facilities, so-called Berth Occupancy Ratio will be further compiled.
Port Staying Hours (Vessel Turning Around Time) [in hours, Monthly Average]	This indicator is quite important for vessel operators/owners to determine where their vessel will call.
Number of Calling Vessels from/to 24 ports [Monthly]	This indicator corresponds to the target of "Sea Toll" policy which emphasizes importance of strengthening logistics and connectivity among the wide and insular country.
Process Time for PKK and SPB [in hours, Monthly Average]	Average processing hours for PKK represents the service level and efficiency of duties of port authority. Average processing hours for SPB represents the service level and efficiency of duties of harbor master.

(4)Recommended Practices

1) As the first step for enhancement of sea traffic and port administration by PPIs, the DGST should determine appropriate indicator(s) to be measured based on data acquired through INAPORTNET (LK3 and Monitoring INAPORTNET).

2) Each PA and HM should make every effort to enhance port performance by improving values of PPIs. Furthermore, each PA and HM should conduct analysis on relevance between PPIs and situation surrounding ports and sea transportation. The results of analysis and actions to be taken should be reported to the Director-General of the DGST.

3) Based on the submitted reports, the DGST should release PPIs for each port monthly. Furthermore, the DGST should identify necessary policy measures to be taken based on the report and PPIs prepared by each PA and HM every three months. Each PA and HM should take necessary policy actions based on instructions by the DGST. The DGST should continuously supervise and control such activities taken by PAs and HMs.

4) The DGST should determine PPIs to be additionally implemented and develop methods for better measurement and practice of PPIs.

(5)Timeline

Enhance sea traffic and port administration by applying PPIs	Establishment of policy and legislation for implementation of PPIs	Go-Live	Go-Live, Evaluation and Improvement	Full-Implementation	Full-Implementation

Determine PPIs to be additionally implemented and develop methods for better measurement and practice of PPIs				Establishment of policy and legislation	Go-Live and Evaluation

(6)Relevant Directorate in Charge

  (a)Main Directorate in Charge

Directorate of Sea Traffic and Sea Transportation

- Establishment of policy and legislation for implementation of PPIs
- Provision of INAPORTNET data with relevant directorates, PAs and HMs
- Data Processing, administration and release of PPIs
- Enhancement of sea traffic administration by making the best use of PPIs

  (b)Relevant Directorate

Directorate of Port

- Determination and development of appropriate PPIs to be measured
- Enhancement of port administration and management by making the best use of PPIs
- Supervision of activities by PAs regarding implementation of PPIs

Directorate of Sea and Coast Guard

- Determination and development of appropriate PPIs to be measured
- Enhancement of sea traffic and port administration by making the best use of PPIs
- Supervision of activities by HMs regarding implementation of PPIs

(7)Examples

    The following table shows port staying time by vessels engaging in domestic voyages for each month in the year of 2017 and 2018 (in hours and monthly average). Every month between January and September in 2018 in Makassar port, longer (worse) port staying times than that of the previous year (showed in red number) are recorded. The JICA expert team recommends that PAs conduct an analysis for identifying causes and reasons for this situation as well as countermeasures; in addition, appropriate policy measures need to be introduced.
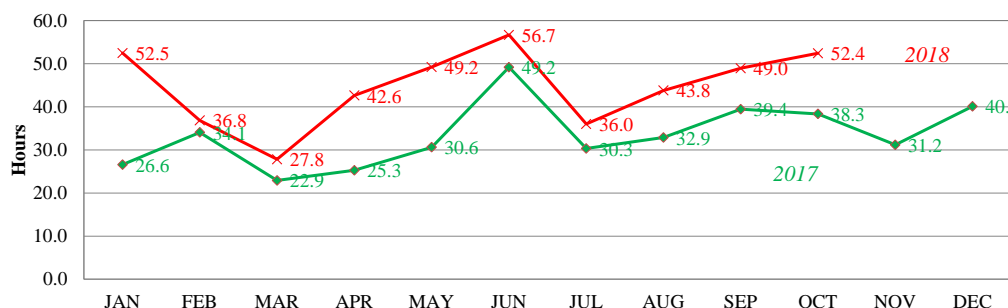

Figure III-3-6 Average Port Staying Time（in hours, Domestic, Container, Makassar）

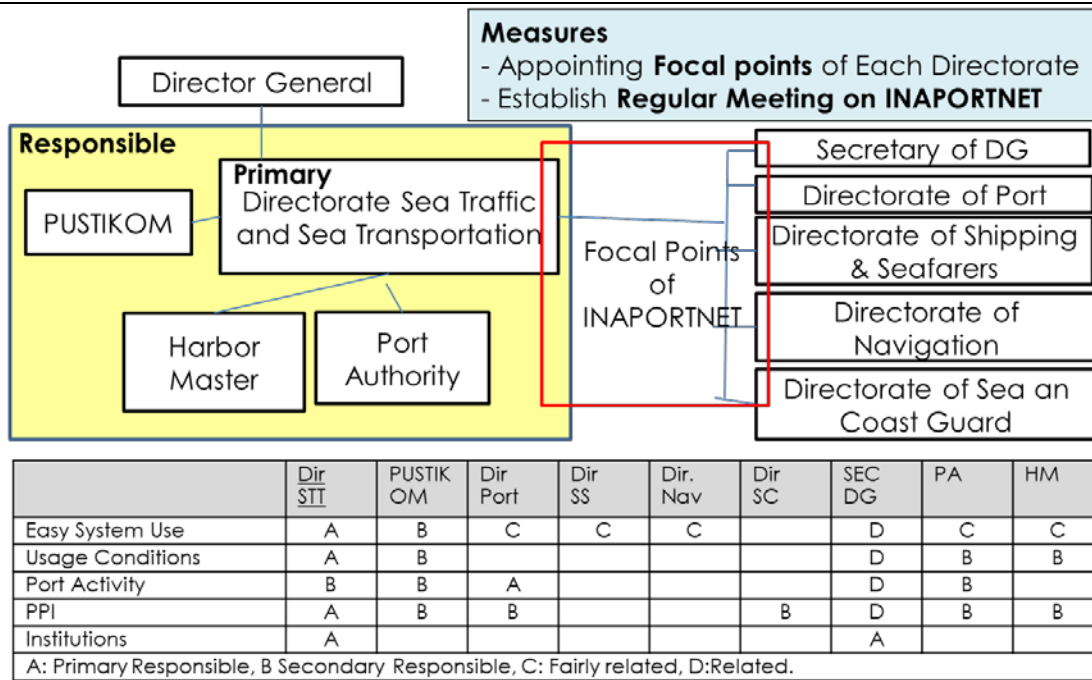**Table III-3-1 Average Port Staying Time（in hours, Domestic）**

			JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Belawan	All Vessel	2018	59.2	53.8	61.2	66.1	76.8	85.1	79.2	83.0	88.9	89.3		
		2017	95.9	90.2	103.0	89.9	86.2	99.2	74.0	79.7	69.4	69.4	64.6	79.2
		comparison	−38.3%	−40.4%	−40.6%	−26.4%	−10.9%	−14.2%	7.0%	4.1%	28.0%	28.8%		
	Container	2018	59.7	54.6	50.0	57.4	59.5	60.7	56.0	62.9	66.2	66.5		
		2017	52.1	49.2	49.4	52.3	61.6	71.3	70.9	81.4	83.2	76.1	78.0	75.5
		comparison	14.5%	10.9%	1.2%	9.7%	−3.5%	−14.8%	−21.0%	−22.8%	−20.4%	−12.6%		
Tj. Priok	All Vessel	2018	61.8	65.8	61.4	68.5	73.9	76.1	65.8	59.3	62.6	53.7		
		2017	69.1	71.1	65.2	63.8	70.8	72.7	72.8	66.2	61.9	62.4	67.3	68.4
		comparison	−10.6%	−7.4%	−5.8%	7.2%	4.4%	4.7%	−9.6%	−10.4%	1.1%	−14.0%		
	Container	2018	70.3	74.1	74.4	75.6	75.8	109.4	67.3	64.3	63.3	62.1		
		2017	77.8	75.2	70.2	70.6	72.0	80.2	83.3	68.2	76.7	68.3	69.7	84.2
		comparison	−9.7%	−1.5%	6.0%	7.1%	5.4%	36.3%	−19.2%	−5.8%	−17.5%	−9.1%		
Tj. Perak	All Vessel	2018	82.6	84.4	88.8	85.7	88.2	95.2	77.2	80.4	81.5	76.2		
		2017	72.4	89.3	88.2	85.6	85.5	80.3	85.6	81.5	90.2	82.0	79.1	89.0
		comparison	14.1%	−5.5%	0.6%	0.0%	3.2%	18.5%	−9.8%	−1.3%	−9.7%	−7.0%		
	Container	2018	83.0	72.7	75.2	74.5	77.7	96.5	63.6	68.8	68.6	65.1		
		2017	86.6	91.5	80.1	79.2	76.2	79.6	85.7	73.4	80.2	74.0	72.6	84.1
		comparison	−4.2%	−20.5%	−6.1%	−5.9%	2.0%	21.3%	−25.7%	−6.4%	−14.4%	−11.9%		
Makassar	All Vessel	2018	53.4	50.7	50.1	55.1	63.2	57.5	44.1	52.7	55.7	48.1		
		2017	43.9	56.0	50.8	49.7	47.6	60.3	50.4	51.9	57.5	57.5	52.1	57.4
		comparison	21.4%	−9.3%	−1.3%	10.9%	32.8%	−4.6%	−12.6%	1.4%	−3.1%	−16.3%		
	Container	2018	52.5	36.8	27.8	42.6	49.2	56.7	36.0	43.8	49.0	52.4		
		2017	26.6	34.1	22.9	25.3	30.6	49.2	30.3	32.9	39.4	38.3	31.2	40.1
		comparison	97.4%	8.2%	21.4%	68.7%	60.8%	15.2%	18.7%	33.3%	24.1%	36.8%		

IV. Conclusions and recommendations

1. DGST has been actively pursuing development and operation of IAPORTNET based on the relevant regulations such as Ministerial regulation No. 157 Since the soft launch at the Port of Makassar in March 2016, use of INAPORTNET has been expanded to 16 ports.

2. DGST, PUSTIKOM, PAs, HMs, other related organizations, and shipping agencies have cooperated with each other to address problems that have arisen since INAPORTNET started. No major problems have arisen.

3. Procedures for vessel entry and departure to of the sixteen ports under INAPORTNET has been introduced are conducted via INAPORTNET in general. The goal of the first phase of INAPORTNET implementation has been basically achieved. At present, INAPORTNET is an information infrastructure for port management in Indonesia

4. In the future, informationization in the port sector is expected to further develop. This means that further development of INAPORTNET as an information infrastructure related to ports in Indonesia is required.

5. It is vital that INAPORTNET operates continuously without any service interruption. The following measures are taken to make the system more reliable.

    (1) Improvement of Website of INAPORTNET for providing necessary information to system users

    (2) Quick response to user inquiries

    (3) Avoiding interruption of vessel entry and departure procedures

    (4) Monitoring usage situation and improvement

6. It is necessary to improve the quality of the system by responding to requests for additional functions which have been made since system operation began. The following measures can be cited as a response to the request indicated in the survey.

    (1) Systematic measures to improve the convenience of users

    (2) Addition of a function for change of application which has been submitted.

    (3) Expansion of target businesses covered by system

7. The system is required to expand in scope in response to the progress of informatization. In view of the environment surrounding INAPORTNET, the following measures are required.

   (1) Expansion of the INAPORTNET system to other ports

   (2) Adding a function for dealing with information on cargo in a port.

   (3) Strengthening of connection with the other systems of MOT / DGST

   (4) Integration into INSW

8. It is possible to provide information on activities in ports throughout Indonesia through analysis of data handled by INAPORTNET. In the future development of INAPORTNET, efforts focusing on this point will become more important. Measures for utilizing INAPORTNET data include the following.

   (1) Grasp and publish port activities of each port

   (2) Access performance of ports in Indonesia by designated Port Performance Indicators and apply them to port administration/management and port business

   (3) Introduction of INAPORTNET is an important opportunity for changing the consciousness about informatization in Indonesia's port sector. The above-mentioned measures seem to contribute to that.

9. We recommend implementation of a short-term improvement plan which addresses the above-mentioned measures. The following items are priority measures.

   (1) Improvement of the INAPORTNET website

   (2) Monitoring the use situation of INAPORTNET and improving port management and operations

   (3) Report of analysis results on port activities to DGST by PAs and publication of them to share information among the stakeholders

   (4) Calculation of Port Performance Indicators (for vessel) and utilization of the results in port management and port business.

10. In order to implement these measures, participation of all Directorates of DGST, Port Authorities and Harbor Masters is indispensable. In addition, strengthening cooperation with the Ministry of Transportation, INSW and port users is also necessary. It is recommended for DGST to strengthen organizational framework and take measures for planned version upgrade of the current INAPORTNET system.

Measures
- Appointing **Focal points** of Each Directorate
- Establish **Regular Meeting on INAPORTNET**

	Dir STT	PUSTIK OM	Dir Port	Dir SS	Dir. Nav	Dir SC	SEC DG	PA	HM
Easy System Use	A	B	C	C	C		D	C	C
Usage Conditions	A	B					D	B	B
Port Activity	B	B	A				D	B	
PPI	A	B	B			B	D	B	B
Institutions	A						A		
A: Primary Responsible, B Secondary Responsible, C: Fairly related, D:Related.									

Recommended Management and Operation Structure