

インドネシア共和国
運輸省
海運総局

インドネシア共和国
船舶航行安全システム開発整備計画
改訂プロジェクト
報告書（第二編）
別冊：付録

2023 年 4 月



独立行政法人 国際協力機構（JICA）



一般財団法人 日本航路標識協会（JANA）

社基

JR

23-051

付録 1

議事録 (MoM)

**MINUTES OF MEETINGS
BETWEEN
JAPAN INTERNATIONAL COOPERATION AGENCY
AND
DIRECTORATE GENERAL OF SEA TRANSPORTATION
THE REPUBLIC OF INDONESIA
FOR AMENDMENT OF THE RECORD OF DISCUSSIONS
ON
THE PROJECT FOR REVIEW OF THE STUDY FOR MARITIME TRAFFIC SAFETY
SYSTEM DEVELOPMENT PLAN**

The Japan International Cooperation Agency (hereinafter referred to as "JICA") and Directorate General of Sea Transportation in the Republic of Indonesia (hereinafter referred to as "DGST") hereby agree that the Record of Discussions on the Project for Review of the Study for Maritime Traffic Safety System Development Plan (hereinafter referred to as "the Project") signed on 22 March 2017 will be amended as follows;

1. Amendment of outline of the project

| Before | Amended Version |
|-------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 4. Activities | <p>4. Activities</p> <p>4) NAVIGASI, each DISNAV, and JICA Experts formulate Master Plan about;</p> <p>i) Aids to Navigation and VTS, including "Ships Routeing" which is derived from these</p> <p>ii) Coastal Radio Station</p> <p>iii) Vessels for Aids to Navigation</p> <p>In this activity, NAVIGASI and each DISNAV actively get and analyze data on i) Aids to Navigation and VTS, including "Ships Routeing", ii) Coastal Radio Station, and iii) Vessels for Aids to Navigation following JICA experts advices based on Annex 4.</p> |
| 5. Input (2) Input by DGST | <p>5. Input</p> <p>(2) Input by DGST</p> <p>(f) Regarding with Activities 4), NAVIGASI and each DISNAV actively get and analyze data on i) Aids to Navigation and VTS, including "Ships Routeing", ii) Coastal Radio Station, and iii)</p> |

| | |
|----------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------|
| | Vessels for Aids to Navigation following JICA experts advice based on Annex 4. |
| 8. Duration 2 years from the arrival of the first expert. Tentative schedule is shown below. | 8. Duration 4 years from the arrival of the first expert. |

Tentative Schedule

| Year | 1 st year | 2 nd Year | |
|-------------------------|----------------------|----------------------|------------|
| Main Period of Activity | Activity 1 | Activity 2 | Activity 3 |
| Report | IC/R | IT/R | PR/R |
| JCC | ▲ | ▲ | ▲ |
| | | | DF/R |
| | | | F/R |

9. Reports

Tentative schedule is shown below.

Tentative Schedule

| Year | 2019 | 2020 | 2021 | 2022 | 2023 |
|-------------------------|----------------------|----------------------|----------------------|----------------------|------|
| | 1 st year | 2 nd Year | 3 rd year | 4 th Year | |
| Main Period of Activity | Activity 1 | Activity 2 | | Activity 3 | |
| Report | IC/R | IT/R | | PR/R | DF/R |
| JCC | ▲ | ▲ | | ▲ | ▲ |
| | | | | | F/R |

| | |
|------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------|
| | 9. Reports (6)15 copies of Final Report within three (3) months after the receipt of the comments on the Draft Final Report ver.2 |
| Reason: This amendment is necessary to meet additional request from DGST written in letter (Ref.No: AL703/1/6/DJPL/2021 Jakarta 8 January 2021) (Annex 3). | |

2. Retroactive (Record of Discussions Annex 1)

| Before | Amended Version |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------|
| None | This amendment will become retroactive to April 1, 2021 |
| Reason: JICA and DGST agreed the necessity of the extension of the project by exchanging letters with the date of 25 December 2020 (Annex 2) and 8 January 2021 (Annex 3). However, the amendment of R/D has not been implemented in a timely manner due to the outbreak of COVID-19. Therefore, this amendment shall be effective retroactively to 1 April, 2021, the expiration date of the previous duration. | |

The parties acknowledge and agree that this Minutes of Meetings may be executed by electronic signature, which is considered as an original signature for all purposes and has the same force and effect as an original signature. "Electronic signature" includes faxed versions of an original signature or electronically scanned and transmitted versions of an original signature.

Annex 1 : Record of Discussions on the Project for Review of the Study for Maritime Traffic Safety System Development Plan in the Republic of Indonesia Agreed upon between Directorate General of Sea Transportation and Japan International Cooperation Agency (signed on 22 March 2017)

Annex 2 : Additional work for "The Project for Review of the Study for Maritime Traffic Safety System Development Plan" (25 December 2020)

Annex 3 : Re: "The project for Review of the Study for Maritime Traffic Safety System Development Plan"(Ref.No: AL703/1/6/DJPL/2021 Jakarta 8 January 2021)

Annex 4 : TOR for the additional activities

Jakarta, 13th October 2021

SM



For
Shigenori Ogawa
Chief Representative
JICA Indonesia Office
Japan



ARIF TOHA
Secretary for Directorate General of
Sea Transportation
Ministry of Transportation
Republic of Indonesia

RECORD OF DISCUSSIONS

ON

**THE PROJECT FOR REVIEW OF THE STUDY FOR MARITIME TRAFFIC
SAFETY SYSTEM DEVELOPMENT PLAN**

IN

THE REPUBLIC OF INDONESIA

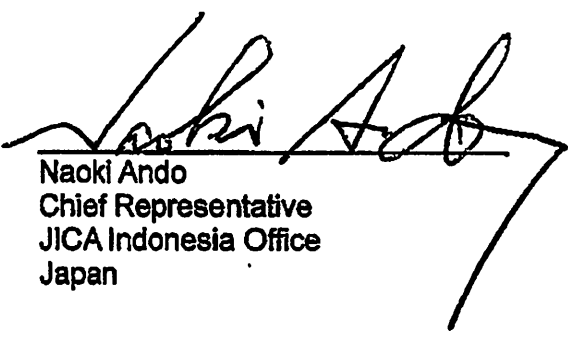
AGREED UPON BETWEEN

DIRECTORATE GENERAL OF SEA TRANSPORTATION

AND

JAPAN INTERNATIONAL COOPERATION AGENCY

Jakarta, 22 March 2017



Naoki Ando
Chief Representative
JICA Indonesia Office
Japan



Ir. I NYOMAN SUKAYADNYA, MM
Secretary for Directorate General of
Sea Transportation
Ministry of Transportation
Republic of Indonesia



Based on the minutes of meetings on the Detailed Planning Survey on the Project for Review of the Study for Maritime Traffic Safety System Development Plan in Republic of Indonesia (hereinafter referred to as "the Project") signed on 27 January, 2017 between Directorate General of Sea Transportation (hereinafter referred to as "DGST") and the Japan International Cooperation Agency (hereinafter referred to as "JICA"), JICA held a series of discussions with DGST and relevant organizations to develop a detailed plan of the Project.

Both parties agreed the details of the Project and the main points discussed as described in the Appendix 1 and the Appendix 2 respectively.

Both parties also agreed that DGST, the counterpart to JICA, will be responsible for the implementation of the Project in cooperation with JICA, coordinate with other relevant organizations and ensure that the self-reliant operation of the Project is sustained during and after the implementation period in order to contribute toward social and economic development of the Republic of Indonesia (hereinafter referred to as "ROI").

The Project will be implemented within the framework of the Colombo Plan Technical Cooperation Scheme between the Government of Japan (hereinafter referred to as "GOJ") and the Government of Indonesia (hereinafter referred to as "GOI").

Appendix 1: Project Description

Appendix 2: Main Points Discussed

Appendix 3: Minutes of Meetings on Detailed Planning Survey on the Project for Review of the Study for Maritime Traffic Safety System Development Plan in Republic of Indonesia (if any change from)

PROJECT DESCRIPTION

I. BACKGROUND

In 2002, DGST had conducted the Study for the Maritime Traffic Safety System Development Plan (hereinafter referred to as "the Previous Plan") which contained Master Plan up to year 2020 and Short Term Plan up to year 2007 in cooperation with JICA. GMDSS (Global Maritime Distress and Safety System), Aids to Navigation, VTS (Vessel Traffic Service) and Ship Reporting System were finally selected as the Priority Projects in the Previous Plan.

With the maximum effort of DGST, some of the proposed projects had been implemented. However, after more than 10 years since the Previous Plan, along with the rapid social and economic development of ROI, the volume of sea traffic become larger than expected and the technologies in the field of shipping are improving. In addition, based on the President Joko Widodo's Global Maritime Axis (GMA) vision, its five pillars, not only sea toll road project but also other projects relating to the vision have been implemented on a fast track.

To cope with above situation, GOI requested GOJ to conduct the Project to review and update of the Previous Plan.

II. OUTLINE OF THE PROJECT

1. Title of the Project

The Project for Review of the Study for Maritime Traffic Safety System Development Plan in the Republic of Indonesia

2. Expected Goals which will be attained after implementing the Proposed Plan
Maritime Traffic in all regions of the Republic of Indonesia is properly monitored and safety and efficiency of smooth maritime traffic is improved.

3. Outputs

Maritime Traffic Safety System Development Plan elaborated in 2002 under the assistance of JICA will be reviewed and updated.

4. Activities

- 1) Review and analysis of present condition of Maritime Traffic Safety including:
 - i) Social economy
 - ii) Natural environment
 - iii) Sea lanes
 - iv) Maritime Shipping, Traffic Routes, Shipping Accidents and Risk Management
 - v) Sea Borne Cargoes and Passengers
 - vi) Information Technology and Commercial Energy Supply
 - vii) Ports and Harbors
 - viii) Existing related plans and strategies
 - ix) Implementation status of the Previous Plan
- 2) Update the Master Plans up to the target year of 2040:
 - i) To set up socio-economic framework up to the target year

- ii) To forecast the future demands of Maritime Traffic up to the target year
 - iii) To propose the possibility / necessity of establishment of ship routing
 - iv) To make a plan of improvement and establishment of Aids to Navigation
 - v) To make a plan of improvement and establishment of VTS system
 - vi) To make a plan of improvement and establishment of Maritime Telecommunication system including coastal radio, GMDSS and IT.
 - vii) To make a plan of building, improvement and deployment of Buoy Tenders
 - viii) To make a plan of education and training program for operation and maintenance of above equipment, ship and systems
- 3) Formulation of short term plans and implementation of Feasibility Study with rough cost estimates on the priority projects up to the target year of 2025:
- i) To formulate short term plan up to the target year
 - ii) To select priority area and 5 priority projects from the short term plan
 - iii) To conduct basic design and rough cost estimation of the 5 priority projects
 - iv) To conduct economic and financial analysis of the 5 priority projects
 - v) To conduct natural and environmental survey for the 5 priority projects

5. Input

(1) Input by JICA

(a) Dispatch of Mission

- Team Leader
- Aids to Navigation
- VTS
- GMDSS
- Buoy Tender
- Education and Training
- IT
- Economic and Financial Analysis
- Natural and Environmental Consideration
- Coordinator

(b) Training

JICA will receive the Indonesian personnel concerned with the Project for technical training in Japan and the third countries as needed.

Input other than indicated above will be determined through mutual consultations between JICA and DGST during the implementation of the Project, as necessary.

(2) Input by DGST

DGST will take necessary measures to provide at its own expense:

- (a) Services of DGST's counterpart personnel and administrative personnel as referred to in II-6;
- (b) Suitable work space for maximum 6 persons with necessary equipment (including table, chair, and Internet connection) in the office of DGST;
- (c) Available data (including maps and photographs) and information related to the Project;
- (d) Means of transport and travel allowances for DGST's counterpart personnel for official travel within ROI;
- (e) Credentials or identification cards for JICA Study Team;

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6. Implementation Structure

The project organization chart is given in the Annex 1. The roles and assignments of relevant organizations are as follows:

(1) DGST

(a) Project Director

Secretary for Directorate General of DGST will be responsible for overall administration and implementation of the Project.

(b) Project Manager in DGST

Director of Navigation, DGST will be responsible for the administration of the Project component related to DGST.

(c) Deputy Project Manager

Deputy Director for Technical Planning of Navigation, DGST will be responsible for the technical aspects of the Project component related to DGST.

(2) JICA Study Team

The JICA Study Team will give necessary technical guidance, advice and recommendations to DGST on any matters pertaining to the implementation of the Project.

(3) Joint Coordinating Committee

Joint Coordinating Committee (hereinafter referred to as "JCC") will be established in order to facilitate inter-organizational coordination. JCC will be held whenever deems it necessary. A list of proposed members of JCC is shown in the Annex 2.

7. Project Site(s) and Beneficiaries

Project Site: Master Plan will be covered all regions of the Republic of Indonesia.

The 5 priority projects will be selected at the 2nd JCC

Beneficiaries: (Direct) DGST

(Indirect) Indonesian People

8. Duration

2 years from the arrival of the first expert. Tentative schedule is shown below.

Tentative Schedule

| Year | 1 st year | | | | 2 nd Year | | | |
|-------------------------|----------------------|------------|--|------------|----------------------|-----------|-----------|----------|
| Main Period of Activity | Activity 1 | | | | | | | |
| | | Activity 2 | | | | | | |
| | | | | Activity 3 | | | | |
| Report | ▲ IC/R | | | ▲ IT/R | | ▲ PR/R | ▲ DF/R | ▲ F/R |
| JCC | ▲ | | | ▲ | | | ▲ | |

IC/R: Inception Report, IT/R: Interim Report, PR/R: Progress Report,
DF/R: Draft Final Report, F/R: Final Report

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9. Reports

JICA will prepare and submit the following reports to the DGST in English and Indonesian.

- (1) 15 copies of Inception Report which explains overall project work plan at the commencement of the first work period in ROI
- (2) 15 copies of Interim Report which will include mainly the result of activities in activity 1 and rough draft of Master Plan at the time about 9 months after the commencement of the first work period in ROI
- (3) 15 copies of Progress Report which will include the draft of Master Plans, rough draft of short term plan and rough draft of the feasibility study of priority projects at the time of 15 months after the commencement of the first work period in ROI
- (4) 15 copies of Draft Final Report which will include the draft of short term plan at the time of 21 months after the commencement of the first work period in ROI
- (5) 15 copies of Final Report within three (3) month after the receipt of the comments on the Draft Final Report

10. Environmental and Social Considerations

DGST will abide by 'JICA Guidelines for Environmental and Social Considerations' in order to ensure that appropriate considerations will be made for the environmental and social impacts of the Project.

III. UNDERTAKINGS OF DGST and GOI

1. DGST and GOI will take necessary measures to:

- (1) ensure that the technologies and knowledge acquired by the ROI nationals as a result of Japanese technical cooperation contributes to the economic and social development of ROI, and that the knowledge and experience acquired by the personnel of ROI from technical training as well as the equipment provided by JICA will be utilized effectively in the implementation of the Project;
- (2) grant privileges, exemptions and benefits to members of the JICA missions referred to in II-5 above and their families, which are no less favorable than those granted to experts and members of the missions and their families of third countries or international organizations performing similar missions in ROI;
- (3) provide security-related information as well as measures to ensure the safety of members of the JICA missions; and
- (4) permit members of the JICA missions to enter, leave and sojourn in ROI for the duration of their assignments therein and exempt them from foreign registration requirements and consular fees.

Other privileges, exemptions and benefits will be provided in accordance with the Colombo Plan Technical Cooperation Scheme between the Government of Japan and the ROI.

IV. MONITORING AND EVALUATION

JICA will conduct the following evaluations and surveys to verify how the proposed plan is utilized and draw lessons. The DGST is required to provide necessary support for them.

1. Ex-post evaluation three (3) years after the project completion, in principle
2. Follow-up surveys on necessity basis

V. PROMOTION OF PUBLIC SUPPORT

For the purpose of promoting support for the Project, DGST will take appropriate measures to make the Project widely known to the people of ROI.

VI. MISCONDUCT

If JICA receives information related to suspected corrupt or fraudulent practices in the implementation of the Project, DGST and relevant organizations will provide JICA with such information as JICA may reasonably request, including information related to any concerned official of the government and/or public organizations of the ROI.

DGST and relevant organizations will not, unfairly or unfavorably treat the person and/or company which provided the information related to suspected corrupt or fraudulent practices in the implementation of the Project.

VII. MUTUAL CONSULTATION

JICA and DGST will consult each other whenever any major issues arise in the course of Project Implementation.

VIII. AMENDMENTS

The record of discussions may be amended by the minutes of meetings between JICA and DGST.

The minutes of meetings will be signed by authorized persons of each side who may be different from the signers of the record of discussions.

Annex 1 Project Organization Chart

Annex 2 Proposed Members of Joint Coordinating Committee

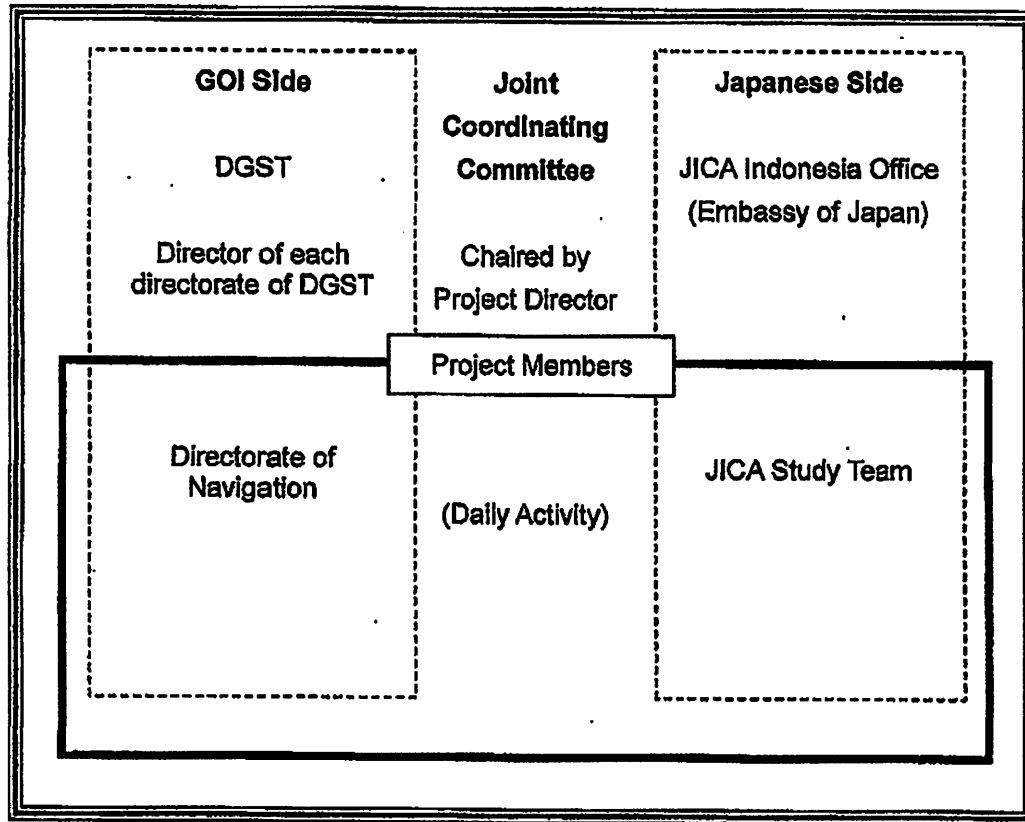
MAIN POINTS DISCUSSED

1. Both sides confirmed that the project is categorized as "Goods / Services" as stipulated in Article 42 (1) c of Government Regulation No. 10/2011.
2. In accordance with Regulation of Minister of Finance No. 191/ PMK.05 /2011, the DGST shall submit BAST (handover delivery certificate of goods/services) to the Ministry of Finance of Indonesia. In order to secure the accuracy of BAST, JICA Indonesia Office will provide the DGST with data on semester basis as follows:
 - Goods: name and price (in effective currency and Indonesian currency) per item of equipment handed over during last six months
 - Services: total expenditure (in Japanese currency and Indonesian currency) of last six months for expert, training, and mission
3. The DGST will make and sign BAST based on the data provided by JICA, and after obtaining JICA's confirmation, submit it to Ministry of Finance

Annex 1: Project Organization Chart

The Project will be implemented by the DGST in cooperation with JICA. The Project Organization Chart indicating joint implementation structure is shown below:

Joint Implementation Structure of the Project



Annex 2: Proposed Members of Joint Coordinating Committee (JCC)

The Proposed chairperson and the members of the JCC will be as follows:

- 1) Chairperson.
 - Secretary for Directorate General, DGST
- 2) Members from the GOI Side
 - Director of each directorate of DGST
 - Project Members
 - Authorities concerned to the Project
- 3) Members from the Japanese Side
 - JICA Indonesian Office
 - JICA Study Team
 - Personnel concerned to be decided by the Japanese Side
- 4) Others
 - Officials of the Embassy of Japan may attend the meeting as observers.
 - Persons who are invited by the Chairperson may attend the meeting as observers.



Japan International Cooperation Agency

Mr. Hengki Angkasawan

Director of Navigation

Directorate of Navigation, Directorate General of Sea Transportation

Dear Mr. Hengki,

Subject: Additional work for "The Project for Review of the Study for Maritime Traffic Safety System Development Plan"

We appreciate your support for "The Project for Review of the Study for Maritime Traffic Safety System Development Plan".

Since our last Joint Coordination Committee meeting held in August this year, NAVIGASI, JICA and the consultants had series of meetings and discussions about the contents and descriptions of the draft final report. Through these discussions, we noticed that each NAVIGASI, JICA and the consultants have different picture on the Masterplan and we need to clarify the activities to be covered in the Project. We have examined what we have done in the Project and what we are supposed to do, the contents of the final report, and the comments from NAVIGASI etc. which we have summarized in the attached sheets. We might be able to accept the request from NAVIGASI in some items while we cannot in others.

We kindly request you to confirm the attached sheets and send us the confirmation. We would appreciate it if you could send the comments with concrete details referring the previous Masterplan by 22th January 2021 in case that you have a different view on particular items.

Yours sincerely,

Atsushi Nakagawa

Director

Team 2, Transportation Group

Infrastructure Management Dept.

JICA

CC: Mr. Yoku Santo

Executive Director

Japan Aids to Navigation Association

Handwritten initials or mark.



KEMENTERIAN PERHUBUNGAN
DIREKTORAT JENDERAL PERHUBUNGAN LAUT

JL. MEDAN MERDEKA BARAT No. 8
JAKARTA - 10110

TELP : (021) 3813269, 3842440
FAX : (021) 3811786, 3845430
EMAIL : djpl@dephub.go.id

IG : @djplkemenhub151
FB : Ditjen Perhubungan Laut
Twitter : @djplkemenhub151

Ref. No : AL-703/1/6/0)pl/2021 Jakarta, 8 January 2021

Director

Team 2, Transportation Group Infrastructure Management Department
Japan International Cooperation Agency

ATTN : Mr. ATSUSHI NAKAGAWA

Re : "The project for Review of the Study for Maritime Traffic Safety System Development Plan"

Dear Mr. Nakagawa,

First of all, we would like to extend our sincere appreciation to JICA for the support, contribution and cooperation for establishment of The Project for Review of the Study for Maritime Traffic Safety System Development Plan (MTSDP). Further, we would like to thank you for your efforts towards the completion of the Project of MTSDP.

Based on Record of Discussions on the Project for Review of the Study for Maritime Traffic Safety System Development Plan in the Republic of Indonesia Agreed Upon Between Directorate General of Sea Transportation and Japan International Cooperation Agency (JICA) (hereinafter referred as "the ROD"), which signed on 22 March 2017, the output of the said study is to review and update the MTSDP elaborated in 2002, including to update the Master Plans on navigation related aspects up to 2040.

We do hope that the result of the said study of MTSDP could develop a comprehensive Master Plans based on the current policy and related international as well as national rules and regulations, in accordance with the said ROD. Further, we expected that the said Master Plans could be utilize as a main document to develop our very own National Strategic Plan on Navigation Aspects, which we are fully aware and understand will be drafted by the Directorate General of Sea Transportation.

We appreciate the efforts of the JICA study team to develop the content of the study, however, we still have the opinion that there are several areas that needed to be developed in order to accommodate the items which agreed on ROD. According to the discussion during the last Joint Coordination Committee meeting which held in August 2020, we draw a conclusion that document for the new master plan which was prepared by consultant appointed by JICA could not be identified as comprehensive Master Plan instead it could be describes as the list of priority projects.

"Mentaati Peraturan Pelayaran Berarti Mendukung Terciptanya Keselamatan Berlayar"

We also have the opinion that if there is an urgent necessity to complete the Projects, it would be very beneficial for both parties, if JICA could conducted a follow up study after the completion of the Project, as a new project under the cooperation between Directorate General of Sea Transportation and JICA, referring to Record of Discussion, with a new Study Team/Consultant which have the expertise to develop a Master Plan which related to the Navigation Activities.

As a way forward, due to differences between the Directorate General of Sea Transportation and JICA Study Team on the interpretation on how the Master Plans should be drafted based on the ROD, and especially based on our initial expectations and requirements when we proposed the said Projects, it would be very appreciated if we could have the consultation meetings, which will be conducted based on Paragraph VII of the ROD, in order to find solutions for the completion of the Project of MTSDP.

Thank you for your kind cooperation.

Sincerely yours,

On behalf of the Director General of Sea Transportation



Ditandatangani secara elektronik
HENGKI ANGKASAWAN, IR

Director of Navigation

Directorate General of Sea Transportation

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Terms of Reference for the additional work

Scope of the Additional Work

- There are three components in the additional work (support for arrangement of an establishment plan), namely:

Component 1 : Aids to Navigation and VTS, including "Ships Routeing"

Component 2 : Coastal Radio Station

Component 3 : Vessels for Aids to Navigation

- The goal of the additional work is for NAVIGASI to be able to draft a necessary Master Plan for the future with a view up to 2040 in the above 3 areas using the data collected and analyzed by DISNAV. Thus, the focus of the additional work is on the technical transfer of the necessary knowledge and skills in formulating draft Master Plans in the above 3 areas through advisory services from consultants. Cooperation between NAVIGASI and DISNAV for this purpose will be also strengthened.
- The consultants will guide the whole process including the setting up meetings and provide advices and supports such as policy inputs, advices in guidelines, advices in data compilation and analysis, suggestions of necessary questionnaires, formats, diagrams, charts, etc.
- Local Consultants will assist in coordination for setting up meetings, documentation, data compilation, interpretation in the meetings, and translation of documents. They will be selected by the Consultants following JICA's regulations on the procurement.
- As a deliverable of the technical transfer activities, the Master Plan as described above will be formulated in each component jointly. The consultants will compile them and submit them which will be added to the Draft Final Report (2) and final report. This Master Plan should be elaborated and completed as NAVIGASI's own Master Plan by NAVIGASI themselves after the due internal process.
- Charts and descriptions which NAVIGASI expects to be included in the Master Plan for each component will be summarized after the discussion between NAVIGASI and the

consultants. Those charts or similar charts which contains same level of information should be included for each component.

- Timeframe of the additional work is 1 year from its commencement.

Prerequisites

- Counterpart personnel need to be assigned at NAVIGASI and each DISNAV as below.
 - Chief who will be in charge of overall management and coordination of all components of additional work
 - Person in charge of Component 1
 - Person in charge of Component 2
 - Person in charge of Component 3
- Above 4 positions will be working closely with their counterpart consultant. It is also necessary to assign deputy for each position in order not to suspend the activities during his/her absence.
- In order to complete the additional work within the agreed timeframe, the consultants need to do overall process management with the close communication with the assigned counterpart team.

Outlines of the Necessary Activities

1. Preparation of necessary documents such as Policy, Guideline, and Questionnaire by NAVIGASI with assistance of the Consultants

The Consultants will provide the templates of the following three documents. NAVIGASI will formulate the following documents officially for DISNAV with the advices and supports from the consultants,:

- The Policy for fundamental approach in making the Master Plan. The Consultants will guide the points of consideration for preparing the Policy using its template.
- The Guideline for planning and installing aids to navigation in accordance with international standards and in taking into account regional characteristics.
- The format document including Questionnaires for collecting the draft Establishment Plan of DISNAV in line with the Policy and the Guideline and for necessary information in planning the plan.

NAVIGASI with the support from consultants will identify the necessary data and agree with the consultants on the means of data collection through the discussion. In order to facilitate the discussion, the Consultants will provide the draft list of the necessary data as a suggestion for discussions to be built upon. The format of the Questionnaires for collecting those necessary data will be also agreed and developed jointly.

The format of the Establishment Plan which will be used by DISNAV in Activity 4 below "Preparation of the Draft Establishment Plan" will be also agreed and developed jointly.

2. Guidance to DISNAV by NAVIGASI and Consultants

- NAVIGASI will issue a letter with the Director's signature and deliver above Policy, Guidelines, Questionnaires, including Formats to all the DISNAV.
- NAVIGASI will organize online guidance sessions with all DISNAVs using above documents.
- Consultants will provide technical advices in the discussion especially in the Q&A sessions.

3. Data collection by each DISNAV with supports from Consultants

- DISNAV, with the technical support from the Consultants, collect all necessary data using Questionnaire in line with the Policy and the Guidelines.
- Consultants will facilitate the discussion for consultation as a help desk (online-base) for the work going smoothly.
- Examples of necessary data anticipated are:

Component 1: Nautical chart around the requested aid (Nautical chart with existing aids to navigation indicated), Access map to the requested locations (route, means of access), chart of each port, maritime information, AIS, typical ship route, hearings from maritime stakeholders

Component 2: Data from CRS, Operating Log (Communication record) Operational hours, The total time (number of times) of received signals, The total time (number of times) of transmitted signals, Record of equipment trouble

Component 3: Information about buoy base and vessels, etc. which are necessary for estimating work load of each buoy tender, Operation statistics] Logbook (Navigation record) [Calculation of the workload to be done by vessels] Interval of lighthouse keeper's shift, Itinerary (distance) for the transportation, Itinerary (distance) for the replacement of buoys, Type of vessels necessary

- Above necessary data will be derived from the concept of the documents in the Activity 1 above.
 - Method for completing the format documents and Questionnaires will be discussed through the online meetings among the Consultants, NAVIGASI and each DISNAV, as needed.
- 4. Preparation of the Draft Establishment Plan by each DISNAV with the support from Consultants**
- The draft Establishment plan from DISNAV is a request to NAVIGASI regarding the DISNAV's needs in establishing Aids to Navigation System in their jurisdiction, and to improve the CRS and Vessels for AtoN.

Component 1: The Establishment Plan from DISNAV will be the basis for installing visual aids to navigation, setting up VTS stations and considering Ships Routeing, and will be included in the short and/or long term Master Plan based on the policy, budget, etc.

Component 2: The draft Establishment Plan from DISNAV related to CRS will be basis for considering the modernization of GMDSS and the operation of stations from now on, namely consolidation of stations, and will be reference information on planning the new system. The results of the consideration based on the information will be reflected in the Master Plan.

Component 3: The draft Establishment Plan from DISNAV related to Vessels for AtoN will be basis for considering the renovation including scrap and build and relocation of a vessel that suits the workload. The results of the consideration based on the information will be reflected in the Master Plan.

- DISNAV, with the support from the Consultants, compiles and analyzes collected data, select the priorities, and prepare a draft Establishment plan in accordance with the Policy and the Guideline , and submit it to NAVIGASI.
 - Local Consultants will also assist DISNAV in data compilation.
5. Formulation of the draft Master Plan by NAVIGASI and Consultants
- With the technical advices and supports from the consultants, NAVIGASI will aggregate all the Establishment Plans from DISNAVs.
 - Local Consultants will also assist NAVIGASI in aggregating the Establishment Plans from DISNAVs.
 - Through above process, NAVIGASI and the Consultants will determine the order of implementation of all Establishment Plans from DISNAV. The Consultants will provide the points to be considered in determining the order of implementation.
 - The hearings will be considered to gather public comments as necessary.
 - By reflecting public comments and order of implementation, aggregated Establishment Plans will be elaborated and formulated as a draft Master Plan by NAVIGASI and the Consultants. The consultants will compile and submit the first draft and added to the Draft Final Report (2) and final report.
 -

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業務範囲 (TOR)

Terms of Reference for the additional work

Scope of the Additional Work

- There are three components in the additional work (support for arrangement of an establishment plan), namely:

Component 1 : Aids to Navigation and VTS, including "Ships Routeing"

Component 2 : Coastal Radio Station

Component 3 : Vessels for Aids to Navigation

- The goal of the additional work is for NAVIGASI to be able to draft a necessary Master Plan for the future with a view up to 2040 in the above 3 areas using the data collected and analyzed by DISNAV. Thus, the focus of the additional work is on the technical transfer of the necessary knowledge and skills in formulating draft Master Plans in the above 3 areas through advisory services from consultants. Cooperation between NAVIGASI and DISNAV for this purpose will be also strengthened.
- The consultants will guide the whole process including the setting up meetings and provide advices and supports such as policy inputs, advices in guidelines, advices in data compilation and analysis, suggestions of necessary questionnaires, formats, diagrams, charts, etc.
- Local Consultants will assist in coordination for setting up meetings, documentation, data compilation, interpretation in the meetings, and translation of documents. They will be selected by the Consultants following JICA's regulations on the procurement.
- As a deliverable of the technical transfer activities, the Master Plan as described above will be formulated in each component jointly. The consultants will compile them and submit them which will be added to the Draft Final Report (2) and final report. This Master Plan should be elaborated and completed as NAVIGASI's own Master Plan by NAVIGASI themselves after the due internal process.
- Charts and descriptions which NAVIGASI expects to be included in the Master Plan for each component will be summarized after the discussion between NAVIGASI and the

consultants. Those charts or similar charts which contains same level of information should be included for each component.

- Timeframe of the additional work is 1 year from its commencement.

Prerequisites

- Counterpart personnel need to be assigned at NAVIGASI and each DISNAV as below.
 - Chief who will be in charge of overall management and coordination of all components of additional work
 - Person in charge of Component 1
 - Person in charge of Component 2
 - Person in charge of Component 3
- Above 4 positions will be working closely with their counterpart consultant. It is also necessary to assign deputy for each position in order not to suspend the activities during his/her absence.
- In order to complete the additional work within the agreed timeframe, the consultants need to do overall process management with the close communication with the assigned counterpart team.

Outlines of the Necessary Activities

1. Preparation of necessary documents such as Policy, Guideline, and Questionnaire by NAVIGASI with assistance of the Consultants

The Consultants will provide the templates of the following three documents. NAVIGASI will formulate the following documents officially for DISNAV with the advices and supports from the consultants,:

- The Policy for fundamental approach in making the Master Plan. The Consultants will guide the points of consideration for preparing the Policy using its template.
- The Guideline for planning and installing aids to navigation in accordance with international standards and in taking into account regional characteristics.
- The format document including Questionnaires for collecting the draft Establishment Plan of DISNAV in line with the Policy and the Guideline and for necessary information in planning the plan.

NAVIGASI with the support from consultants will identify the necessary data and agree with the consultants on the means of data collection through the discussion. In order to facilitate the discussion, the Consultants will provide the draft list of the necessary data as a suggestion for discussions to be built upon. The format of the Questionnaires for collecting those necessary data will be also agreed and developed jointly.

The format of the Establishment Plan which will be used by DISNAV in Activity 4 below "Preparation of the Draft Establishment Plan" will be also agreed and developed jointly.

2. Guidance to DISNAV by NAVIGASI and Consultants

- NAVIGASI will issue a letter with the Director's signature and deliver above Policy, Guidelines, Questionnaires, including Formats to all the DISNAV.
- NAVIGASI will organize online guidance sessions with all DISNAVs using above documents.
- Consultants will provide technical advices in the discussion especially in the Q&A sessions.

3. Data collection by each DISNAV with supports from Consultants

- DISNAV, with the technical support from the Consultants, collect all necessary data using Questionnaire in line with the Policy and the Guidelines.
- Consultants will facilitate the discussion for consultation as a help desk (online-base) for the work going smoothly.
- Examples of necessary data anticipated are:

Component 1: Nautical chart around the requested aid (Nautical chart with existing aids to navigation indicated), Access map to the requested locations (route, means of access), chart of each port, maritime information, AIS, typical ship route, hearings from maritime stakeholders

Component 2: Data from CRS, Operating Log (Communication record) Operational hours, The total time (number of times) of received signals, The total time (number of times) of transmitted signals, Record of equipment trouble

Component 3: Information about buoy base and vessels, etc. which are necessary for estimating work load of each buoy tender, Operation statistics] Logbook (Navigation record) [Calculation of the workload to be done by vessels] Interval of lighthouse keeper's shift, Itinerary (distance) for the transportation, Itinerary (distance) for the replacement of buoys, Type of vessels necessary

- Above necessary data will be derived from the concept of the documents in the Activity 1 above.
 - Method for completing the format documents and Questionnaires will be discussed through the online meetings among the Consultants, NAVIGASI and each DISNAV, as needed.
- 4. Preparation of the Draft Establishment Plan by each DISNAV with the support from Consultants**
- The draft Establishment plan from DISNAV is a request to NAVIGASI regarding the DISNAV's needs in establishing Aids to Navigation System in their jurisdiction, and to improve the CRS and Vessels for AtoN.

Component 1: The Establishment Plan from DISNAV will be the basis for installing visual aids to navigation, setting up VTS stations and considering Ships Routeing, and will be included in the short and/or long term Master Plan based on the policy, budget, etc.

Component 2: The draft Establishment Plan from DISNAV related to CRS will be basis for considering the modernization of GMDSS and the operation of stations from now on, namely consolidation of stations, and will be reference information on planning the new system. The results of the consideration based on the information will be reflected in the Master Plan.

Component 3: The draft Establishment Plan from DISNAV related to Vessels for AtoN will be basis for considering the renovation including scrap and build and relocation of a vessel that suits the workload. The results of the consideration based on the information will be reflected in the Master Plan.

- DISNAV, with the support from the Consultants, compiles and analyzes collected data, select the priorities, and prepare a draft Establishment plan in accordance with the Policy and the Guideline , and submit it to NAVIGASI.
 - Local Consultants will also assist DISNAV in data compilation.
5. Formulation of the draft Master Plan by NAVIGASI and Consultants
- With the technical advices and supports from the consultants, NAVIGASI will aggregate all the Establishment Plans from DISNAVs.
 - Local Consultants will also assist NAVIGASI in aggregating the Establishment Plans from DISNAVs.
 - Through above process, NAVIGASI and the Consultants will determine the order of implementation of all Establishment Plans from DISNAV. The Consultants will provide the points to be considered in determining the order of implementation.
 - The hearings will be considered to gather public comments as necessary.
 - By reflecting public comments and order of implementation, aggregated Establishment Plans will be elaborated and formulated as a draft Master Plan by NAVIGASI and the Consultants. The consultants will compile and submit the first draft and added to the Draft Final Report (2) and final report.
 -

付録 3.3 -1

会議議事次第（第 5 回 JCC）

March 14, 2022

THE FIFTH JOINT COORDINATION COMMITTEE
FOR
THE PROJECT FOR REVIEW OF THE STUDY FOR MARITIME TRAFFIC
SAFETY SYSTEM DEVELOPMENT PLAN

1 Date : March 14, 2022 : 1100 (JST), 0900 (WIT)

2 Meeting (app) : Zoom (The invitation is issued by JANA.)

3 Attendances : As shown in Appendix 1.

4 Agenda :

- 1) Opening Remark (JICA : Mr. Nakagawa)
- 2) Introduction of a counterpart in each field
- 3) Explanation of the outline and the work-flow (JANA)
 - a Additional work
 - b Schedules
 - c Web-meeting
- 4) Question-and-Answers
- 5) Any other business
- 6) Closing Address (NAVIGASI : Mr. Indra Santosa)

5 Reference : Annex 4 (TOR for the additional activities) of MOM
dated on October 13, 2021

付録 3.3 -2

会議参加者名簿

List of the people to whom the invitation has been sent for 5th JCC

| | Name | Position | Section | Address |
|----|--------------------------|------------------------------------------------------------------|--------------------------------------------------|------------------------------------------------------------------------------------------|
| 1 | Indra Santosa | Deputy Director of Sub Directorate Maritime Telecommunication | Sub Directorate of Maritime Telecommunication | indrasantos4@yahoo.com |
| 2 | Pamuji Premadi | Deputy Director of Sub Directorate Fleet Navigation Base | Sub Directorate of Fleet Navigation Base | pamuji_premadi@kemenhub.go.id |
| 3 | Hendri Amir | Deputy Director of Sub Directorate Ship Routing | Sub Directorate of Ship Routing | hendri_amir@kemenhub.go.id |
| 4 | Zainal Abidin | Deputy Director of Sub Directorate Aids to Navigation | Sub Directorate of Aids to Navigation | zainal.clark66@gmail.com |
| 5 | Eddy Bakhry | Deputy Director of Sub Directorate Navigation Technical Planning | Sub Directorate of Navigation Technical Planning | eddy.luthfi@gmail.com |
| 6 | Nanditya Darma Wardhana | Head of Operations Section | Sub Directorate of Maritime Telecommunication | nanditya_darma@dephub.go.id |
| 7 | Mochammad Arianto Wibowo | Head of Equipment Section | Sub Directorate of Maritime Telecommunication | muhammad.ariant@gmail.com |
| 8 | Henricus Irwanto Olinger | Head of Management Section | Sub Directorate of Navigation Technical Planning | hendricusirwantoolinger@gmail.com |
| 9 | Tatang Heryana | Head of Operations Section | Sub Directorate of Aids to Navigation | t_heryan@yahoo.com |
| 10 | Faiq Kurniawan | Head of Operations Section | Sub Directorate of Fleet Navigation Base | faiqtheb35t@gmail.com |
| 11 | M. Rizki alamsyah | Head of Fleet Building Section | Sub Directorate of Fleet Navigation Base | muhammad_rizki@dephub.go.id |
| 12 | Ellenlies | Head of Equipment Section | Sub Directorate of Aids to Navigation | ellen.lies@yahoo.co.id |
| 13 | Jerry Indritanto Baka | Directorate General of Sea Transportation | Sub Directorate of Aids to Navigation | safetynav2018@gmail.com |
| 14 | Lalu Rano A | Directorate General of Sea Transportation | Sub Directorate of Aids to Navigation | ranoagiansyah@gmail.com |
| 15 | Nurma Kumala Sari | Directorate General of Sea Transportation | Sub Directorate of Aids to Navigation | nurma_karima@dephub.go.id |
| 16 | Yorry Marfyansa | Directorate General of Sea Transportation | Sub Directorate of Aids to Navigation | ymarfyansa@gmail.com |
| 17 | Caroline Veronica | Directorate General of Sea Transportation | Sub Directorate of Maritime Telecommunication | carolinetobing@gmail.com |
| 18 | Rizki Cahyadi | Directorate General of Sea Transportation | Sub Directorate of Maritime Telecommunication | rizki_cahyadi@dephub.go.id |
| 19 | Daniel Pramono | Directorate General of Sea Transportation | Sub Directorate of Maritime Telecommunication | daniel_supramono@kemenhub.go.id |
| 20 | Fajar S. Nugroho | Directorate General of Sea Transportation | Sub Directorate of Navigation Technical Planning | fajarnugroz@gmail.com |
| 21 | Edo Bimawardana | Directorate General of Sea Transportation | Sub Directorate of Ship Routing | edo_bimawardana@dephub.go.id |
| 22 | Dian Ayub Setiawan | Directorate General of Sea Transportation | Sub Directorate of Ship Routing | deansetia@yahoo.com |

| | | | | | |
|----|--|--------------------------|-------------------------------------------|------------------------------------------------------------------------------|------------------------------------------------------------------------------|
| 23 | | Agus Prabowo Dany Utomo | Directorate General of Sea Transportation | Sub Directorate of Ship Routing | a.prabowo50@gmail.com |
| 24 | | Fransisco D'moon W | Directorate General of Sea Transportation | Sub Directorate of Navigation Technical Planning | sisco.dw@gmail.com |
| 25 | | Fathan Muta'ali | Directorate General of Sea Transportation | Sub Directorate of Maritime Telecommunication | <u>fathan.mutaali@gmail.com</u> |
| 26 | | Arthur L. Nendisa | Directorate General of Sea Transportation | Sub Directorate of Maritime Telecommunication | <u>arthurnendisa@rocketmail.com</u> |
| 27 | | Taslimin | Directorate General of Sea Transportation | Sub Directorate of Maritime Telecommunication | <u>taslimnav@gmail.com</u> |
| 28 | | Hendra Wahyudi | Directorate General of Sea Transportation | Sub Directorate of Navigation Technical Planning | ndawahyudi88@gmail.com |
| 29 | | Jhonson Sitinjak | Directorate General of Sea Transportation | Sub Directorate of Fleet Navigation Base | <u>jhonson.tinjak45@caaip.net</u> |
| 30 | | Wahyu Indar Joko | Directorate General of Sea Transportation | Sub Directorate of Fleet Navigation Base | wahyuditnav@gmail.com |
| 31 | | Ronald Martua Napitupulu | Directorate General of Sea Transportation | Sub Directorate of Fleet Navigation Base | <u>ronald martua@dephub.go.id</u> |
| 32 | | Bekti Widanarko | Directorate General of Sea Transportation | Sub Directorate of Navigation Technical Planning | danardonk@gmail.com |
| 33 | | Prayitno | Directorate General of Sea Transportation | Sub Directorate of Navigation Technical Planning | pprayitno373@gmail.com |
| | | | | | |
| 1 | | Atsushi NAKAGAWA | Director | Team2 Transportation Group, Infrastructure Management Dept., JICA | <u>Nakagawa.Atsushi@jica.go.jp</u> |
| 2 | | Toshitaka ISHIMA | Senior Advisor for Maritime Safety | Team2 Transportation Group, Infrastructure Management Dept., JICA | <u>Ishima.Toshitaka@jica.go.jp</u> |
| 3 | | Koji TSUCHIYA | Senior Advisor for Maritime Safety | Team2 Transportation Group, Infrastructure Management Dept., JICA | <u>Tsuchiya.Koji@jica.go.jp</u> |
| 4 | | Hiroyuki FUKUSHIMA | Deputy Assistant Director | Team2 Transportation Group, Infrastructure Management Dept., JICA | <u>Fukushima.Hiroyuki@jica.go.jp</u> |
| 5 | | Shigeo HONZU | Senior Representative | JICA Indonesia | <u>Honzu.Shigeo@jica.go.jp</u> |
| 6 | | Naoya KUBOSHIMA | Project Formulation Advisor | JICA Indonesia | <u>Kuboshima.Naoya2@jica.go.jp</u> |
| 7 | | Winia Yogawati | Senior Program Officer | JICA Indonesia | WiniaYogawati.IN@jica.go.jp |
| 8 | | Yu Hanzawa | First Secretary | Embassy of Japan | yu.hanzawa@mofa.go.jp |
| | | | | | |
| 1 | | Takeshi KISHIDA | Director | International Affairs office, Maritime Traffic Department, Japan Coast Guard | <u>icghkokugikaihatsu-9s8t@mlit.go.jp</u> |
| 2 | | Shunsuke YUKIMATSU | Special Assistant to Director | International Affairs office, Maritime Traffic Department, Japan Coast Guard | <u>icghkokugikaihatsu-9s8t@mlit.go.jp</u> |
| | | | | | |
| 1 | | Yoku SANTO | Aids to Navigation | JANA | <u>santo@jana.or.jp</u> |
| 2 | | Goro TUKAKOSHI | Coastal Radio Station | JANA | <u>goro@jana.or.jp</u> |

| | | | | | |
|---|--|---------------------|------------------|------|-----------------------------------------------------------------------------|
| 3 | | Hajime KOGA | Vessels for AtoN | JANA | <u>koga@jana.or.jp</u> |
| 4 | | Masami NODO | Assistant | JANA | <u>noda@jana.or.jp</u> ; |
| 5 | | Dhana Mulyana | Local staff | JANA | <u>dhana.janenet@gmail.com</u> |
| 6 | | Apsari Amanda Putri | Assistant | JANA | <u>apsari@jana.or.jp</u> |

付録 3.3 -3

議事録

March 15, 2022

Minutes of 5th JCC

| | |
|-------------------|---------------------------------------------------------------------------|
| 1 Name of Meeting | 5th JCC for the Study for Maritime Traffic Safety System Development Plan |
| 2 Date | March 14, 2022 1100 ~ 1215 (JST) |
| 3 Meeting Style | Zoom Meeting |
| 4 Attendance | Appendix 1 (Invitation Mailing List) |
| 5 Subject | Appendix 2 (Meeting Agenda) |
| 6 Note | |

- 1) The meeting was moderated by Mr. Fukushima, JICA and started according to the Meeting Agenda.
- 2) The opening remarks of Mr. Nakagawa, JICA were read by Mr. Fukushima.
- 3) Attendees were introduced by the representative of the participating groups.
- 4) The outline of the Additional Work was explained by Mr. Santo, Consultant with the attached paper 1.
It is emphasized that as soon as the counterparts on the NAVIGASI side are determined, and the meeting divided into each component would be started.
- 5) Mr. Nanditya, NAVIGASI stated that NAVIGASI has already established a task force for this work and the counterparts for each component have also decided as shown in the attached paper 2.
- 6) In the Q&A, there were the following statements:
 - would like to know the details of the schedule, the implementation work, the style of a Web-meeting, and so on.
 - would like to know about the survey points and what should be prepared by DISNAV.
 - would like the consultant to provide comprehensive support.
 - would like the interpreter for each meeting.
 - wonder if the work will focus on equipment.

In response to these statements, JANA answered that a small meeting for each component will be able to address and respond to them.

- 7) Since the counterpart for each component has been decided, it is understood that a small group meeting with Zoom System will be held from the next day.
- 8) As a closing address, Mr. Indra Santosa, Head of Sub Directorate of Maritime Telecommunication, made the following remarks;
Reminded that some Sub-Directorate are conducting their own study, and wished that their own study could synergize with JICA study which will be conducted by the consultant.

付録 3.3 -4

業務概要説明資料

THE *FIFTH* JOINT COORDINATION COMMITTEE

FOR

**THE PROJECT FOR REVIEW OF THE STUDY FOR
MARITIME TRAFFIC SAFETY SYSTEM
DEVELOPMENT PLAN**

March 14, 2022

Table of Contents for Today's Presentations

1 Background of Additional Work

2 Scope of Additional Work

3 Pre-requisite

4 Outline of Activities

5 Schedule

6 Meeting Style

Additional Work

for

“The Project for Review of the Study for Maritime Traffic Safety System Development Plan”

Recalling that the “**Minutes of Meetings** between JICA and DGST for amendment of the Record of Discussions on the Project for Review of the Study for Maritime Traffic Safety System Development Plan” was agreed on October 13th, 2021.

Recalling also that **Annex 4 (TOR for the additional activities)** is attached with the MoM above.

Scope of the Additional Work

- There are **three components** in the additional work (support for arrangement of an ***establishment plan***), namely :
 - ***Component 1*** : Aids to Navigation and VTS, including “Ships Routing”
 - ***Component 2*** : Coastal Radio Station
 - ***Component 3*** : Vessels for Aids to Navigation

Scope of the Additional Work

- There are three components in the additional work (support for arrangement of an establishment plan), namely:

Component 1 : Aids to Navigation and VTS, including “Ships Routeing”

Component 2 : Coastal Radio Station

Component 3 : Vessels for Aids to Navigation

- The goal of the additional work is for NAVIGASI to be able to draft a necessary Master Plan for the future with a view up to 2040 in the above 3 areas using the data collected and analyzed by DISNAV. Thus, the focus of the additional work is on the technical transfer of the necessary knowledge and skills in formulating draft Master Plans in the above 3 areas through advisory services from consultants. Cooperation between NAVIGASI and DISNAV for this purpose will be also strengthened.
- The consultants will guide the whole process including the setting up meetings and provide advices and supports such as policy inputs, advices in guidelines, advices in data compilation and analysis, suggestions of necessary questionnaires, formats, diagrams, charts, etc.

“establishment plan”

- 1. Summarized annual plan / Outline of Plan***
- 2. Area, Location for an implementation place***
- 3. Budget at a rough estimate***
- 4. Information for an implementation plan***

Pre-requisite

• Designation of Counterpart

A counterpart for each component is assigned at NAVIGASI and DISNAV.

| Name List of Counterpart | | | | | | | | Name List of | | | |
|--------------------------|------------|--------|--------------------------------------------------------|--------------------------------------------------------|------------------------------------------------------|------------------------------------------------------|----------------------------------------------------------------------|--------------|--------------|------------|--|
| | | Field | Supervisor | AtoN | CRS | Vessel | Local-staff | | Field | Supervisor | |
| | Consultant | Name | Yoku SANTO | Yoku SANTO | Goro TUKAKOSHI | Hajime KOGA | Dhana Mulyana | | Headquarters | Name | |
| | JANA | e-mail | santo@jana.or.jp | santo@jana.or.jp | goro@jana.or.jp | koga@jana.or.jp | dhana.jananet@gmail.com | | NAVIGASI | e-mail | |
| 1 | Sabang | Title | | | | | | 14 | Pontianak | Title | |
| | | Name | | | | | | | | | |
| | | e-mail | | | | | | | | | |
| 2 | Belawan | Title | | | | | | 15 | Banjarmasin | Title | |
| | | Name | | | | | | | | | |
| | | e-mail | | | | | | | | | |

Chief

1, 2, 3

NAVIGASI

Chief

1, 2, 3

DISNAV

Chief, 1

2

3

Consultant

Chief : Supervisor

1 : AtoN

2 : CRS

3 : AtoN Vessel

Excerpt from **Annex 4 (TOR for the additional activities)**

Prerequisites

- Counterpart personnel need to be assigned at NAVIGASI and each DISNAV as below.
 - Chief who will be in charge of overall management and coordination of all components of additional work
 - Person in charge of Component 1
 - Person in charge of Component 2
 - Person in charge of Component 3

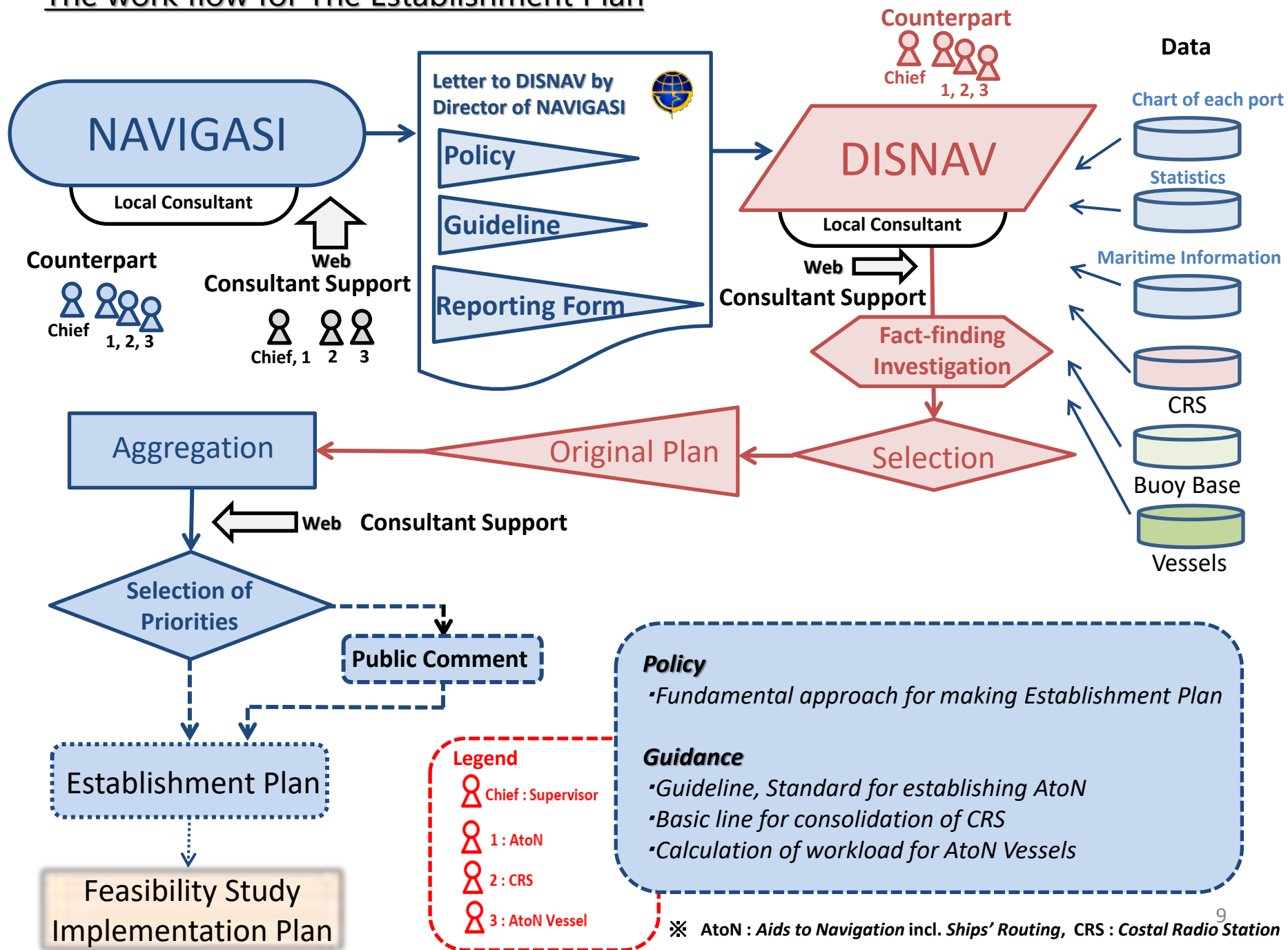
Outlines of Activities

Excerpt from Annex 4 (TOR for the additional activities)

1. Preparation of necessary documents such as Policy, Guideline, and Questionnaire by NAVIGASI with assistance of the Consultants
2. Guidance to DISNAV by NAVIGASI and Consultants
3. Data collection by each DISNAV with supports from Consultants
4. Preparation of the Draft Establishment Plan by each DISNAV with the support from Consultants
5. Formulation of the draft Master Plan by NAVIGASI and Consultants

- Preparation of documents and Reporting forms
- Collection and Summarization of data and information
- Compilation of summarized plan

The work flow for The Establishment Plan



Documents prepared by NAVIGASI

A

**Establishment
Policy**

B

Guideline

C

Reporting Format

A : Policy of Establishment Plan for providing Aids to Navigation

1 Preface

For our country, which is an archipelago nation, the oceans are a place for

transporting goods

country, and vessels

are responsible

In promoting the

the marine traffic

mariners to have

provision of marine

In order to do

and operated

according to the

2 Specific Initiatives (Reference example)

a. Eliminating unlit bays and harbors

Navigation at night is very dangerous to approach a coastal area and / or a harbor without marine lighted aids to navigation, even though with the advantage of local knowledge.

b. Transformation into a port where vessels can enter more safely

Regional ports are expected to increase in vessel traffic progressively, and further safety of their navigation must be ensured.

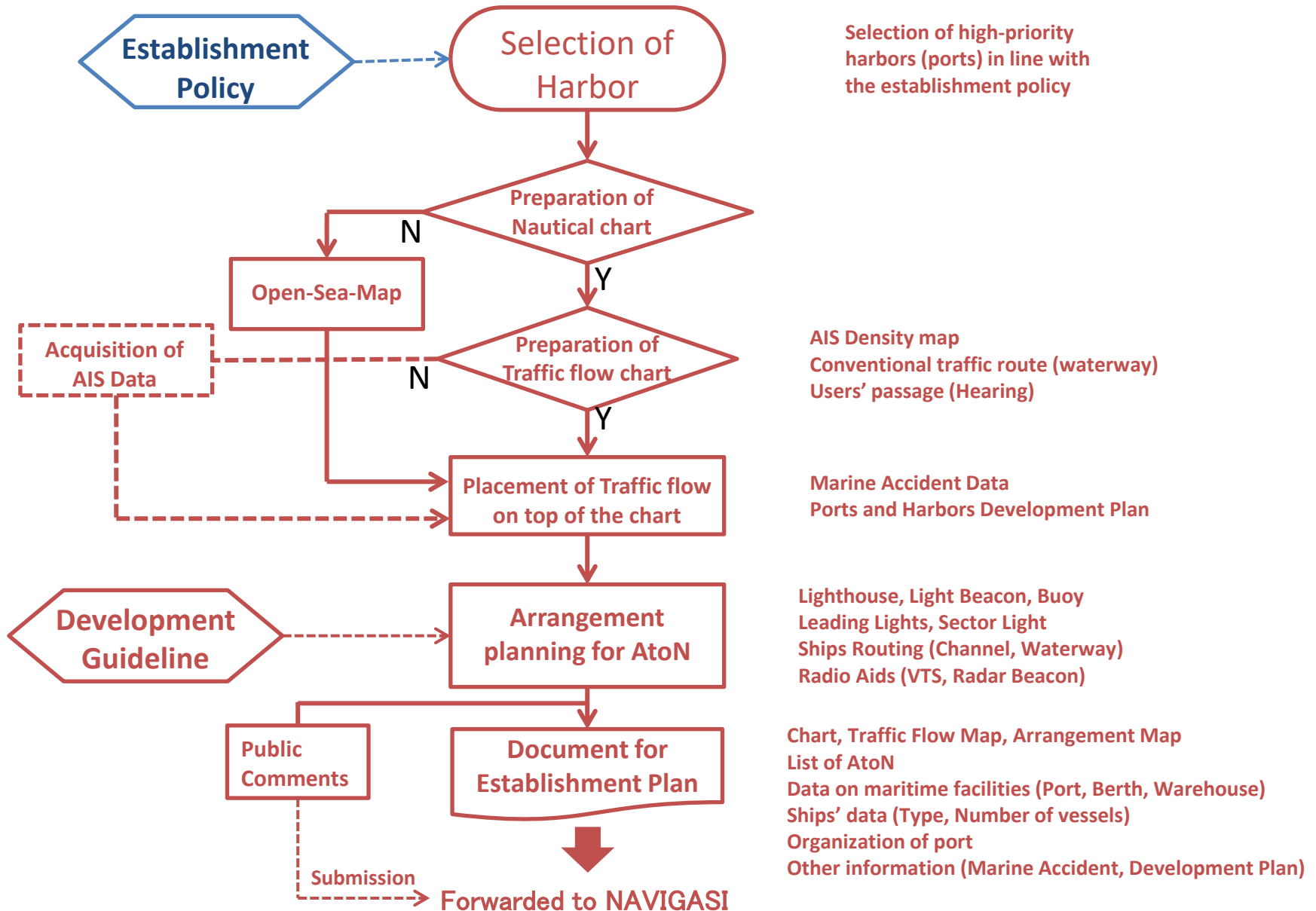
In order to mitigate navigation risks caused by increase in traffic volume, it is necessary to properly and more effectively arrange marine aids to assist navigators with determining their position, a safe course and to warn them of dangers and obstructions.

c. A goal is the port that vessels can navigate safely and efficiently at any time

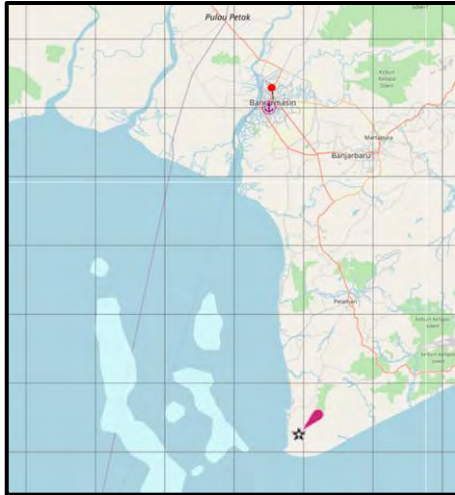
For the prosperity of the region and the nation, it goes without saying that safe and stable marine traffic is secured, but for further prosperity a port that is always open is required.

To achieve this goal, it is indispensable to establish aids to navigation suitable for the purpose and to provide appropriate and reliable maritime information.

1) Establishment of AtoN (incl. VTS System) and Ships Routing

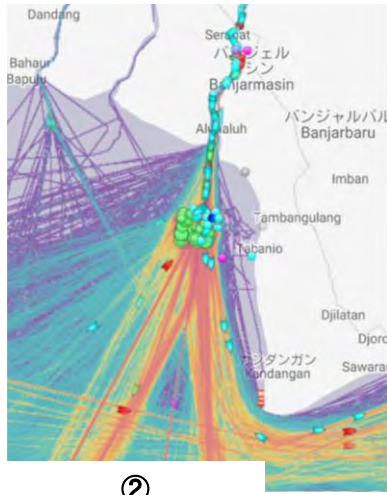


South Kalimantan



①
Preparation
of
Marine Chart

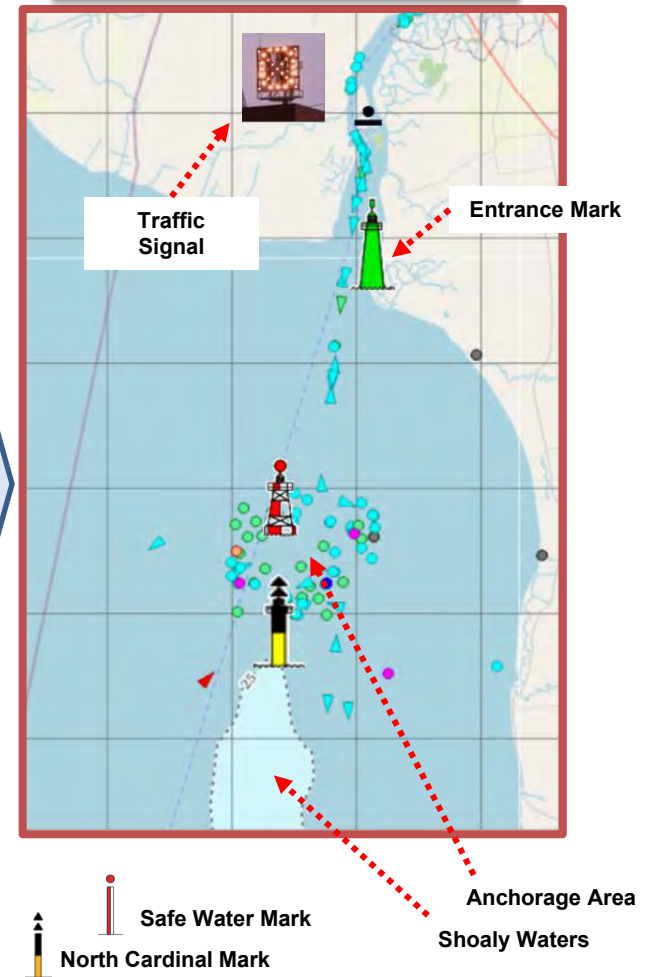
Banjarmashin



②
Preparation
of
AIS Density Map

③
Arrangement
of
Aids to Navigation

Example of Installation



Selection of Area → Gather of data

Chart → AIS Density Map → Planning

Schedule for Activities

| | | 2022 | | | | | | | | | | | 2023 | | |
|------------|---------------|------|---|--------------------------------------|--------------------|-----|---|---|---|----|----|----------------------------------|------|----|---|
| | | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 3 |
| Consultant | Domestic Work | ▲ | ▲ | ▲ | ▲ | △△△ | △ | △ | △ | △ | △ | △ | ▲ | ▲ | |
| | Oversea Work | | | Meeting | Workshop | | | | | | | Seminar | | | |
| NAVIGASI | Web-Meeting | ▲ | ▲ | ▲ | ▲ | △△△ | | | | | | | ▲ | ▲ | |
| | Preparation | | | Meeting | Workshop | | | | | △ | △ | Seminar | | | |
| DISNAV | Web-Meeting | | | | | △△△ | △ | △ | △ | △ | △ | | | | |
| | Preparation | | | | Workshop | | | | | | | Seminar | | | |
| Events | | | | Meeting with Consultant and NAVIGASI | Worship in Jakarta | | | | | | | Seminar in Jakarta (IWRAP, VDES) | DFR | FR | |

▲ : Web-metting between N and C

△ : Web-metting among N, D and C

N : NAVIGASI

D : DISNAV

C : Consultant

 Jakarta (Meeting, Workshop, Seminar)

6 Meeting Style

Meeting Style to be supposed

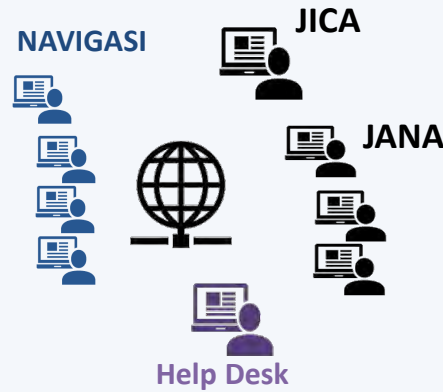
Joint Meeting

Case 1



Group Meeting

Case 2



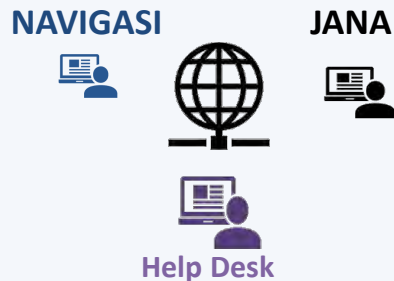
Group Meeting

Case 3



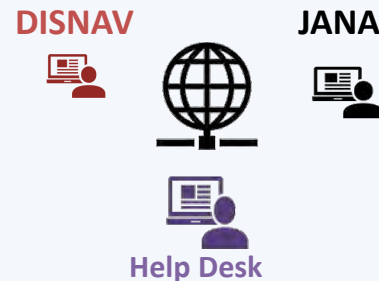
Individual Meeting

Case 4



Individual Meeting

Case 5



Schedule for Activities

| 2022 | | | | | | | | | | | 2023 | | |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|------------|------------|------------|------------|------------|----------|------------|----|------------|----------|---|---|
| 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 3 |
| <div> <div> <div>▲</div> <div>Meeting</div> </div> <div> <div>▲</div> <div>Workshop</div> </div> <div> <div>▲</div> <div>Seminar</div> </div> </div> <div> <div>NAVIGASI</div> <div>DISNAV</div> <div>NAVIGASI</div> </div> <div> <div>Preparation</div> <div>Data Collection</div> <div>Data Compilation</div> </div> | | | | | | | | | | | | | |
| ▲ Web | ▲ Web | ▲ Web | ▲ Web | △ Web | △ Web | △ Web | △ Web | ▲ Web | | ▲ Web | ▲ Web | | |
| C-2 | C-4 | C-2 C-4 | C-2 C-4 | C-1 C-3 | C-3 C-5 | C-3 C-5 | C-5 | C-3 C-4 | | C-2 C-4 | C-2 | | |

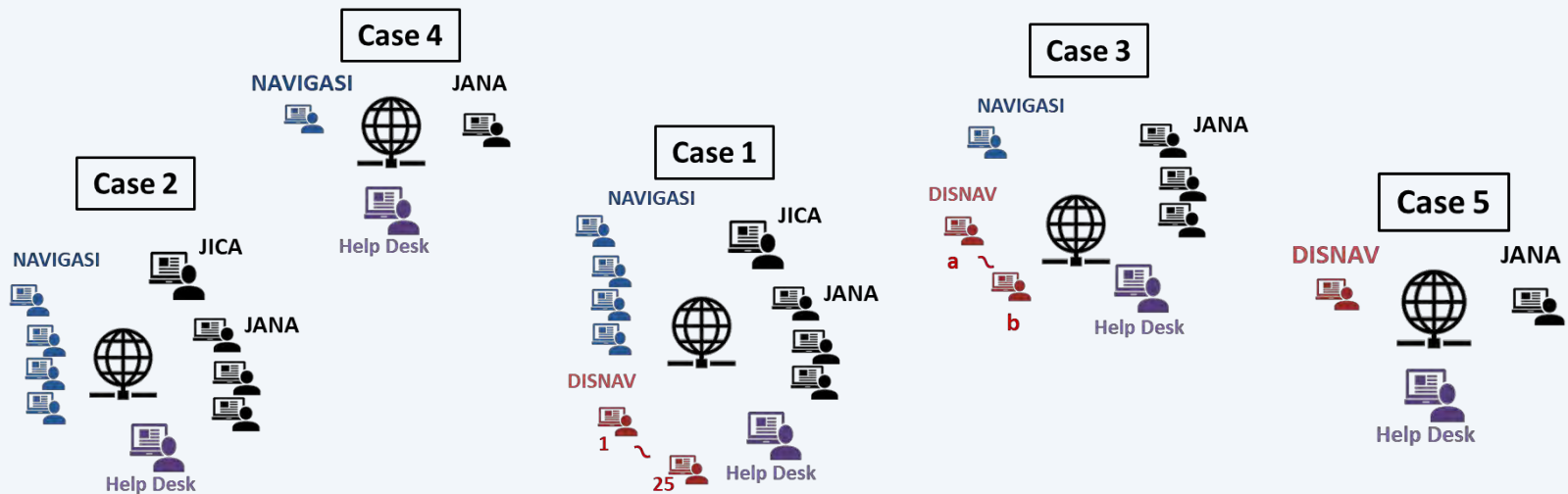
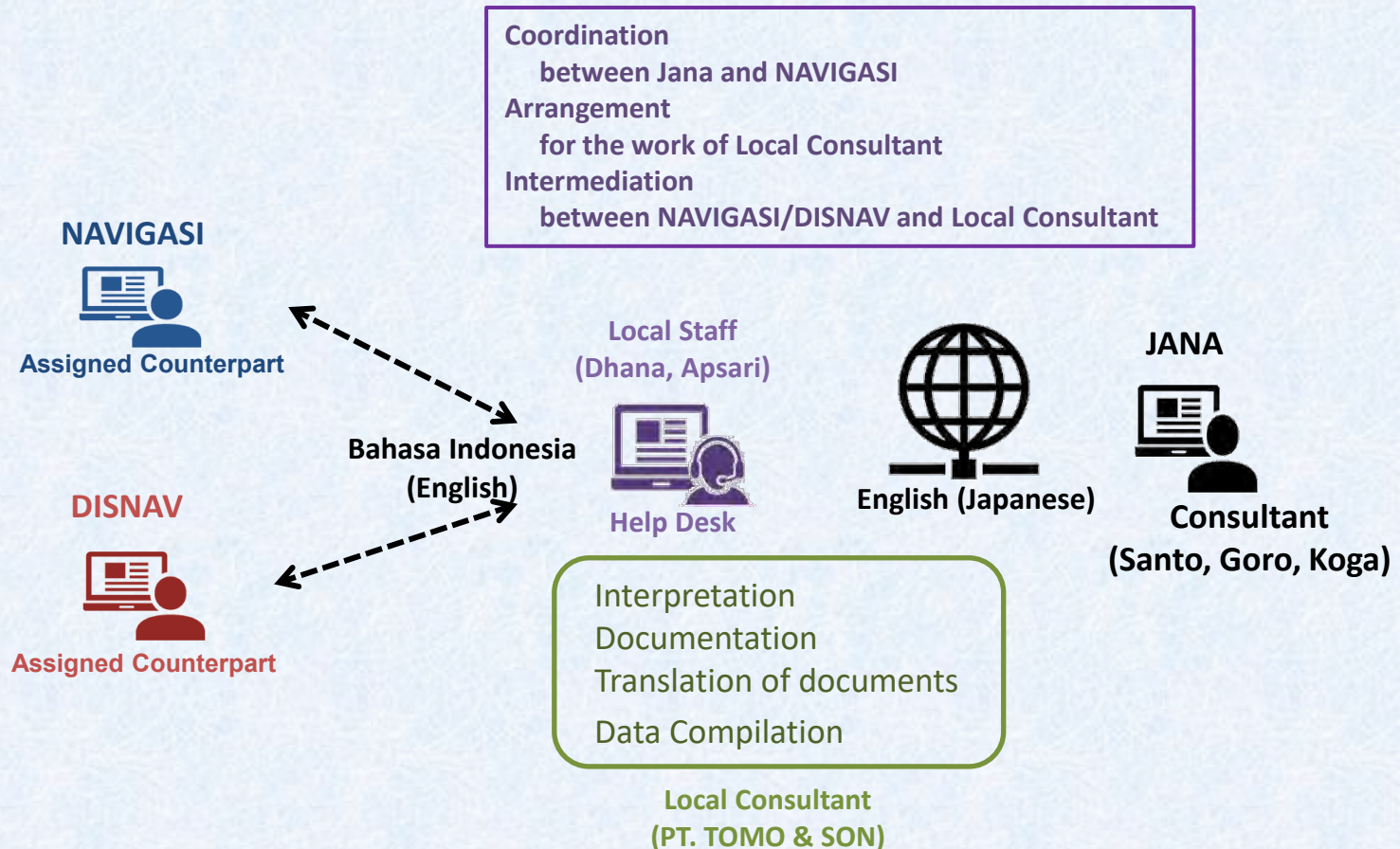


Image of Work Structure for Help Desk



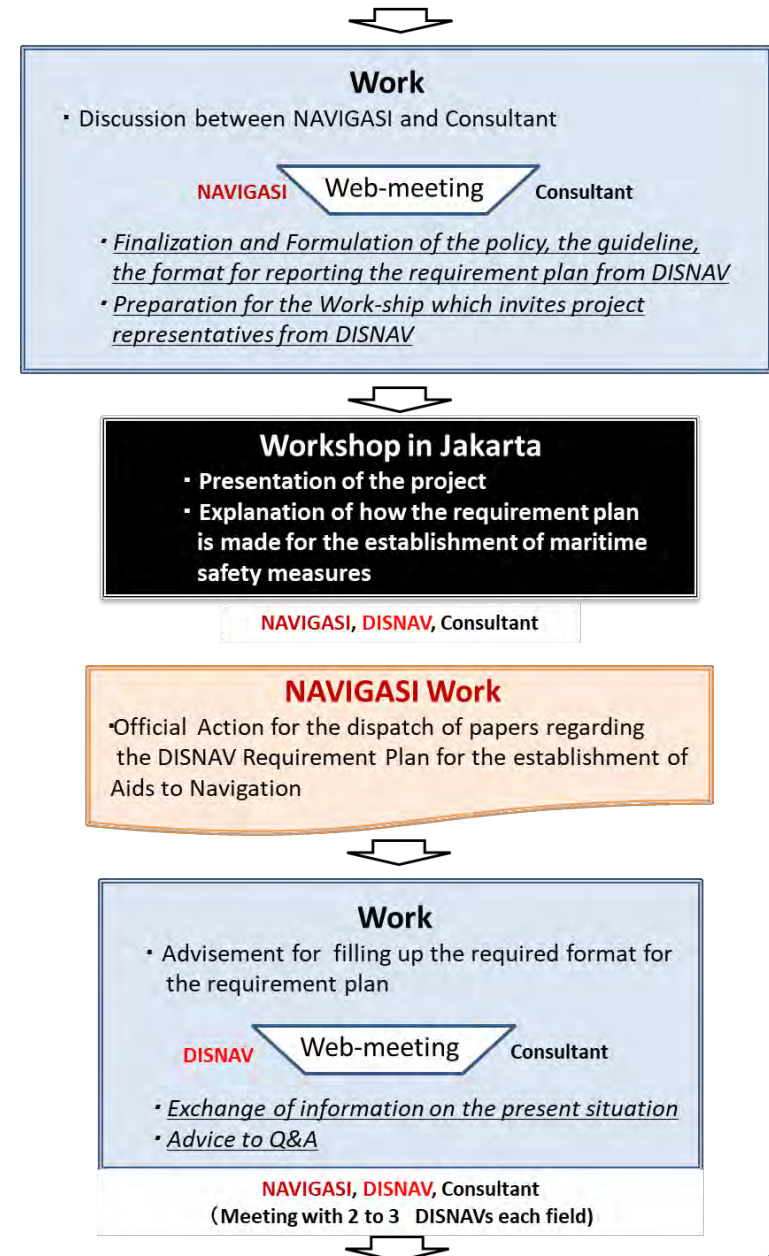
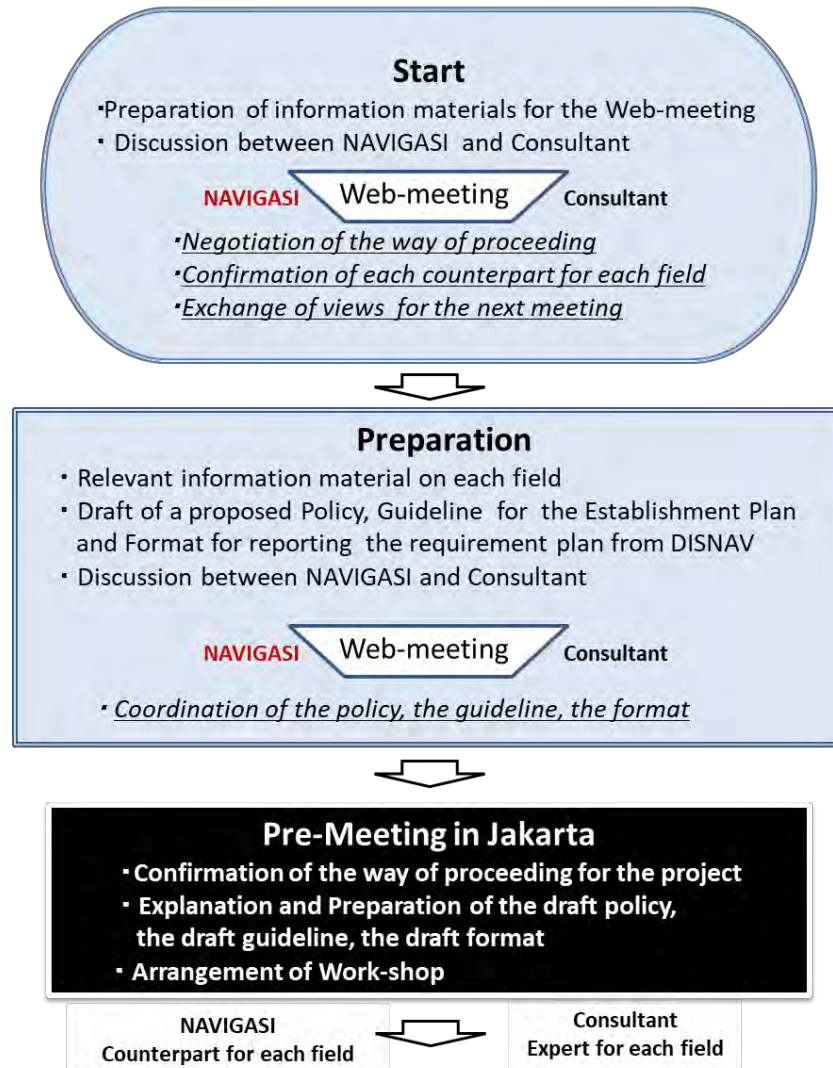
Name List of Counterpart

Name List of Counterpart

| | | | Field | Supervisor | AtoN | CRS | Vessel | Local-staff | | | | Field | Supervisor | AtoN | CRS | Vessel |
|------------|----|----------------|--------|--------------------------------------------------------|--------------------------------------------------------|------------------------------------------------------|------------------------------------------------------|----------------------------------------------------------------------|--------------|-------------|--------|--------|------------|------|-----|--------|
| Consaltant | | | Name | Yoku SANTO | Yoku SANTO | goro TUKAKOSI | Hajime KOGA | Dhana Mulyana | Headquarters | | | Name | | | | |
| JANA | | | e-mail | santo@jana.or.id | santo@jana.or.id | goro@jana.or.id | koga@jana.or.id | dhana.jananet@gmail.com | NAVIGASI | | | e-mail | | | | |
| DISNAV | 1 | Sabang | Title | | | | | | 14 | Pontianak | Title | | | | | |
| | | | Name | | | | | | | | Name | | | | | |
| | | | e-mail | | | | | | | | e-mail | | | | | |
| | 2 | Belawan | Title | | | | | | 15 | Banjarmasin | Title | | | | | |
| | | | Name | | | | | | | | Name | | | | | |
| | | | e-mail | | | | | | | | e-mail | | | | | |
| | 3 | Sibolga | Title | | | | | | 16 | Samarinda | Title | | | | | |
| | | | Name | | | | | | | | Name | | | | | |
| | | | e-mail | | | | | | | | e-mail | | | | | |
| | 4 | Dumai | Title | | | | | | 17 | Tarakan | Title | | | | | |
| | | | Name | | | | | | | | Name | | | | | |
| | | | e-mail | | | | | | | | e-mail | | | | | |
| | 5 | Tanjung Pinang | Title | | | | | | 18 | Makassar | Title | | | | | |
| | | | Name | | | | | | | | Name | | | | | |
| | | | e-mail | | | | | | | | e-mail | | | | | |
| | 6 | Teluk Bayur | Title | | | | | | 19 | Kendar | Title | | | | | |
| | | | Name | | | | | | | | Name | | | | | |
| | | | e-mail | | | | | | | | e-mail | | | | | |
| | 7 | Palembang | Title | | | | | | 20 | Bitung | Title | | | | | |
| | | | Name | | | | | | | | Name | | | | | |
| | | | e-mail | | | | | | | | e-mail | | | | | |
| | 8 | Tanjung Priok | Title | | | | | | 21 | Ambon | Title | | | | | |
| | | | Name | | | | | | | | Name | | | | | |
| | | | e-mail | | | | | | | | e-mail | | | | | |
| | 9 | Semarang | Title | | | | | | 22 | Tual | Title | | | | | |
| | | | Name | | | | | | | | Name | | | | | |
| | | | e-mail | | | | | | | | e-mail | | | | | |
| | 10 | Cilacap | Title | | | | | | 23 | Sorong | Title | | | | | |
| | | | Name | | | | | | | | Name | | | | | |
| | | | e-mail | | | | | | | | e-mail | | | | | |
| | 11 | Surabaya | Title | | | | | | 24 | Jayapura | Title | | | | | |
| | | | Name | | | | | | | | Name | | | | | |
| | | | e-mail | | | | | | | | e-mail | | | | | |
| | 12 | Benoa | Title | | | | | | 25 | Merauke | Title | | | | | |
| | | | Name | | | | | | | | Name | | | | | |
| | | | e-mail | | | | | | | | e-mail | | | | | |
| | 13 | Kupang | Title | | | | | | | | | | | | | |
| | | | Name | | | | | | | | | | | | | |
| | | | e-mail | | | | | | | | | | | | | |

17

Flowchart
of
How to proceed with the additional support project
on
the Establishment Plan of Aids to Navigation



DISNAV Work

- Arrangement of necessary information and data
- Preparation of filling out the questionnaire
- Summarizing of the request from the related parties
- Preparation of the draft for DISNAV Establishing Plan



Work

- Advisement for arranging the requirement plan

DISNAV

Web-meeting

Consultant

- Exchange of information on the DISNAV draft plan
- Advice to Q&A

NAVIGASI, DISNAV, Consultant
(Meeting with 2 to 3 DISNAVs each field)



DISNAV Work

- Finalization of filling in the required format
- Dispatch of the documents and relevant information on the Establishment Plan to NAVIGASI



NAVIGASI Work

- Study of the DISNAV plan regarding the establishment requirement
- Sorting-out and Compilation of the DISNAV request
- Preparation of Establishment Plan for each field



Work

- Discussion between NAVIGASI and Consultant

NAVIGASI

Web-meeting

Consultant

- Exchange of information on the final Establishment Plan
- Advice to the finalization processing
- Preparation of Seminar



Seminar in Jakarta

- Presentation of the Establishment Plan
- Seminar on IWRAP
- Seminar on VDES

NAVIGASI, DISNAV, Consultant

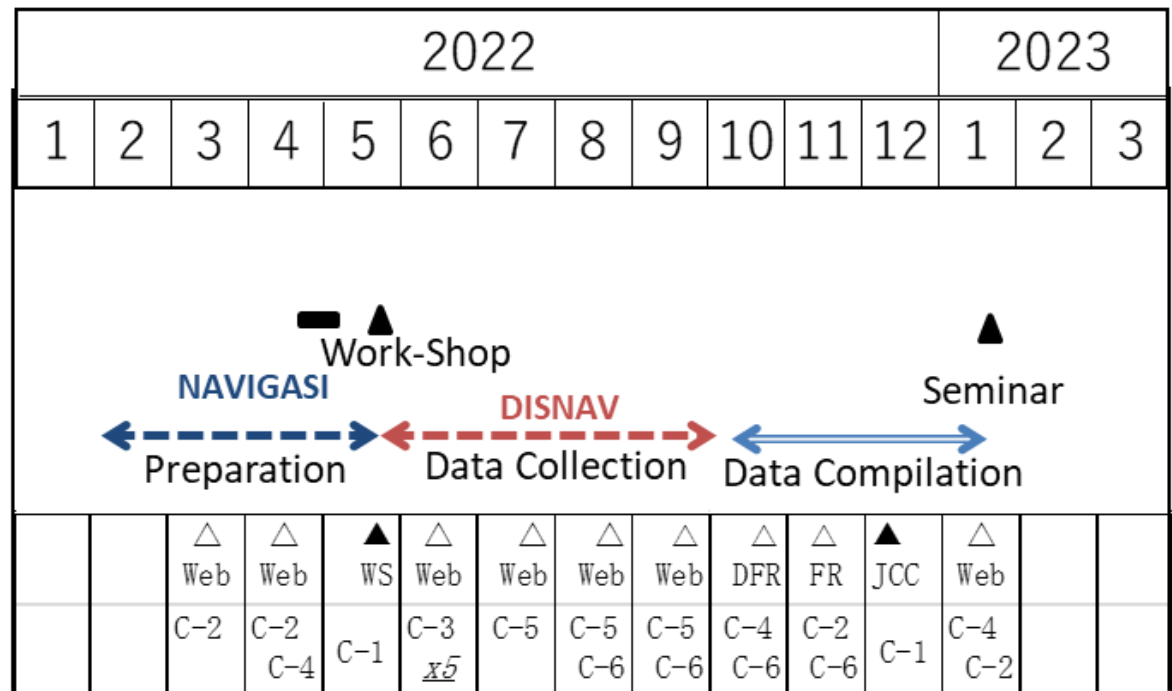
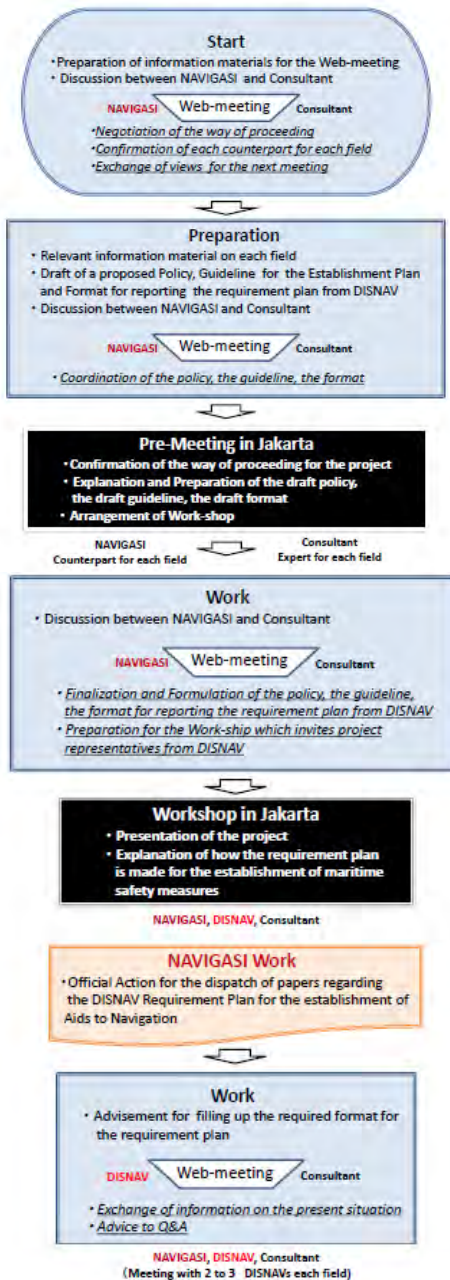


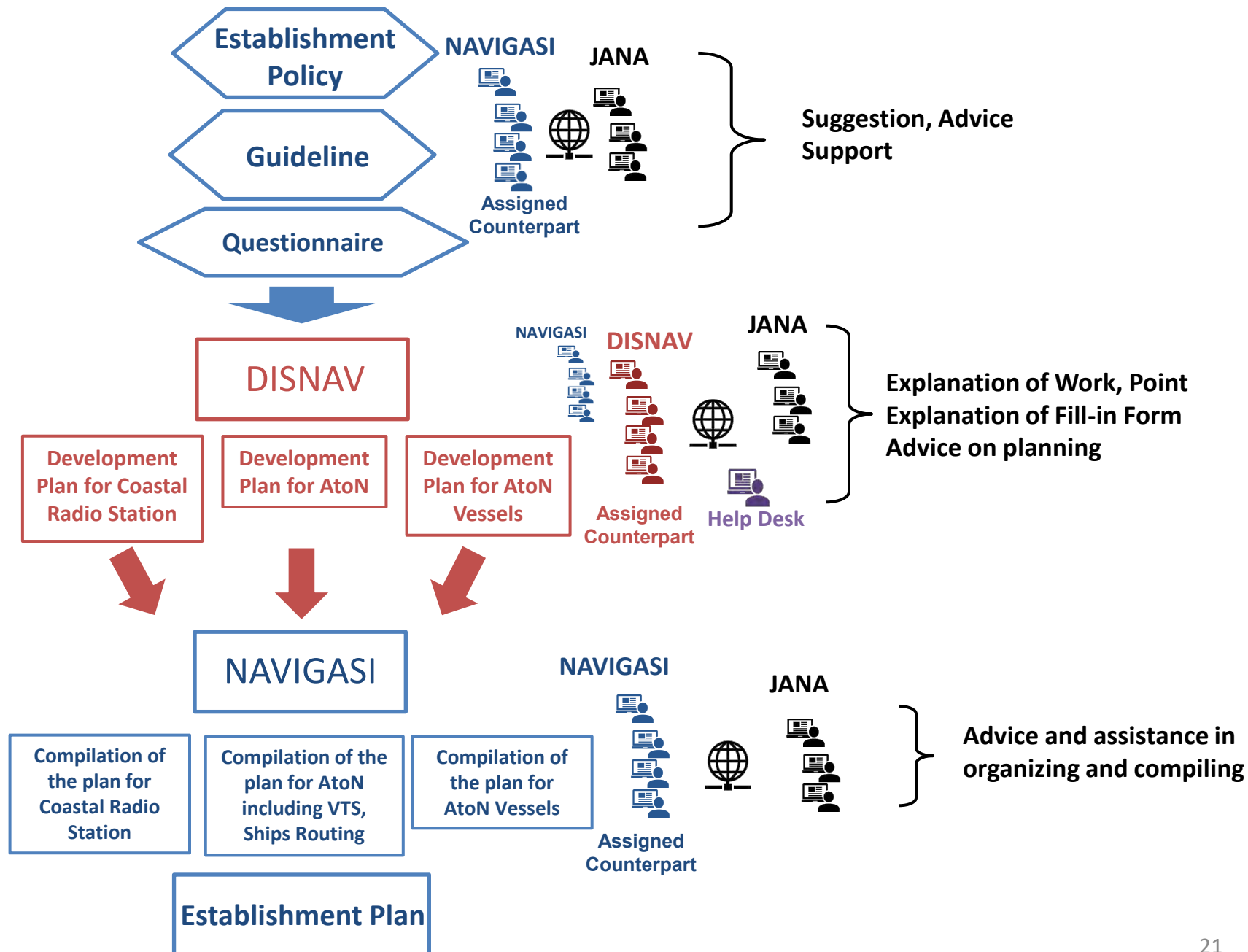
Consultant

- Preparation of Final Report for the Project


Web-meeting








Counterpart (Consultant)

 **Component 1** (Aids to Navigation and VTS, including “Ships Routing)
Yoku SANTO (JANA)

 **Component 2** (Coastal Radio Station)
Goro TSUKAKOSHI (JANA)

 **Component 3** (Vessels for Aids to Navigation)
Hajime KOGA (JANA)

Local Staff

 **Mr. Dhana Mulyana**

 **Ms. Apsari Putri**

Local Consultant

PT. TOMO & SON

Local Consultant

Scope of Work for Local Consultant

- Coordination for setting up a meeting (web-meeting) with NAVIGASI/DISNAV
- Assistance to DISNAV in understanding the points (meaning) of the survey
- Preparation for a copy of reference papers (Questionnaire)
- Tabulation of the questionnaire
- Translation of reference papers into Indonesian/English
- Interpreter at the meeting (Indonesian – English : Japanese)

Category of Work

- Aids to Navigation (AtoN)
- Coastal Radio Station
- Vessels for AtoN

Term of Works

- March 14, 2022 to February 13, 2023

付録 3.3 -5

タスクホース (NAVIGASI)



Indonesia G20 Presidency
**Recover Together
Recover Stronger**

KEMENTERIAN PERHUBUNGAN REPUBLIK INDONESIA
DIREKTORAT JENDERAL PERHUBUNGAN LAUT
DIREKTORAT KENAVIGASIAN



THE 5th JOINT COORDINATION COMMITTEE MEETING (JCC)

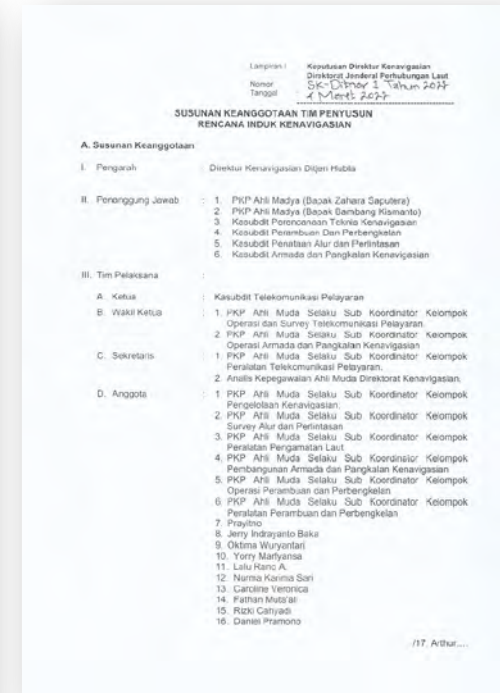
THE STUDY FOR MARITIME TRAFFIC SAFETY SYSTEM DEVELOPMENT PLAN

JAKARTA, , MARCH 14 2022



FEEDBACK

1. Directorate of Navigation will support the implementation of the agreed scope of additional work;
2. JANA and the local consultant are expected to draft more in depth/detail work programme;
3. There are needs to conduct regular meeting (Monthly/weekly/as necessary) between Ditnav, JANA, Disnav, and local consultant to ensure that the work could be conducted comprehensively;
4. Directorate of Navigation already establish a task force for each components which requested by JICA / JANA.
5. Coordination and communication would be the key for the successful implementation of the work.
6. Dream big → To provide an excellent/worldclass navigation services based on the international regulations.



LOs for the 3 Components

1. Component 1 (Aids to Navigation, Vessel Traffic Services and Ship Routeing) ;

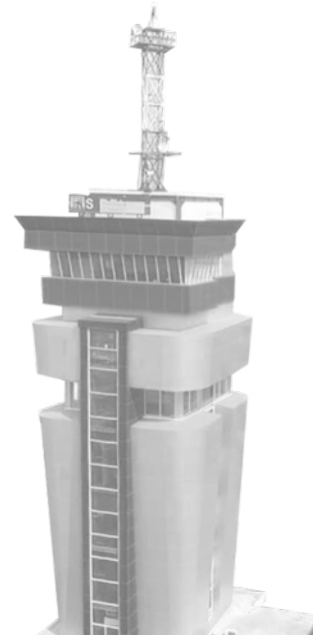
- Sub Division on Aids to Navigation
 - Jerry Indrayanto Baka (coordinator)
 - Lalu Rano A
 - Nurma Karima Sari
 - Yorry Marfyansa
- Sub Division on Vessel Traffic Services (VTS)
 - Caroline Veronica (coordinator)
 - Rizki Cahyadi
 - Daniel Pramono
 - Fajar S. Nugroho
- Sub Division on Ship Routeing
 - Edo Bimawardana (coordinator)
 - Dian Ayub Setiawan
 - Agus Prabowo Dany Utomo
 - Fransisco D'moon W

2. Component 2 (Coastal Radio Station) ;

- Fathan Muta'ali (coordinator)
- Arthur Nendisa
- Taslimin
- Hendra Wahyudi

3. Component 3 (vessel for aids to navigation) ;

- Wahyu Indar Joko (coordinator)
- Jhonson Sitanjak
- Ronald Martua Napitupulu
- Bkti Widanarko



TERIMA KASIH





وَسَلَامٌ عَلَيْكُمْ وَرَحْمَةُ اللَّهِ وَبَرَكَاتُهُ



Direktorat Kenavigasian
Direktorat Jenderal Perhubungan Laut
Kementerian Perhubungan

Subdirektorat Telekomunikasi Pelayaran Direktorat Kenavigasian

Gedung Karya Lantai 21
Kementerian Perhubungan
Jl. Medan Merdeka Barat no. 8
Jakarta Pusat 10110

 <https://i-motion.dephub.go.id/>
 <http://hubla.dephub.go.id:82/e-licensing>
 telkompel.ditnav@kemenhub.go.id
 [subdit.telkompel_ditnav](#)

 Telekomunikasi Pelayaran - Direktorat Kenavigasian



付録 3.6 -1

議事次第（説明会）

Meeting and Seminar
for making
the Establishment Plan
of AtoN including VTS and Ship-Routing, CRS and Navigation Vessels

1. Date and Time : Jun 16, 2022, 1000 ~
2. Place : Millennium Hotel Sirih Jakarta
3. Agenda
 - Session 1 : Meeting on the Establishment Plan (Moderator by NAVIGASI)
 - (1) Opening Address by NAVIGASI
 - (2) Main issues of the work by the consultant
 - (3) Procedure for DISNAV's collecting information by NAVIGASI
 - a. AtoN including VTS and Ship-Routing Group
 - b. CRS (Coastal Radio Stations) Group
 - c. Navigation Vessels Group
 - (4) Q and A
 - (5) Closing Address by JICA

= (Lunch Break) =

 - Session 2 : Seminar on IWRAP
 - (1) Goal of Risk Management Toolbox for Maritime traffic by the consultant
 - (2) Examples of utilization in Indonesia by NAVIGASI
 - (3) Operational demonstration of the software by the consultant
 - (4) Q and A

Lampiran Undangan *Workshop* dan Seminar
*The Establishment Plan of Aids to Navigation,
 Coastal Radio Station and Navigation Vessels*

Nomor :

Tanggal :

**RUNDOWN WORKSHOP DAN SEMINAR THE ESTABLISHMENT PLAN OF AIDS TO NAVIGATION,
 COASTAL RADIO STATION AND NAVIGATION VESSELS
 JAKARTA, 16 JUNI 2022**

| Hari/ Tanggal | Jam (Local Time) | Kegiatan | Keterangan |
|------------------------|---------------------|---------------------------------------------------------------------------|----------------------------------------------|
| Kamis, 16 Juni 2022 | Sesi I | | |
| | 08.30 – 09.00 | Registrasi Peserta | |
| | 09.00 – 09.15 | Menyanyikan Lagu Indonesia Raya | |
| | | Opening Address | Direktur Kenavigasian (Hengki Angkasawan) |
| | 09.15 – 12.00 | Main Issues of The Work | |
| | | Procedure for Distrik Navigasi Collecting Information by Navigasi : | Ditnav dan JANA |
| | | a. Aids To Navigation Group (Including VTS and Ship Routing); | |
| | | b. Coastal Radio Station Group; | |
| | | c. Navigation Vessel Group. | |
| | | Question and Answer | |
| | | Closing Address | JICA |
| | 12.00 – 13.00 | ISHOMA | |
| | Sesi II | | |
| | 13.00 – 15.00 | Seminar on IWRAP | Ditnav dan JANA |
| | | 1.Goal of Risk Management Tool Box for Maritime Traffic by Consultant; | |
| | | 2.Examples of Utilization in Indonesia by Directorat of Navigation; | |
| | | 3.Operasional Demonstration of The Software (Consultant). | |
| | | Question and Answer | |

付録 3.6 -2

議事概要（説明会）

Minutes of record

Workshop and Seminar “The Establishment Plan of Aids to Navigation (AtoN), Coastal Radio Station (CRS) and Navigation Vessel”

Date: 16th June 2022

Venue: Millennium Hotel Sirih Jakarta

Attendance List (Offline)

| | |
|----------------------------------------|------------|
| A. Mr. Director and Staff | 8 persons |
| B. DISNAV Office | 20 persons |
| 1) Belawan | |
| 2) Tg Priok | |
| 3) Samarinda | |
| 4) Makassar | |
| 5) Ambon | |
| 6) Benoa | |
| 7) Jayapura | |
| 8) Cilacap | |
| C. Sub- Directorate AtoN | 1 persons |
| D. Sub- Directorate Maritime Telecom | 9 persons |
| E. Sub- Directorate Ship Routing | 1 persons |
| F. Sub- Directorate Technical Planning | 2 persons |
| G. Planning Bureau | 2 persons |
| H. Planning Section DGST | 2 persons |
| I. JICA Indonesia Office | 2 persons |
| J. Guests (unknown) | 5 persons |
| K. JANA (Co-Host) | 9 persons |
| L. Tomo and Son (Local consultant) | 5 persons |
| Total | 66 persons |

M. Online (Zoom) attendant approx 50 (including duplicate of offline attendant)

1. Opening remarks
Mr. Hengki Angkasawan, Director, Dit-Navigation
2. Speech by moderator
Mr. Nanditiya Wardhana, Head of Sub Directorate, Technical Planning, Dit-Navigation
3. Presentation of component 1 AtoN, VTS, Ship routing and overall
“Main Issue of Work (June 16)”
Mr. Yoku Santo, Team Leader of JANA
Refer to attached sheet
4. Presentation of component 1 (AtoN, VTS, Ship routing)
“The project for review of the study for Maritime Traffic Safety System
Development Plan”
Ms Caroline Tobing, Maritime Telecommunication, Dit-Navigation

5. Presentation of component 2 (Coastal Radio Station)
“Innovation and re-establishment of Coastal Radio Station”
Mr. Fathan Muta’ Ali, Maritime Telecommunication, Dit-Navigation
Mr. Goro Tsukakoshi, JANA
Refer to attached sheet
6. Presentation of component 3 (Navigation vessels)
“Policy for appropriate management of Navigation Vessels”
Mr. Hajime Koga, JANA (Translated in Indonesia by Ms Apsari, JANA)
Refer to attached sheet
7. Summary of comment from attendants (Translated into English by Mr. Dhana Mulyana, JANA)

- Mr. Indra Santosa
Head of Sub Directorate Maritime Telecommunication

Basically, we are making this Master Plan related to future navigation, on this occasion we are reviewing previous studies so that the expected results can be produced.

The Navigation Party itself needs to explore and review the Navigation Strategy Plan because currently there have been many changes adapted to current conditions.

The Master Plan itself is an input document in the context of compiling a more complete Navigation Master Plan.

- Mr. Nusul R
DISNAV Ambon Chief of Operational Division

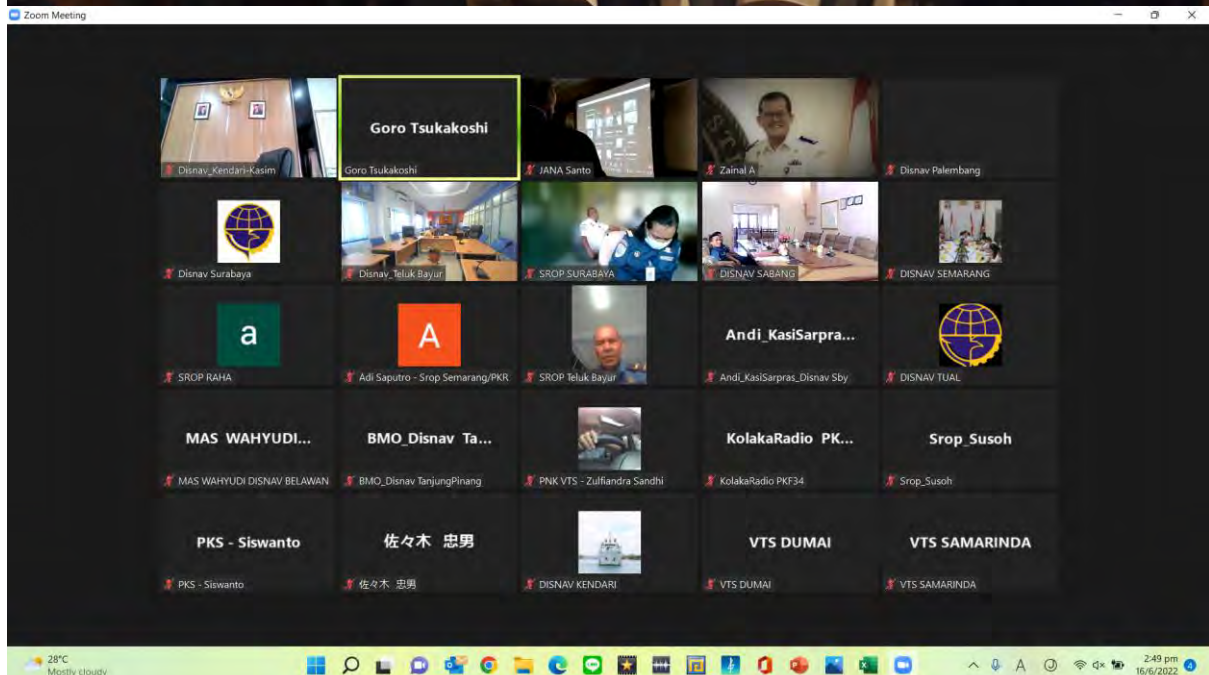
Proposed efficiency and effectiveness of the budget based on the challenges of the state's financial situation in the future.

- 1) AtoN needs to be increased considering that there are still many shipping lanes not equipped with AtoN.
- 2) In order to support the safety of shipping during the day throughout Indonesia, it is necessary to consider the Light Beacon so that it is more elevated and enlarged.
- 3) Using new technology to monitor and operate Lighthouses to address the diminishing labor shortage barriers.
- 4) The integration of CRS and VTS to facilitate monitoring of the movement of ships entering and leaving the port area and also to overcome the shortage of labor in the future.
- 5) The current condition of CRS is not functioning, considering that communication between the ship and the agent usually uses a cell phone,

but if the agent or owner requires information on the position of the ship, they contact CRS.

- 6) Meanwhile, the current VTS function is sufficient if it is needed to be improved.
 - 7) For ship efficiency currently used only Navigation Vessel and Inspection Vessel.
 - 8) Port development plans including ship routing must coordinate with the Port Operator.
- Mr. Ketut Aries
DISNAV Benoa
 - 1) The current AtoN calculation has reached 87% but the condition in Benoa itself has now reached more than 90%.
 - 2) There is a need for a study related to the installation distance of the signs which is currently 12NM in order to improve shipping safety.
 - 3) He strongly agrees with the discourse on CRS consolidation; however, it is necessary to study the data communication or internet connection in each area which is very different, in remote areas there tends to be no internet facilities and if available the connection is not good.
 - 4) Further studies are needed regarding the function of the ship.
 - 5) Regarding the questionnaire, it is necessary to study more accurately from each DISNAV and always be reviewed, including please provide time to coordinate using technology including using Zoom meetings so that the results can be effective and as expected.
 - 6) Today's Navigation Development is not only in the field of infrastructure but more on services.
 - Mr. Raymond Ivan (Online)
Head of DISNAV Tg Priok
 - 1) Understanding of characteristics in each water way and sea channels is very important for studying the purpose of maritime safety.
 - 2) IWARP is the effective tools to study for locating AtoN as well as CRS and VTS.
 - 3) Knowing demand of service is able to provide appropriate CRS, VTS planning in future as well as newly coming tools such as VDES and NAVDAT resolution.
 - 4) Introduction of IT technology enables CRS and VTS for better and effective solution.

- 5) Numbers, qualification, training content of Human Resources (HR) based on actual demand of required service is important factor for each DISNAV.
 - 6) Questionary of this project to each DISNAV is suggested to consultant having dialogue with them who is really facing actual problem.
8. IWRAP seminar
Presentation by Mr. Yoku Santo, JANA
Mr. Edo Bimawardhana, Sub Directorate Ship routing Dit-Navigation
Demonstration by Mr. Ilham Gumanti, JRCSI
 9. Closing remarks
Mr. Naoya, Kuboshima, JICA Indonesia Office



Zoom Meeting

View

SROP Teluk Bayur

Goro Tsukakoshi

JANA Santo

Disnav Palembang

Disnav Surabaya

Disnav Teluk Bayur

Zainal A

SROP SURABAYA

DISNAV SABANG

Adi Saputro - Srop Semarang/PKR

DISNAV SEMARANG

VTS OPERATOR...

VTS OPERATOR SMD

Kuboshima JICA Indonesia

Andi_Kasipras Disnav Sby

Disnav Domai

MAS WAHYUDI...

BMO Disnav Ta...

KolakaRadio PK...

佐々木 忠男

VTS DUMAI

MAS WAHYUDI DISNAV BELAWAN

BMO Disnav TanjungPinang

KolakaRadio PKF34

佐々木 忠男

VTS DUMAI

VTS SAMARINDA

Agus Imam

alur perlintasan

Budi - Disnav Jayapura

DISNAV TANJUNG PRIOK

Mute

Start Video

Security

Participants 40

Chat

Share Screen

Record

Reactions

Apps

Whiteboards

Show desktop

29°C Rain

3:33 pm 16/6/2022

Zoom Meeting

View

SROP Teluk Bayur is talking...

MAS WAHYUDI...

BMO Disnav Ta...

KolakaRadio PK...

佐々木 忠男

Disnav Dumai

MAS WAHYUDI DISNAV BELAWAN

BMO Disnav TanjungPinang

KolakaRadio PKF34

佐々木 忠男

VTS DUMAI

VTS SAMARINDA

Agus Imam

alur perlintasan

Budi - Disnav Jayapura

DISNAV TANJUNG PRIOK

SROP Palembang

Kabag TU Disnav Bitung

DISNAV TANJUNG PRIOK

JANA Adib

SROP RAHA

Ilham

iked

VTS SURABAYA

VTS PONTIANAK

VTS Surabaya (t...

PKS - Siswanto

PNK VTS - Zulfiandra Sandhi

Iksan Disnav Bel...

VTS DISNAV TE...

VTS Surabaya (teknik)

PKS - Siswanto

PNK VTS - Zulfiandra Sandhi

Iksan Disnav Belawan

VTS DISNAV TELUK BAYUR

Mute

Start Video

Security

Participants 39

Chat

Share Screen

Record

Reactions

Apps

Whiteboards

End

29°C Rain

3:33 pm 16/6/2022

| Meeting & Seminar for making the Establishment Plan of AtoN including VTS and Ship-Routing, CRS and navigation Vessels | | Sheet 2/4 | |
|------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------|--------------------------------------------------------------------------------------|-----------------------------------------------|
|  | |  | |
| Photo-1 | Opening Address by Mr. Hengki Angkasawan (Director of Navigation) | Photo-2 | Opening Ceremony |
|  | |  | |
| Photo-3 | Workshop also attended online by Disnav from another city. | Photo-4 | Explanation from Aids to Navigation Group(1) |
|  | |  | |
| Photo-5 | Explanation from Aids to Navigation Group (2) | Photo-6 | Explanation from Aids to Navigation Group (3) |

Meeting & Seminar for making the Establishment Plan of AtoN including VTS and Ship-Routing, CRS and navigation Vessels

Sheet 3/4



Photo-7

Explanation from Coastal Radio Station Group



Photo-8

Explanation from Navigational Vessel Group



Photo-9

Question and Answer 1st session(1)



Photo-10

Question and Answer 1st session(2)



Photo-11

Question and Answer 1st session(3)



Photo-12

Question and Answer 1st session(4)

Meeting & Seminar for making the Establishment Plan of AtoN including VTS and Ship-Routing, CRS and navigation Vessels

Sheet 4/4



Photo-11

Explanation about Risk Management Tool Box for Maritime Traffic



Photo-12

Operational demonstration of IWRAP Software(1)



Photo-13

Operational demonstration of IWRAP Software(2)



Photo-14

Question and Answer 2nd Session(1)



Photo-15

Question and Answer 2nd Session(2)



Photo-16

Closing Statement from JICA

ATTENDEES LIST

The Establishment Plan to AtoN, VTS, Ship Routing, SROP, and Navigation Vessel

Millenium Sirih Hotel, 16 June 2022

| No. | Name <i>Nama</i> | Position <i>Jabatan</i> | Agency & Division / Disnav <i>Institusi & Divisi / Disnav</i> | E-mail / Contact <i>E-mail / Kontak</i> | Handphone / Contact 2 |
|-----|---------------------|--------------------------------------------|----------------------------------------------------------------------|----------------------------------------------------------|------------------------------------------------------------------|
| 1 | Hengki Angkasawan | Director of Navigasi | NAVIGASI | | |
| 2 | Lisa (MC) | | NAVIGASI | | |
| 3 | Putra | | NAVIGASI | | |
| 4 | R. Verdy A P | | NAVIGASI | | 081344590189 |
| 5 | | Staff | NAVIGASI | | |
| 6 | | Staff | NAVIGASI | | |
| 7 | | Staff | NAVIGASI | | |
| 8 | | Staff | NAVIGASI | | |
| 9 | Nusul R. | Chief of Operation Division | Disnav Ambon | | 085255018800 |
| 10 | Satria Pribadi | VTS | Disnav Belawan | satprib@gmail.com | |
| 11 | Wempy | Operation | Disnav Belawan | | |
| 12 | I Made Murdana | Telkompel | Disnav Benoa | | 085338557500 |
| 13 | Ketut Aries | | Disnav Benoa | | |
| 14 | Muhlis | Staff Logistic | Disnav Bitung | | 081244008182 |
| 15 | Suyadi | Kadisnav (head of disnav) | Disnav Cilacap | | 081325157170 |
| 16 | Amin Susilo | Telkompel | Disnav Cilacap | | aminsusilos@gmail.com |
| 17 | Rindu Anita | | Disnav Jayapura | | 085254150894 |
| 18 | Kevin Mailoa | | Disnav Jayapura | | 081344249839 |
| 19 | Kaharuddin | | Disnav Makassar | | |
| 20 | Hasanuddin | | Disnav Makassar | | |
| 21 | Hasarulloh | | Disnav Makassar | | |
| 22 | Arif W | | Disnav Samarinda | | 08125335430 |
| 23 | Agus Bambang | | Disnav Samarinda | | 081348021813 |
| 24 | Poltak | Technician | Disnav Tanjung Pinang | | 081320259657 |
| 25 | Sri Ida Lumongga | Chief of Program and Evaluation Section | Disnav Tanjung Priok | | 081385551904 |

| No. | Name <i>Nama</i> | Position <i>Jabatan</i> | Agency & Division / Disnav <i>Institusi & Divisi / Disnav</i> | E-mail / Contact <i>E-mail / Kontak</i> | Handphone / Contact 2 |
|-----|---------------------|-----------------------------------------------------------|-----------------------------------------------------------------------|--------------------------------------------------------------------------------------|-----------------------|
| 26 | Suprayitno | | Disnav Tanjung Priok | | |
| 27 | Zaenal Arifin | Employee Affair | Disnav Tarakan | | |
| 28 | Jerry Indritanto B. | AtoN | NAVIGASI | safetynav2018@gmail.com | 08118000481 |
| 29 | Indra | Head of Sub-Directorate Maritime Telecommunication | NAVIGASI | | |
| 30 | M. Arianto W | Chief of Facilities section Maritime Telecommunication | NAVIGASI | | 087877588055 |
| 31 | Arifin | Maritime Telecommunication | NAVIGASI | | |
| 32 | Arthur L. nendisa | Maritime Telecommunication | NAVIGASI | arthurnendisa@rocketmail.com | |
| 33 | Daniel | Maritime Telecommunication | NAVIGASI | daniel_supramono@kemenhub.go.id | 081229941112 |
| 34 | Endang S | Maritime Telecommunication | NAVIGASI | | 082115175531 |
| 35 | Puji Handayani | Maritime Telecommunication | NAVIGASI | | 081281768275 |
| 36 | Rizki Cahyadi | Maritime Telecommunication | NAVIGASI | rizki_cahyadi@dephub.go.id | 08129288009 |
| 37 | Taslimin | Maritime Telecommunication | NAVIGASI | taslimnav@gmail.com | 087786625545 |
| 38 | Caroline | Maritime Telecommunication | NAVIGASI | carolinetobing@gmail.com | |
| 39 | Edo Bimawardhana | Ships Routing | NAVIGASI | edo_bimawardana@dephub.go.id | 081314206397 |
| 40 | Nanditya Darma W | Head of Sub-Directorate Technical Planning | NAVIGASI | | 085220006123 |
| 41 | Hendra W | Technical Planning | Directorate of Navigation Sub-Directorate of Technical Planning | | 082124568001 |
| 42 | Beno | | Directorate General of Maritime Transportation | | 088213222245 |
| 43 | Rahman | | Directorate General of Maritime Transportation | | 081219747752 |
| 44 | Didit A | | Planning Bureau Secretariat General MOT | | 081311275555 |
| 45 | Rifky W. D | | Planning Bureau Secretariat General MOT | | 081585117257 |
| 46 | Naoya Kuboshima | Project Formulation Advisor | JICA | kuboshima.naoya2@jica.go.jp | |
| 47 | Keisuke Fukuta | | JICA | fukuta.keisuke@jica.go.jp | |
| 48 | Yoku Santo | Aids to Navigation | JANA | santo@jana.or.jp | |
| 49 | Goro Tsukakoshi | Coastal Radio Station | JANA | goro@jana.or.jp | |
| 50 | Hajime Koga | Vessel for AtoN | JANA | koga@jana.or.jp | |

| No. | Name <i>Nama</i> | Position <i>Jabatan</i> | Agency & Division / Disnav <i>Institusi & Divisi / Disnav</i> | E-mail / Contact <i>E-mail / Kontak</i> | Handphone / Contact 2 |
|-----|---------------------|----------------------------|----------------------------------------------------------------------|------------------------------------------------------------------------|-----------------------|
| 51 | Dhana Mulyana | Local Staff | JANA | dhana.jananet@gmail.com | |
| 52 | Apsari Amanda Putri | Assistant | JANA | apsari@jana.or.jp | |
| 53 | Brigantono Tomo | Consultant | Tomo & Son | b.tomo@tomosurveyor.com | |
| 54 | Casudi | Consultant | Tomo & Son | | |
| 55 | Andre | Consultant | Tomo & Son | andre@tomosurveyor.com | |
| 56 | Audrey | Consultant | Tomo & Son | | |
| 57 | Doviandra | Consultant | Tomo & Son | | |
| 58 | Masami Kan | President Director | JRCSI | kan@japanradio.co.id | |
| 59 | Katsutoshi Ashida | Director | JRCSI | ashida@japanradio.co.id | |
| 60 | Ilham Gumanti | | JRCSI | ilham.g@japanradio.co.id | |
| 61 | M. Adib Visoka | | JRCSI | adib@japanradio.co.id | |
| 62 | Guest | | | | |
| 63 | Guest | | | | |
| 64 | Guest | | | | |
| 65 | Guest | | | | |
| 66 | Guest | | | | |

付録 3.6 -3

プレゼン資料（主業務）

**Meeting and Seminar
for making the Establishment Plan
of AtoN including VTS and Ship-Routing, CRS and Navigation Vessels**

Main Issues of Work

**THE PROJECT FOR REVIEW OF THE STUDY FOR MARITIME
TRAFFIC SAFETY SYSTEM DEVELOPMENT PLAN**

June 16, 2022

Table of Contents

- 1 Confirmation of Premise for Additional Work
- 2 Scope of Additional Work
- 3 Background of Additional Work
- 4 Outline of Work
- 5 Schedule

Additional Work

for

“The Project for Review of the Study for Maritime Traffic Safety System Development Plan”

Recalling that the “**Minutes of Meetings** between JICA and DGST for amendment of the Record of Discussions on the Project for Review of the Study for Maritime Traffic Safety System Development Plan” was agreed on October 13th, 2021.

Recalling also that **Annex 4 (TOR for the additional activities)** is attached with the MoM above.

Scope of the Additional Work

- There are **three components** in the additional work (support for arrangement of an ***establishment plan***), namely :
 - ***Component 1*** : Aids to Navigation and VTS, including “Ships Routing”
 - ***Component 2*** : Coastal Radio Station
 - ***Component 3*** : Vessels for Aids to Navigation

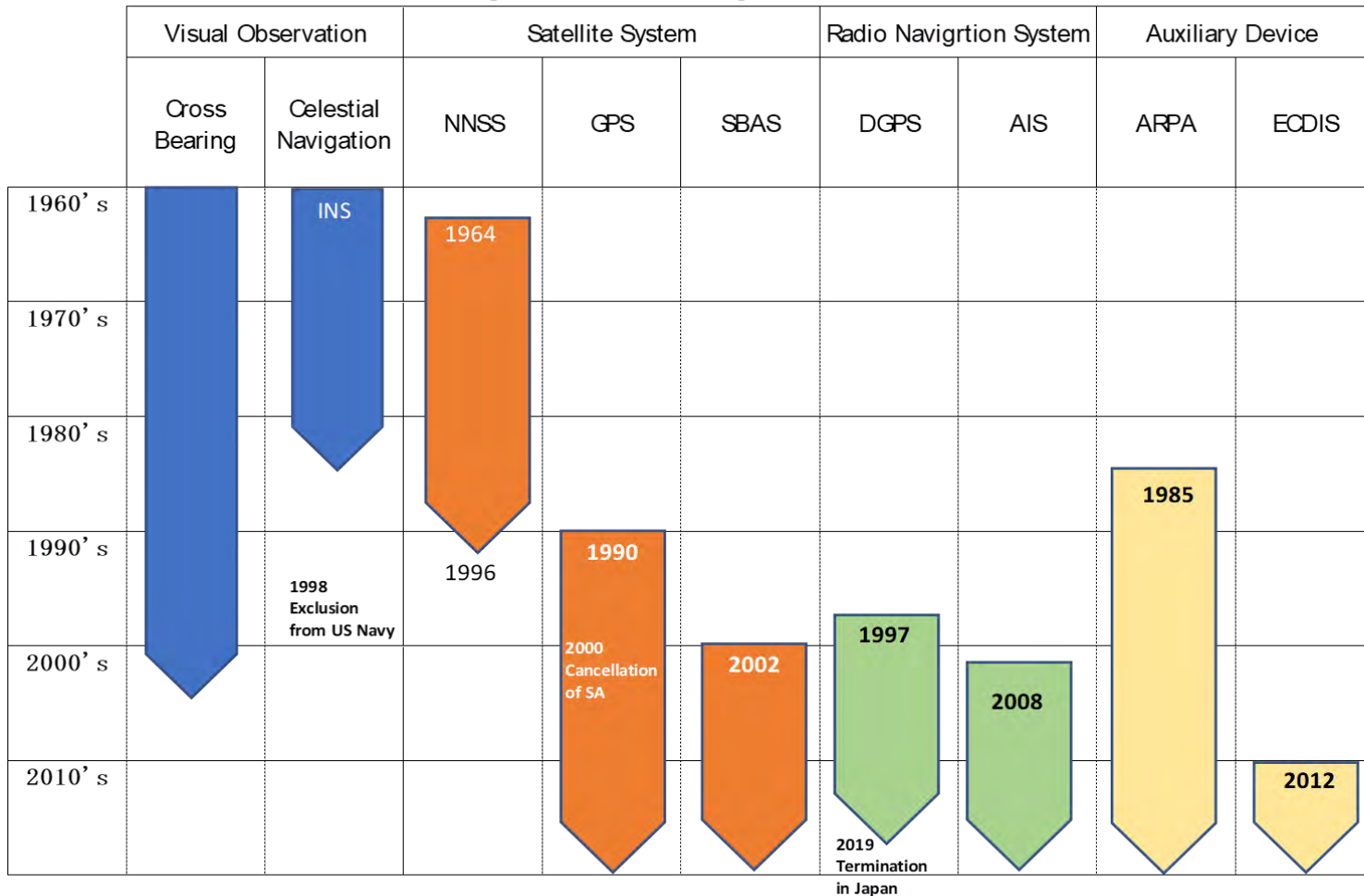
“establishment plan”

- 1. Summarized annual plan / Outline of Plan***
- 2. Area, Location for an implementation place***
- 3. Budget at a rough estimate***
- 4. Information for an implementation plan***

3 Background of Additional Work

Drastic Change in Navigation

Fixing Position of a Huge Vessel at Sea



※ Reference

Hyperbolic Radio Navigation System

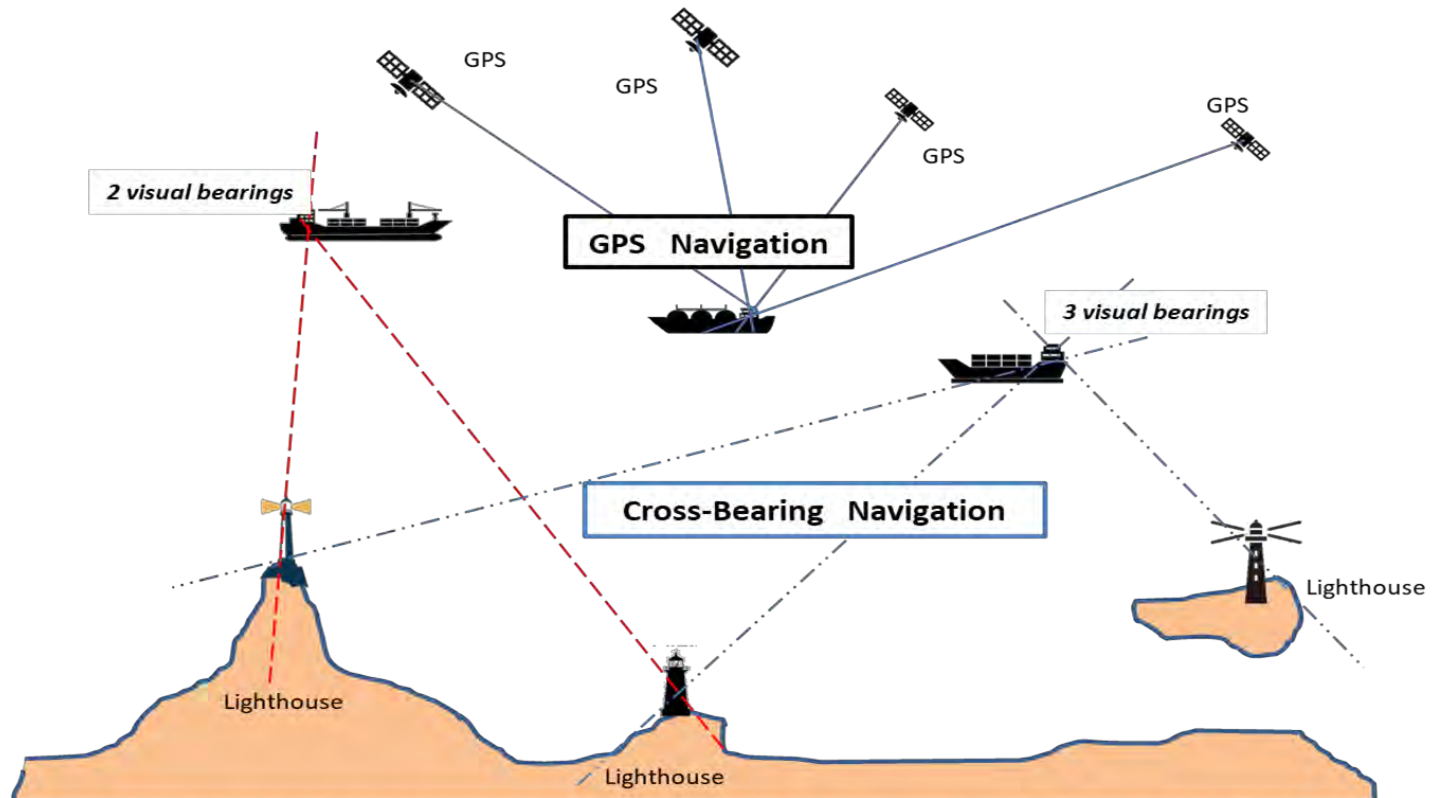
- Loran-A 1958 - 1997
- Loran-C 1959 - 2010 (1940's)
- Decca 1965 - 2001
- Omega 1975 - 1997

← Turning Point
(Appearance of GPS)

- ※ SBAS (Satellite Based Augmentation System)
- ※ DGPS (Medium-Frequency Wave)

1940's : Practical installation of Marine Radar

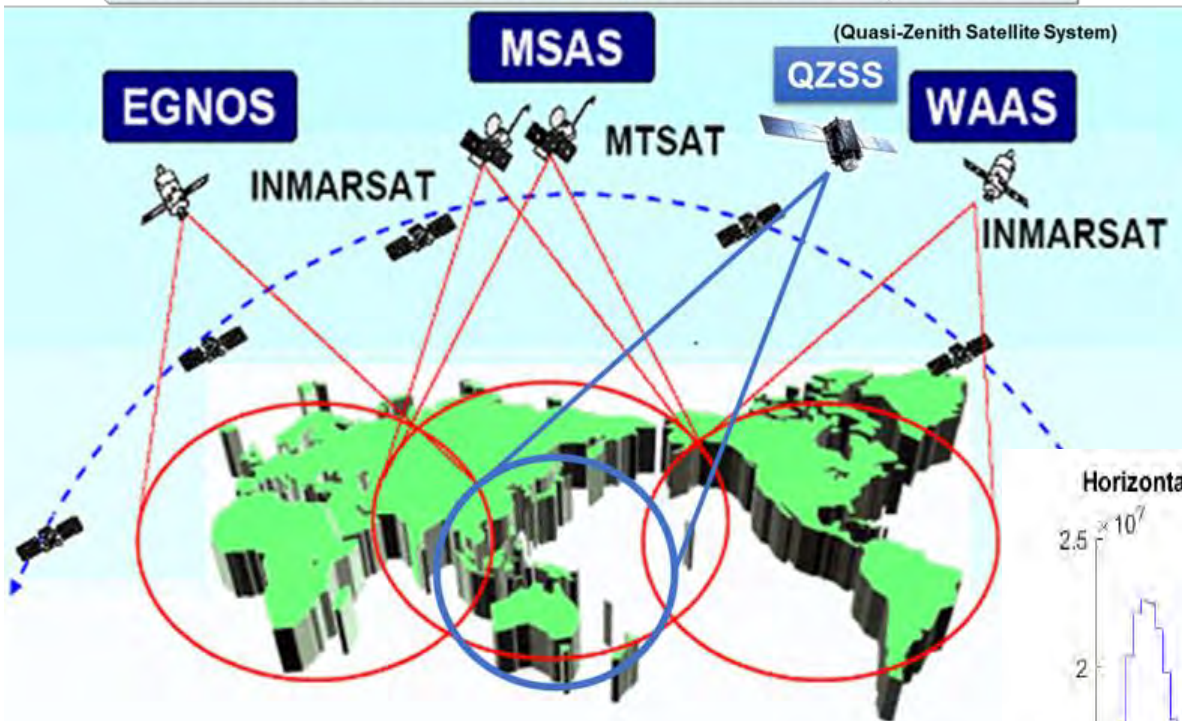
The way of Navigation has been changed by the advent of GPS.



Issues Proposed

It may not be necessary for all vessels to see the lighthouse always when navigating in coastal area like before.
Today, the “Adequacy” reached almost 90%.
It’s not just a matter of increasing the number of Lighthouse and Light-Beacon.

SBAS (Satellite-based Augmentation System)

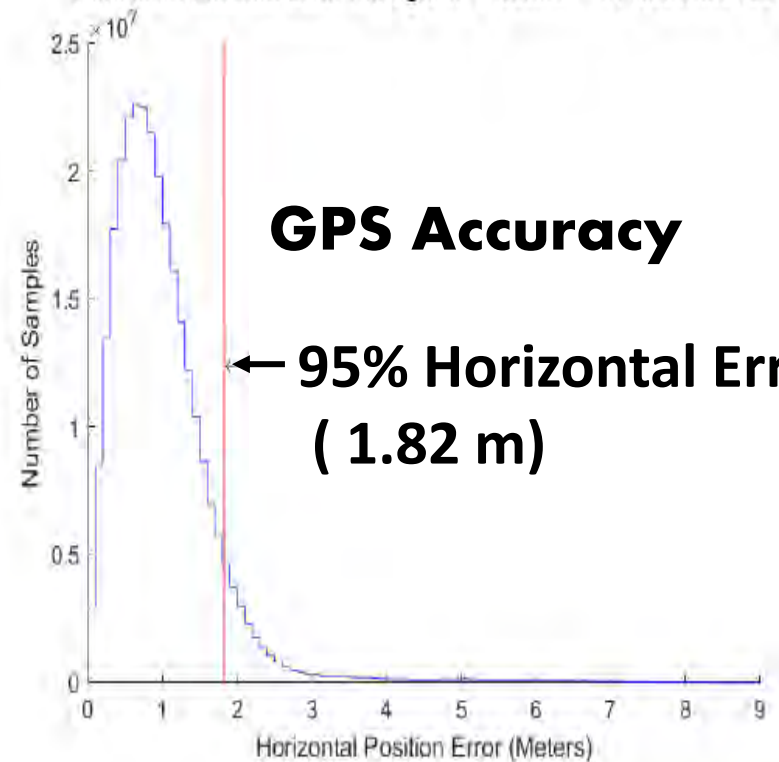


Official U.S. government information about the Global Position

GLOBAL POSITIONING SYSTEM STANDARD POSITIONING SERVICE PERFORMANCE ANALYSIS REPORT

January 2021

Horizontal Position Error Histogram: 1 October - 31 December 20



GPS Accuracy

← 95% Horizontal Error
(1.82 m)

Accuracy of fixing position with Smartphone

GPS-enabled smartphones are typically accurate to within a 4.9 m (16 ft.) radius under open sky

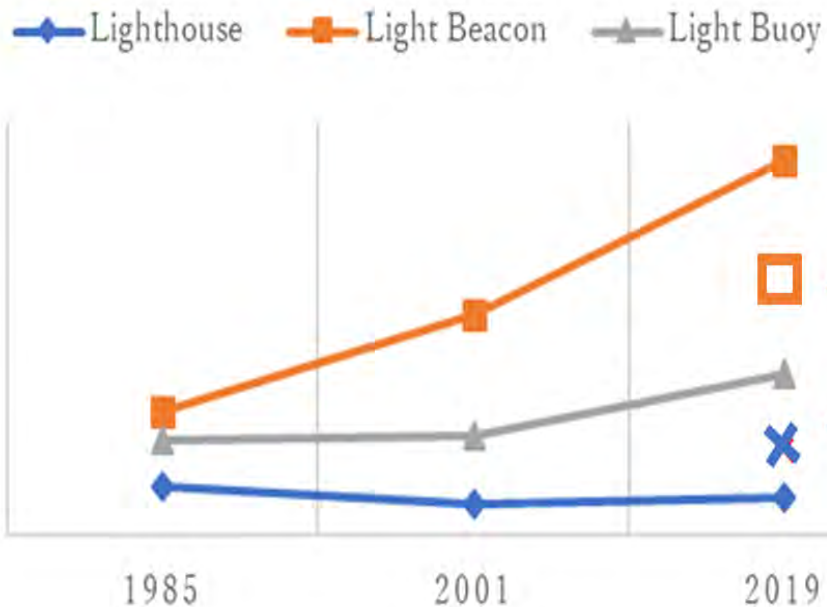
Aids to Navigation

Component 1

Aids to Navigation



Trend in the establishment for Visual Aids to Navigation



Proposed number in 2020 at the time of Previous MP

Light-Beacon : 1,490

Lighthouse : 326

| Development/Establishment Status | | 2002 | 2016 | | 2019 | |
|----------------------------------|----------|----------|----------------|----------|----------------|----------|
| | | Existing | Five-Year Plan | Existing | Five-Year Plan | Existing |
| Lighthouse | | 235 | 286 | 282 | 306 | 284 |
| Light Beacon | DGST | 1,168 | 1,756 | 1,557 | 2,281 | 1,877 |
| | Non-DGST | 437 | | 743 | | 843 |
| Total | | 1,840 | (2,042) | 2,582 | (2,587) | 3,004 |
| Adequacy (%) | | 53 % | | 74 % | | 87 % |

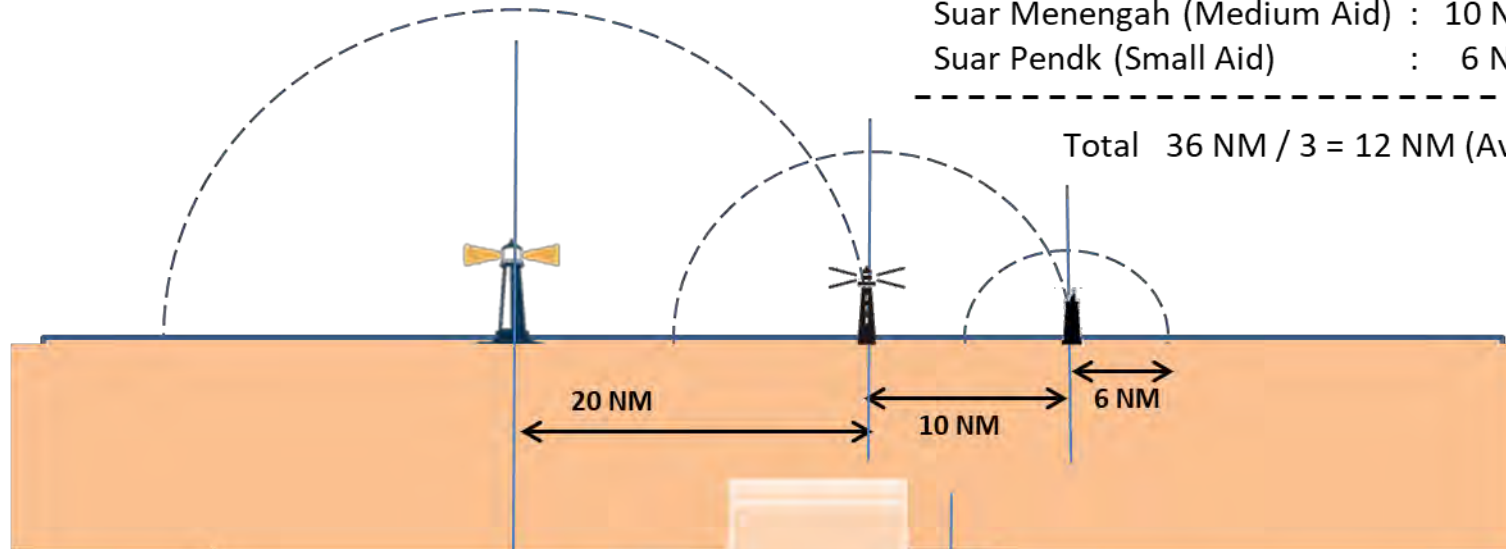
Calculated Adequacy Number of SBNP

3,469 Units / 41,628 Mile, as of 2015

Concept of Adequacy

Suar Utama (Large Aid) : 20 NM
Suar Menengah (Medium Aid) : 10 NM
Suar Pendk (Small Aid) : 6 NM

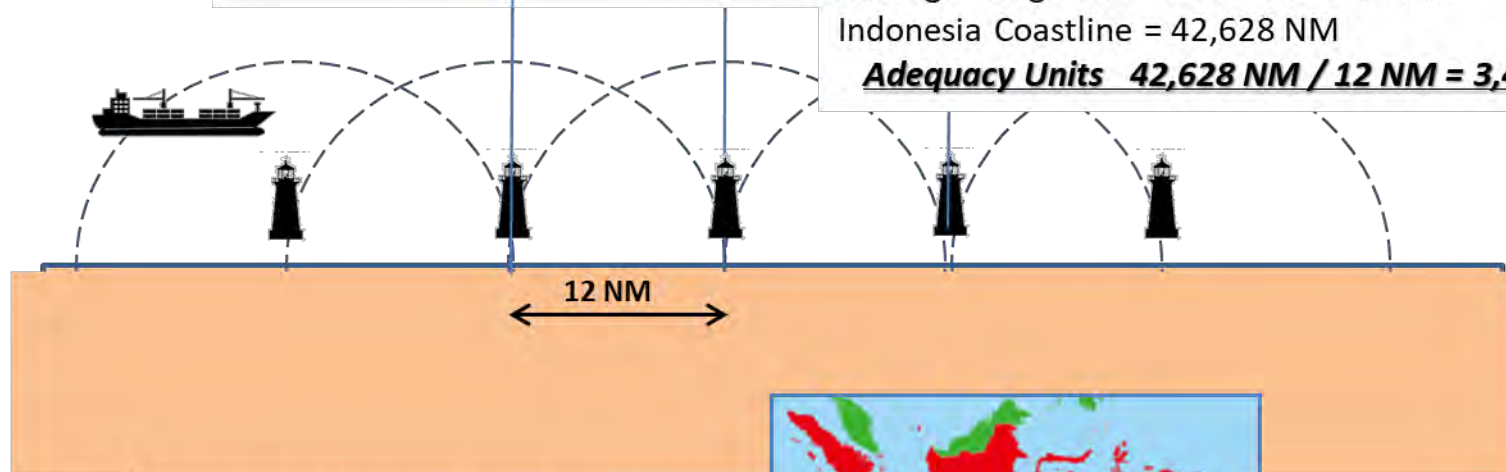
Total 36 NM / 3 = 12 NM (Average)



Average Range of Visual Aids : 12 NM

Indonesia Coastline = 42,628 NM

Adequacy Units $42,628 \text{ NM} / 12 \text{ NM} = 3,469 \text{ Units}$



Coastline of Indonesia = 42,628 NM



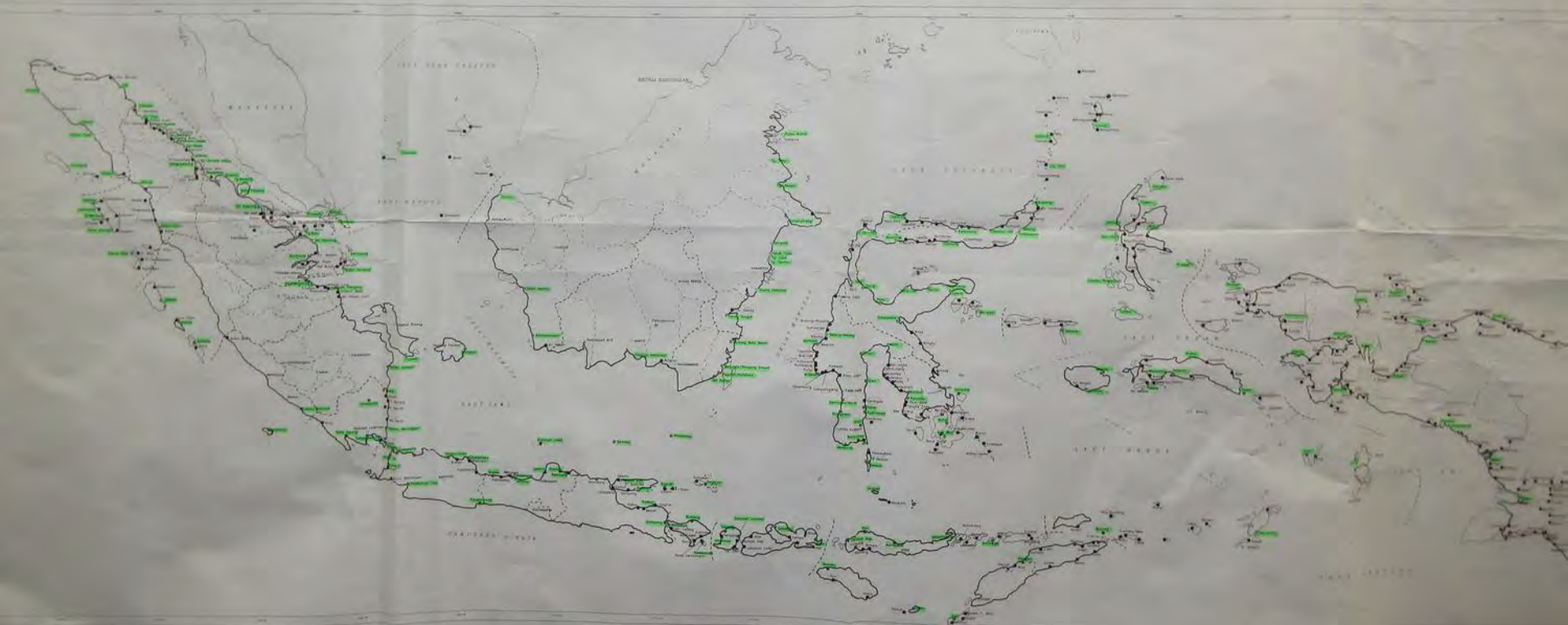
Development status of the port as of 1993

(according to the Decree of MOT No.35 of 1993)

Lokasi Pelabuhan Yang Tidak di Usahakan (Undeveloped Ports)

LOKASI PELABUHAN YANG TIDAK DIUSAHAKAN DI SELURUH INDONESIA

SESUAI KEPUTUSAN MENTERI PERHUBUNGAN
NOMOR KM.35 TAHUN 1993



The flowchart illustrates the process for planning a port or harbor. It begins with a box labeled "Existing Port/Harbor" containing a sub-process "※ 1 Hearing" with the description "Listen to Requests Understanding of Current Status". This process is influenced by "DGST" and "DISMAN Municipal". An arrow leads from the hearing process to a decision diamond labeled "Assignment of Implementation Body", which also receives input from "DGST". From the diamond, the process branches: one path leads to "Field Survey" (influenced by "DGST"), and another leads to "Advice Guidance" (influenced by "DGST" and "Plan on Design"). "Advice Guidance" leads to a dashed box labeled "AtoN Guideline Standardization Equipment", which in turn leads to "Basic Plan" (influenced by "DGST").

```

graph TD
    subgraph Existing_Port_Harbor [Existing Port/Harbor]
        H1[※ 1 Hearing  
Listen to Requests  
Understanding of Current Status]
    end
    DGST1[DGST] --> H1
    DISMAN_Municipal[DISMAN Municipal] --> H1
    H1 --> Assignment{Assignment of  
Implementation Body}
    DGST2[DGST] --> Assignment
    Assignment --> Field_Survey[Field Survey]
    DGST3[DGST] --> Field_Survey
    Assignment --> Advice[Advice Guidance]
    DGST4[DGST] --> Advice
    Plan_Design[Plan on Design] --> Advice
    Advice --> AtoN[AtoN Guideline  
Standardization Equipment]
    AtoN --> Basic_Plan[Basic Plan]
    DGST5[DGST] --> Basic_Plan

```

Category 1
Vital

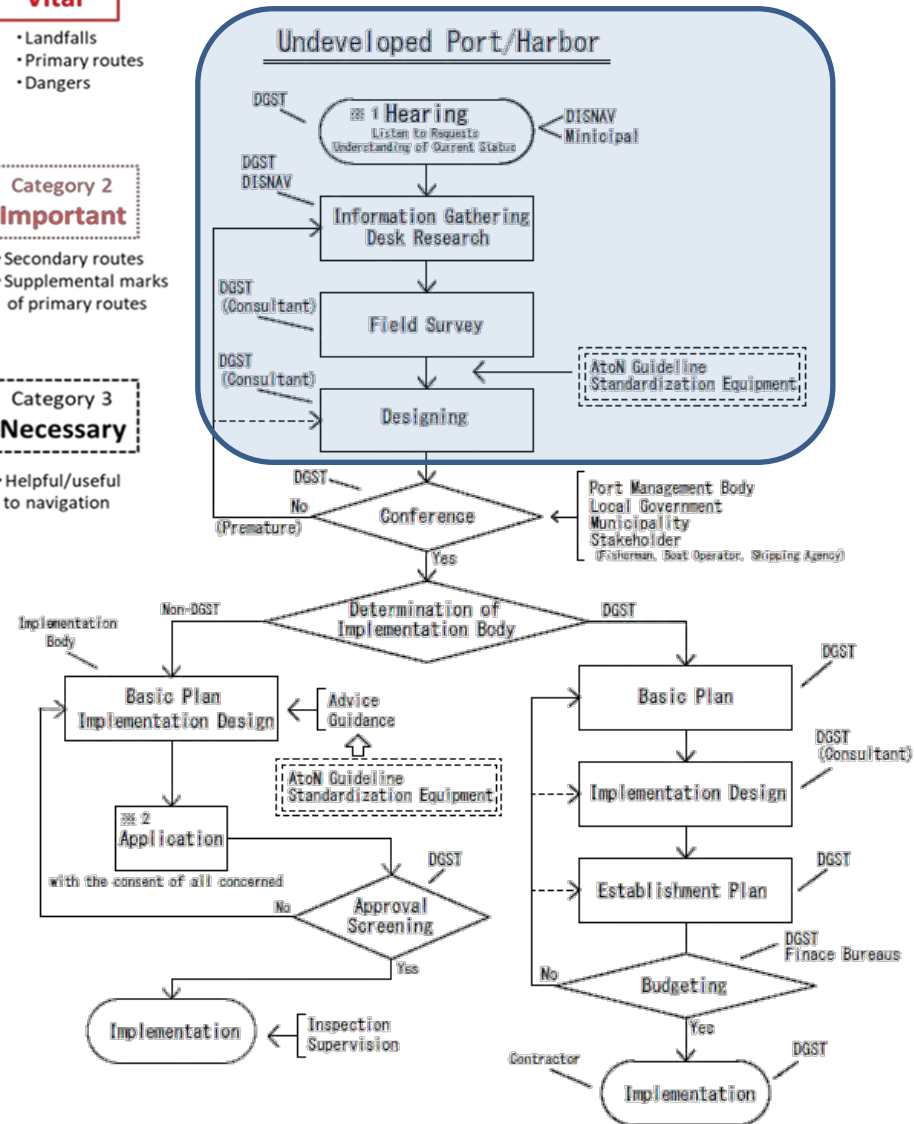
- Landfalls
- Primary routes
- Dangers

Category 2
Important

- Secondary routes
- Supplemental marks of primary routes

Category 3
Necessary


- Helpful/useful to navigation



※ 2 The application is made under the appropriate laws or regulations.

Unlit Jetty

Vessels can't approach the jetty in the dark world at night



Shallow water in the vicinity, full of dangers for navigation.

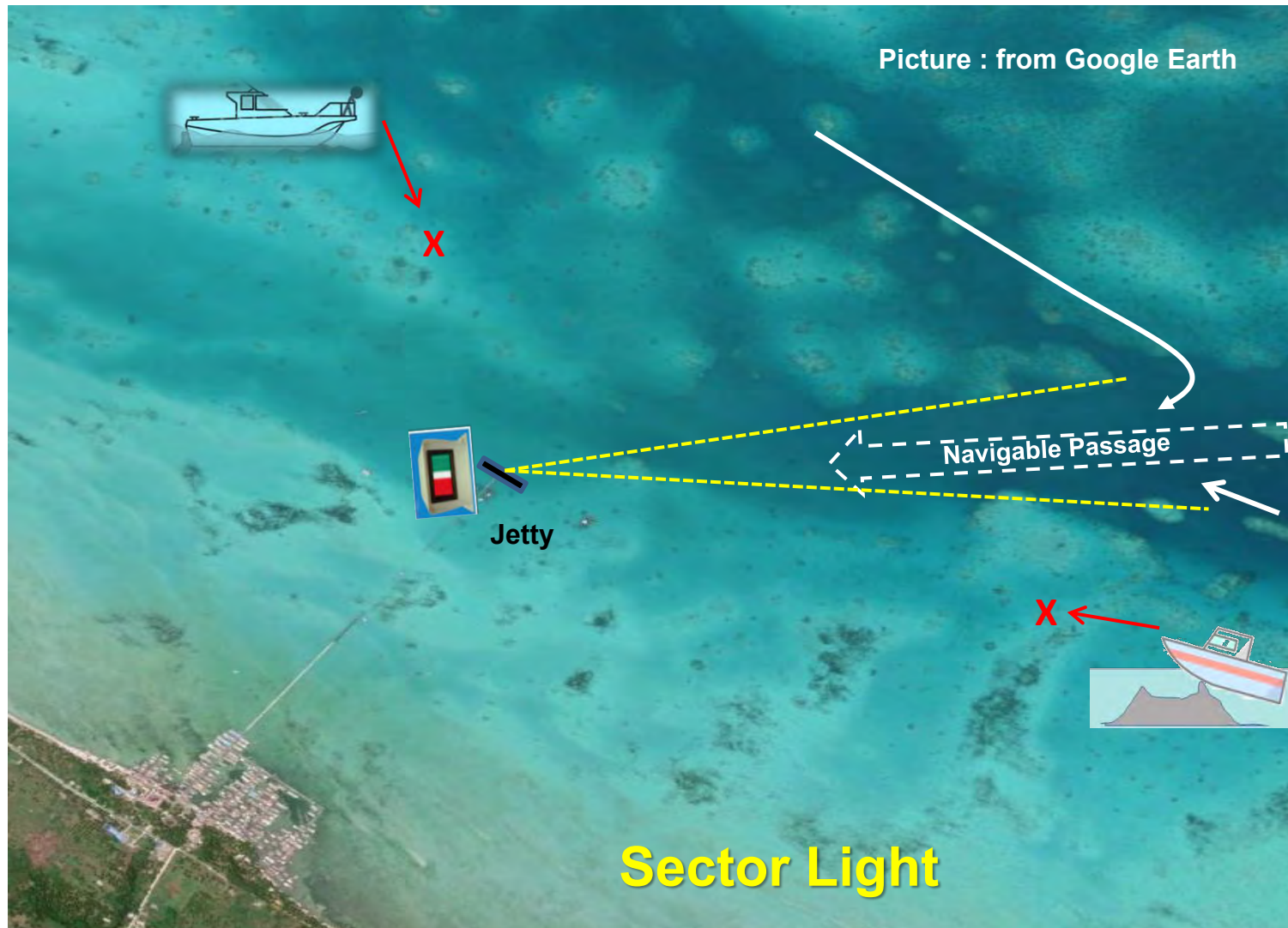


Residents and fishermen's voice and request

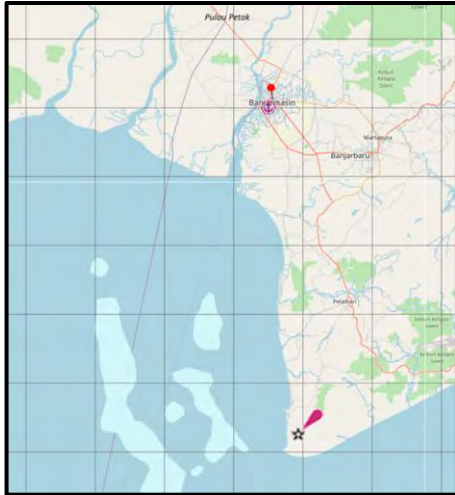


Is it not possible to reach the pier safely at night?

Why don't you consider establishing sector lights?

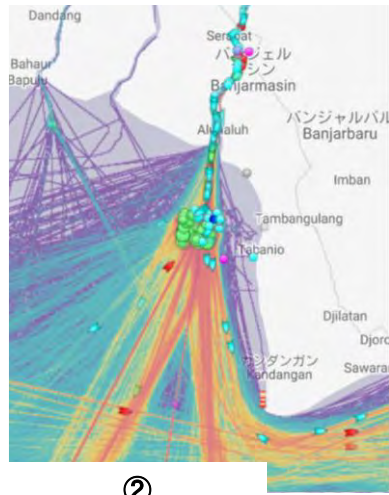


South Kalimantan



①
Preparation
of
Marine Chart

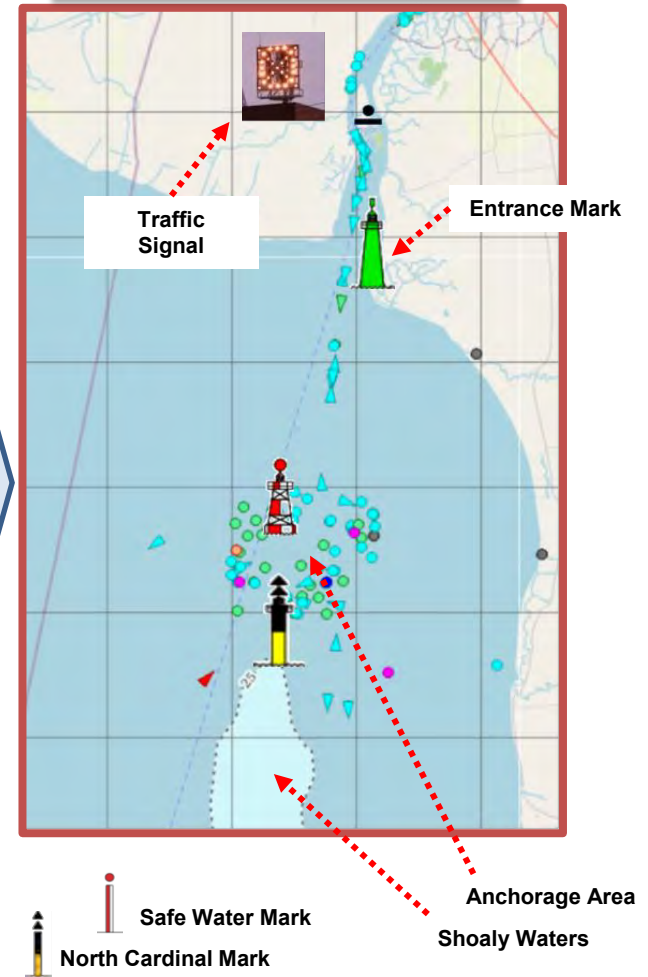
Banjarmashin



②
Preparation
of
AIS Density Map

③
Arrangement
of
Aids to Navigation

Example of Installation



Listen to requests

Selection of Area → Gather of data

*Listen to requests
According to Policy, Guideline*

Chart → AIS Density Map → Planning

Reporting Form of Original Establishment Plan for DISNAV

List of Planned Aids to Navigation

| Reference Number | Location | | | Name of Aid | | Category | | Type of Marks | | | | Remarks |
|------------------|----------------|-----------|----------|-------------|--------------------|---------------|-------------------|---------------|---------------|--------------|-----------------|-------------|
| | Regional Names | Position | | Type (*1) | Specification (*2) | Sea Area (*3) | Significance (*4) | Lateral (*5) | Cardinal (*6) | Special (*7) | Light Color *8) | Name of Aid |
| | | Longitude | Latitude | | | | | | | | | |
| 1 | | | | | | | | | | | | |
| 2 | | | | | | | | | | | | |
| 3 | | | | | | | | | | | | |
| 4 | | | | | | | | | | | | |
| 5 | | | | | | | | | | | | |
| 6 | | | | | | | | | | | | |
| 7 | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | |
| 11 | | | | | | | | | | | | |
| 12 | | | | | | | | | | | | |

| No | Name of Aid | Items |
|----|-------------|--------------------|
| 1 | Type (*1) | Liththouse |
| | | Breakwater Light |
| | | Harbor Light |
| | | Lighted Beacon |
| | | Lighted Buoy |
| | | Leading Lihgts |
| | | Sector Lihgt |
| | | Beacon (Unlighted) |
| | | Buoy (Unlighted) |

| No | Name of Aid | Items |
|----|--------------------|--------------------|
| 2 | Specification (*2) | Landfall Light |
| | | Long-range Light |
| | | Medium-range Light |
| | | Short-range Light |
| | | Channel Light |
| | | Leading Lihgts |

| No | Name of Aid | Items |
|----|-------------|--------------------|
| 1 | Type (*1) | Lighthouse |
| | | Breakwater Light |
| | | Harbor Light |
| | | Lighted Beacon |
| | | Lighted Buoy |
| | | Leading Lights |
| | | Sector Light |
| | | Beacon (Unlighted) |
| | | Buoy (Unlighted) |
| | | Landmark |

| No | Name of Aid | Items |
|----|--------------------|--------------------|
| 2 | Specification (*2) | Landfall Light |
| | | Long-range Light |
| | | Medium-range Light |
| | | Short-range Light |
| | | Channel Light |
| | | Leading Lights |

| No | Category | Items |
|----|---------------|-------------------------------|
| 3 | Sea Area (*3) | Offshore waters |
| | | Coastal waters |
| | | Congested area |
| | | Harbor/Port (Restricted area) |
| | | Inland waters (River) |

| No | Category | Items |
|----|--------------|------------------------|
| 4 | Significance | Category 1 (Vital) |
| | | Category 2 (Important) |
| | | Category 3 (Necessary) |

| No | Type of Marks | Items |
|----|---------------|--------------------------------|
| 5 | Lateral (*5) | Starboard |
| | | Port |
| | | Preferred Channel of Starboard |
| | | Preferred Channel of Port |

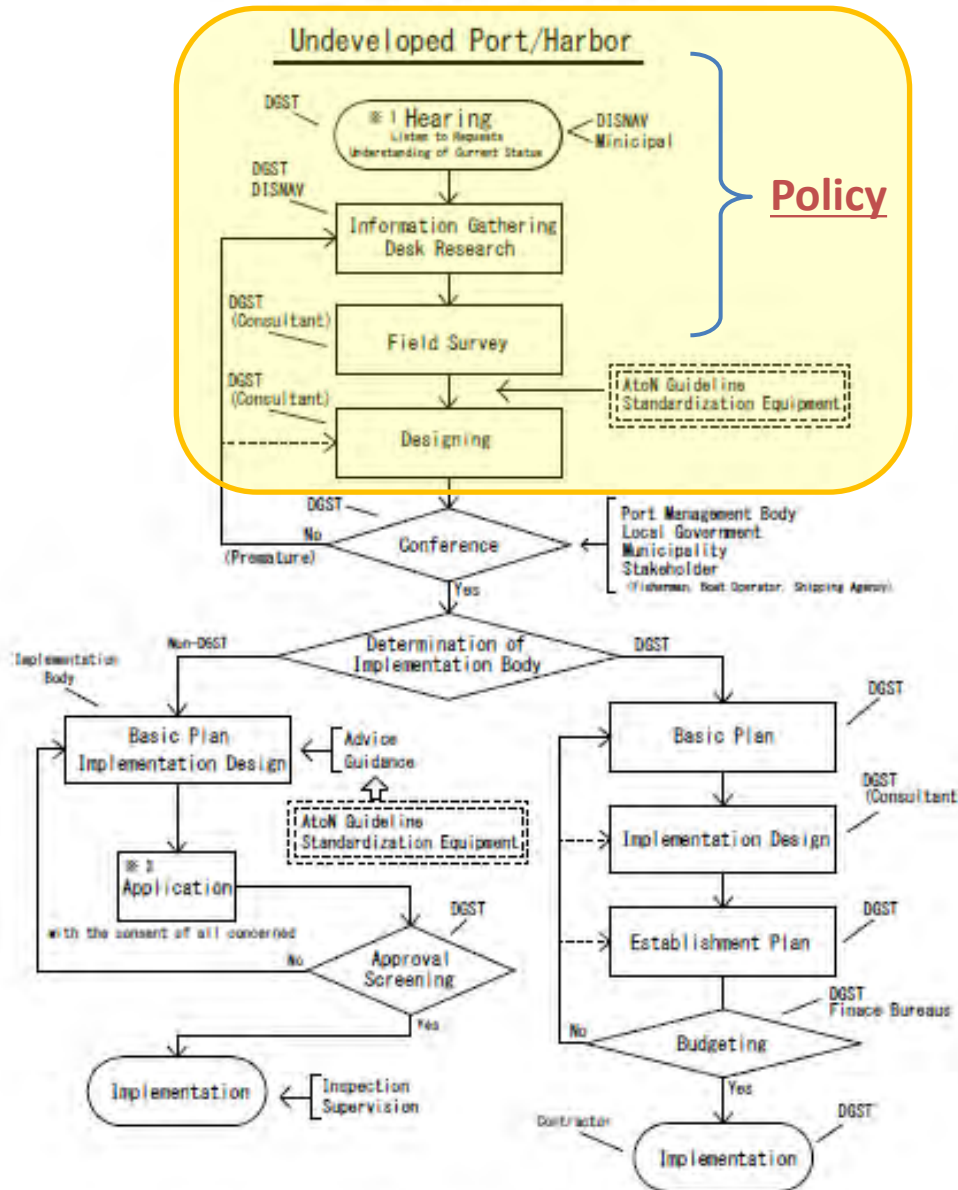
| No | Type of Marks | Items |
|----|---------------|-------|
| 6 | Cardinal (*6) | North |
| | | East |
| | | South |
| | | West |

| No | Type of Marks | Items |
|----|------------------|--------|
| 8 | Light Color (*8) | White |
| | | Red |
| | | Yellow |
| | | Green |

"establishment plan"

1. Summarized annual plan / Outline of Plan
2. Area, Location for an implementation place
3. Budget at a rough estimate
4. Information for an implementation plan

Maritime Traffic Safety Measures – establishing Process



※1 Hearing will be held as needed (as necessity requires).

※2 The application is made under the appropriate laws or regulations.

Example of Policy for AtoN

a. Eliminating unlit bays and harbors

Navigation at night is very dangerous to approach a coastal area and / or a harbor without marine lighted aids to navigation, even though with the advantage of local knowledge.

b. Transformation into a port where vessels can enter more safely

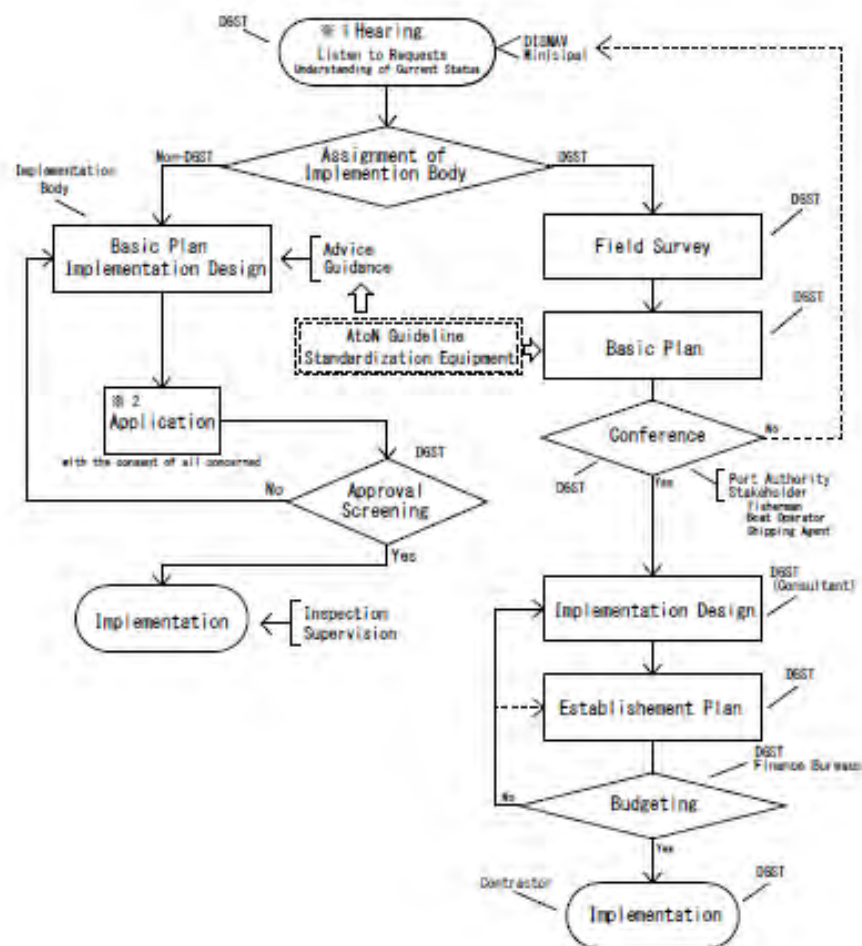
Regional ports are expected to increase in vessel traffic progressively, and further safety of their navigation must be ensured.

c. A goal is the port that vessels can navigate safely and efficiently at any time

For the prosperity of the region and the nation, it goes without saying that safe and stable marine traffic is secured, but for further prosperity a port that is always open is required.

Maritime Traffic Safety Measures - establishing Process

Existing Port/Harbor

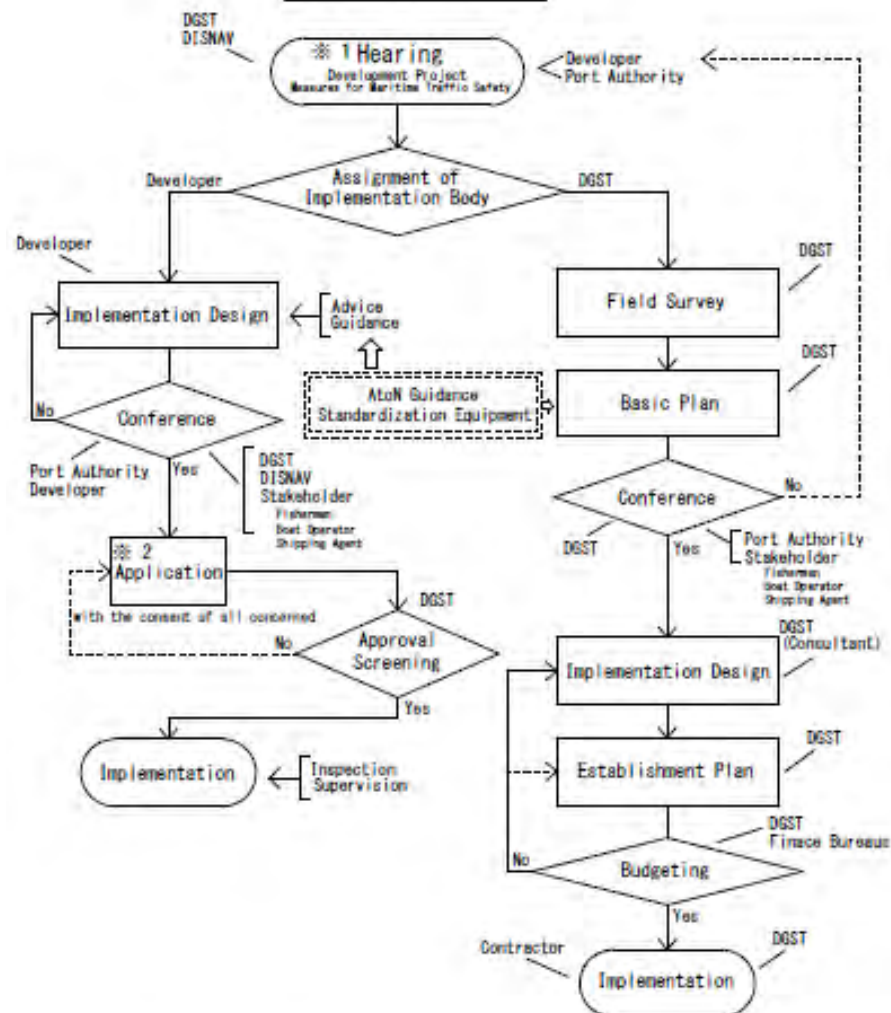


※ 1 Hearing will be held once a year at DISNAV.

※ 2 The application is made under the appropriate laws or regulations.

Maritime Traffic Safety Measures - establishing Process

New Port/Harbor



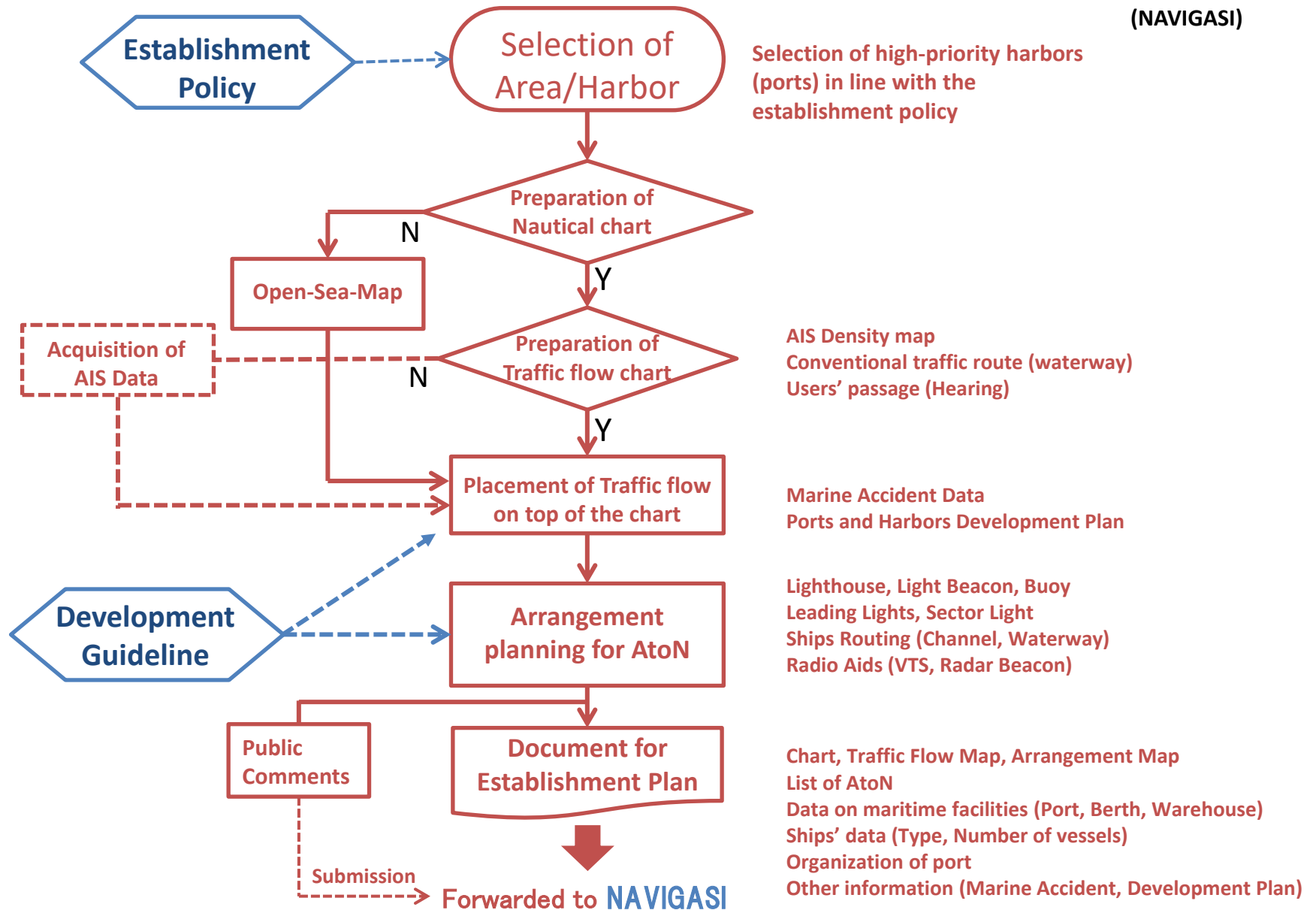
※ 1 Hearing will be held when development plans for the most part have been made.

※ 2 The application is made under the appropriate laws or regulations.

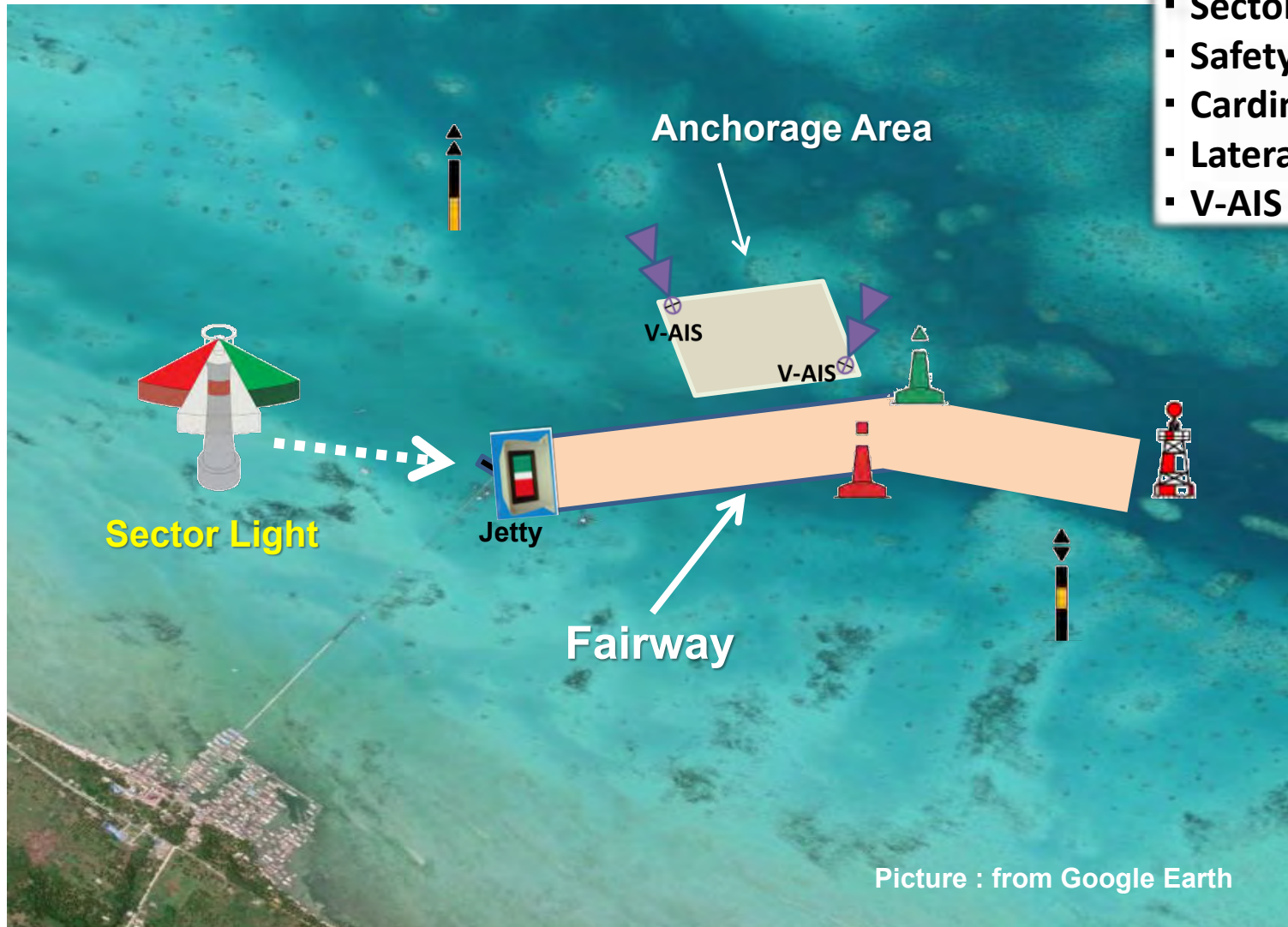
Establishment of Aids to Navigation

NAVIGASI

DISNAV
(NAVIGASI)



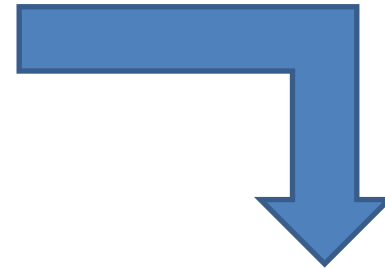
One of the examples and ideas for making the establishment plan of the Ship-Routing



- Sector Light
- Safety Water Marks
- Cardinal Marks
- Lateral Marks
- V-AIS (Virtual)

Picture : from Google Earth

Ship-Routing



This is the form of the final outcome.



Coastal Radio Station

Component 2

Coastal Radio Stations



Arrangement of Coastal Radio Stations

| Class | Station |
|-------|---------|
| I | 12 |
| II | 6 |
| IIIA | 48 |
| IIIB | 6 |
| IVA | 66 |
| IVB | 13 |
| Total | 151 |

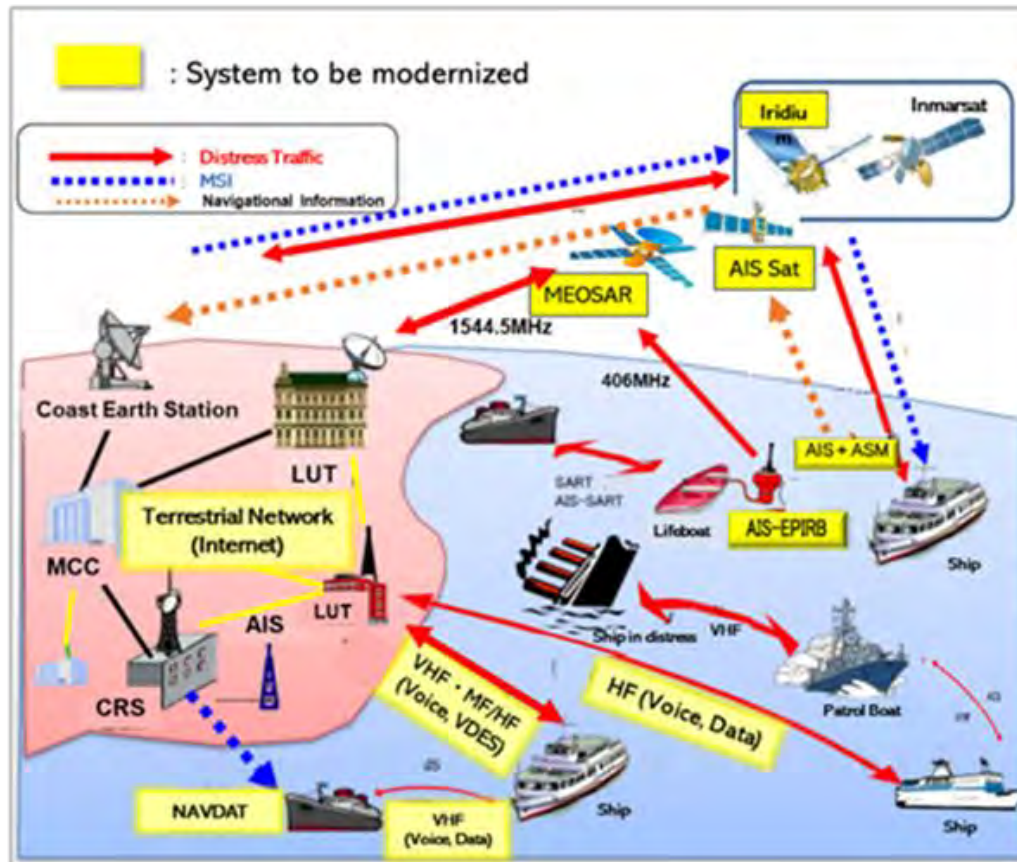
| GMDSS Area | Station |
|------------|---------|
| A2 | 94 |
| A3 | 18 |
| Total | 112 |
| Non-GMDSS | 39 |
| Total CRS | 151 |



● CRS GMDSS 112 Stations including 40 CRSs equipped with AIS Base station

● CRS non-GMDSS 39 Stations

Modernizing System of GMDSS



Existing System of GMDSS



MEOSAR: Cospas-Sarsat
Medium-altitude Earth Orbit Search and Rescue System

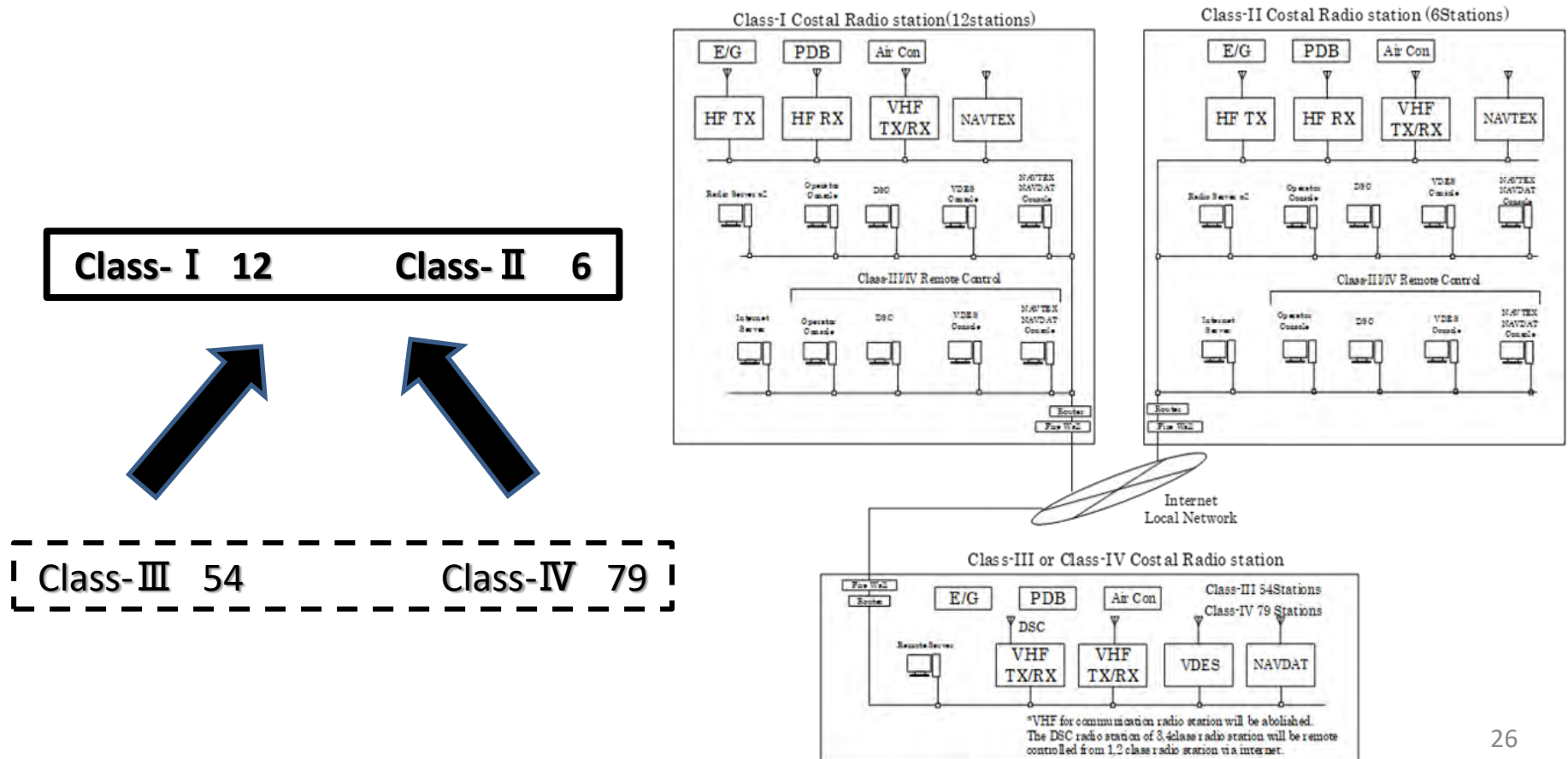
LUT : Local User Terminal
RCC : Rescue Coordination Center
MCC : Mission Coordination Center

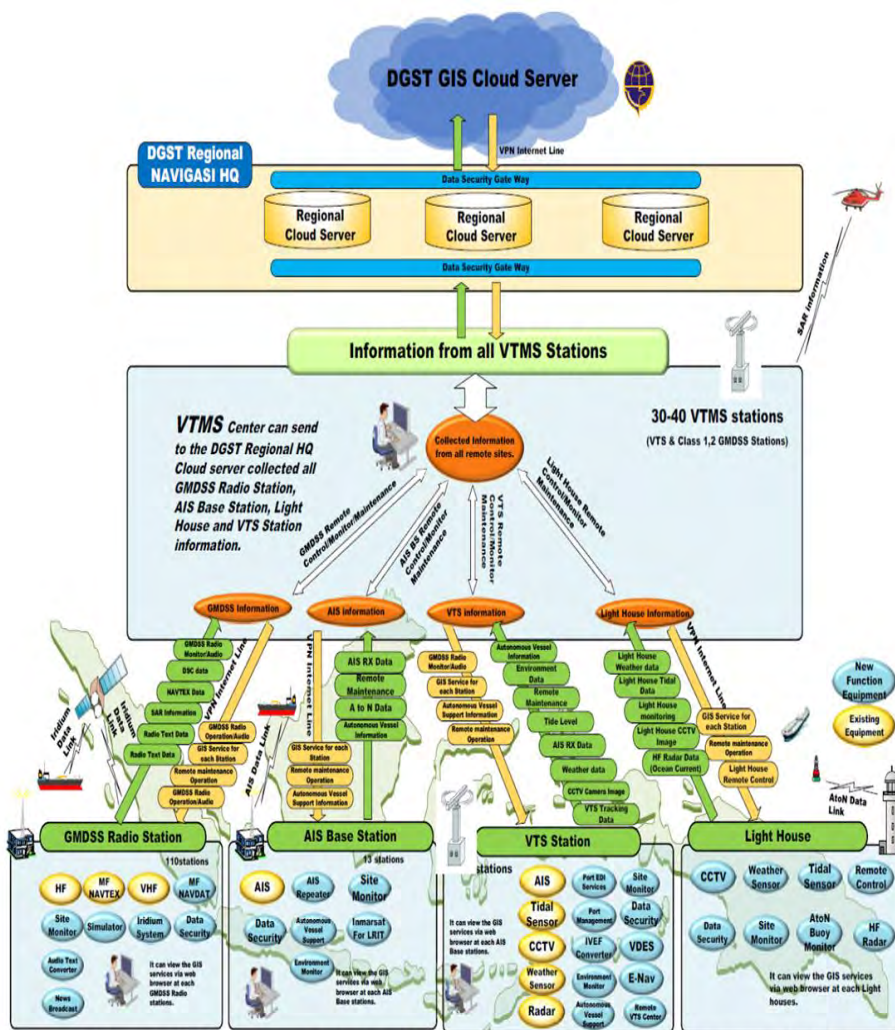
Reference : Modernization of GMDSS

The functions are almost the same as the current ones. Satellite utilization and adoption of VDES (VHF Data Exchange System) are being considered, as additional functions.

Consolidation of Coastal Radio Station

The radio-station equipment installed at present was manufactured before 2015 and **has not been adapted to IP (Internet Protocol)**, so most of them needs to be replaced or modified for consolidation of the stations.





List of Coastal Radio Station

| No | Name of DisNav Location of Radio | Class | GMDSS | Area | Non-GMDSS |
|----|----------------------------------|-------|----------------|------|-----------|
| 1 | Sabang | | | | |
| | 1 Sabang | II | GMDSS (JRC) | A3 | |
| | 2 Ulee Lheue | IIIA | GMDSS (SAILOR) | A2 | |
| | 3 Tapak Tuan | IVA | GMDSS (JRC) | A2 | |
| | 4 Meulaboh | IVA | GMDSS (KENTA) | A2 | |
| | 5 Sinabang | IVA | | | ○ |
| | 6 Susoh | IVA | | | ○ |
| 2 | Belawan | | | | |
| | 1 Belawan | I | GMDSS (SAILOR) | A3 | |
| | 2 Kuala Tanjung | IIIA | GMDSS (JRC) | A2 | |
| | 3 Tg. Balai Asahan | IIIA | GMDSS (SAILOR) | A2 | |
| | 4 Lhokseumawe | IIIA | GMDSS (JRC) | A2 | |
| | 5 Kuala Langsa | IVA | GMDSS (SAILOR) | A2 | |
| | 6 Pangkalan Susu | IVB | GMDSS (SAILOR) | A2 | |
| | 7 Tanjung Sarang Elang | IVB | | | ○ |
| 3 | Sibolga | | | | |
| | 1 Sibolga | IIIA | GMDSS (SAILOR) | A2 | |
| | 2 Gunung Sitoli | IVA | GMDSS (SAILOR) | A2 | |
| | 3 Pulau Tello | IVA | GMDSS (KENTA) | A2 | |
| | 4 Lahewa | IVA | GMDSS (SAILOR) | A2 | |
| | 5 Teluk Dalam | IVB | GMDSS (SAILOR) | A2 | |
| | 6 Sirombu | IVB | | | ○ |
| | 7 Sikara Kara | IVB | | | ○ |
| 4 | Dumai | | | | |
| | 1 Dumai | I | GMDSS (SAILOR) | A3 | |
| | 2 Bengkalis | IIIA | GMDSS (SAILOR) | A2 | |
| | 3 Tembilahan | IVA | GMDSS (SAILOR) | A2 | |
| | 4 Bagan Siapi - api | IVA | | | ○ |
| | 5 Selat Panjang | IVA | GMDSS (SAILOR) | A2 | |
| | 6 Pekanbaru | IVA | | | ○ |
| | 7 Rengat | IVA | GMDSS (SAILOR) | A2 | |
| 5 | Tanjung Pinang | | | | |
| | 1 Tanjung Pinang | IIIA | GMDSS (SAILOR) | A2 | |
| | 2 Tanjung Uban | IIIA | GMDSS (JRC) | A2 | |
| | 3 Sei Kolak Kijang | IIIA | GMDSS (SAILOR) | A2 | |
| | 4 Natuna | IIIA | GMDSS (JRC) | A2 | |
| | 5 Tarempa | IIIA | | | ○ |
| | 6 Batu Ampar | IIIA | GMDSS (SAILOR) | A2 | |
| | 7 Tanjung Balai Karimun | IVA | GMDSS (KENTA) | A2 | |
| | 8 Pulau Sambu | IVA | | | ○ |
| | 9 Dabo Singkep | IVA | GMDSS (SAILOR) | A2 | |
| 6 | Teluk Bayur | | | | |
| | 1 Teluk Bayur | II | GMDSS (JRC) | A3 | |
| | 2 Sipora | IIIA | GMDSS (SAILOR) | A2 | |
| | 3 Air Bangis | IVA | GMDSS (SAILOR) | A2 | |
| | 4 Sikakap | IVB | | | ○ |
| 7 | Palembang | | | | |
| | 1 Palembang | I | GMDSS (JRC) | A3 | |
| | 2 Jambi | IIIA | GMDSS (JRC) | A2 | |
| | 3 Pangkal Balam | IIIA | GMDSS (SAILOR) | A2 | |
| | 4 Kuala Tungkal | IIIA | GMDSS (SAILOR) | A2 | |
| | 5 Muntok | IIIB | GMDSS (SAILOR) | A2 | |
| | 6 Muara Sabak | IVA | GMDSS (SAILOR) | A2 | |
| | 7 Ranjung Pandan | IVB | GMDSS (SAILOR) | A2 | |

List of Coastal Radio Station

| No | Name of DisNav Location of Radio | Class | GMDSS | Area | Non-GMDSS |
|----|----------------------------------|-------|-----------------|------|-----------|
| 8 | Tanjung Priok | | | | |
| | 1 Jakarta | I | GMDSS (JRC) | A3 | |
| | 2 Panjang | III A | GMDSS (SAILOR) | A2 | |
| | 3 Cigading | III A | GMDSS (SAILOR) | A2 | |
| | 4 Cirebon | III A | GMDSS (SAILOR) | A2 | |
| 9 | Bengkulu | III A | GMDSS (JRC) | A2 | |
| | Semarang | | | | |
| | 1 Semarang | I | GMDSS (JRC) | A3 | |
| | 2 Tegal | III A | GMDSS (JRC) | A2 | |
| | 3 Pekalongan | III A | | | ○ |
| | 4 Karimun Jawa | IV A | | | ○ |
| | 5 Jepara | IV A | GMDSS (SAILOR) | A2 | |
| 10 | Juwana | IV A | | | ○ |
| | 7 Rembang | IV A | GMDSS (KENTA) | A2 | |
| 11 | Cilacap | | | | |
| | 1 Cilacap | I | GMDSS (JRC) | I | |
| | Surabaya | | | | |
| | 1 Surabaya | I | GMDSS (JRC) | A3 | |
| | 2 Kali Anget | III A | GMDSS (JRC) | A2 | |
| | 3 Meneng (Banyuwangi) | III A | GMDSS (JRC) | A2 | |
| | 4 Panarukan | IV A | | | ○ |
| | 5 Gresik | IV A | | | ○ |
| | 6 Probolinggo | IV A | GMDSS (SAILOR) | A2 | |
| 12 | Bawean | IV A | | | ○ |
| | 7 Pasuruan | IV A | | | ○ |
| | 8 Masalembo | IV A | | | ○ |
| | Benoa | | | | |
| | 1 Benoa | II | GMDSS (JRC) | A3 | |
| | 2 Lembar | III A | GMDSS (SAILOR) | A2 | |
| | 3 Bima | III A | GMDSS (JRC) | A2 | |
| | 4 Padang Bai | IV A | GMDSS (SAILOR) | A2 | |
| 13 | 5 Celukan Bawang | IV A | GMDSS (SAILOR) | A2 | |
| | 6 Badas | IV A | | | ○ |
| | 7 Gilimanuk | IV A | GMDSS (SAILOR) | A2 | |
| | 8 Kabuhan Lombok | IV A | GMDSS (KENTA) | A2 | |
| | Kupang | | | | |
| | 1 Kupang | II | GMDSS (SAILOR) | A3 | |
| | 2 Ende | III A | GMDSS (JRC) | A2 | |
| | 3 Maumere | III B | GMDSS (JRC) | A2 | |
| | 4 Waingapu | IV A | GMDSS (SAILOR) | A2 | |
| 14 | 5 Kalabahi | IV A | | | ○ |
| | 6 Larantuka | IV A | | | ○ |
| | 7 Atapupu | IV A | GMDSS (INVELCO) | A2 | |
| | 8 Reo | IV A | | | ○ |
| | 9 Seba | IV A | | | ○ |
| | Pontianak | | | | |
| | 1 Pontianak | III A | GMDSS (SAILOR) | A2 | |
| | 2 Ketapang | III A | GMDSS (JRC) | A2 | |
| | 3 Sintete | IV A | GMDSS (SAILOR) | A2 | |
| 15 | Banjarmasin | | | | |
| | 1 Banjarmasin | II | GMDSS (JRC) | A3 | |
| | 2 Sampit | III A | GMDSS (JRC) | A2 | |
| | 3 Kumai | III B | GMDSS (SAILOR) | A2 | |
| | 4 Batulicin | III B | GMDSS (JRC) | A2 | |
| 16 | Kotabaru | III B | | | ○ |
| | Samarinda | | | | |
| | 1 Samarinda | III A | GMDSS (SAILOR) | A3 | |
| | 2 Balikpapan | I | GMDSS (JRC) | A3 | |
| | 3 Tanjung Santan | IV A | GMDSS (SAILOR) | A2 | |

List of Coastal Radio Station

| No | Name of DisNav Location of Radio | Class | GMDSS | Area | Non-GMDSS |
|----|----------------------------------|-------|-----------------|------|-----------|
| 17 | Tarakan | | | | |
| | 1 Tarakan | III A | GMDSS (SAILOR) | A2 | |
| | 2 Nunukan | IV A | | | ○ |
| | 3 Tg. Selor | IV A | | | ○ |
| | 4 Tg. Redep | IV A | | | ○ |
| 18 | Makassar | | | | |
| | 1 Makassar | I | GMDSS (JRC) | A3 | |
| | 2 Pare-Pare | III B | GMDSS (JRC) | A2 | |
| | 3 Mamuju | IV A | | | ○ |
| | 4 Palopo | IV A | GMDSS (INVELCO) | A2 | |
| 19 | Selayar | IV B | GMDSS (INVELCO) | A2 | |
| | Kendari | | | | |
| | 1 Kendari | III A | GMDSS (SAILOR) | A2 | |
| | 2 Bau-bau | III A | GMDSS (JRC) | A2 | |
| | 3 Raha | IV A | GMDSS (SAILOR) | A2 | |
| | 4 Kolaka | IV A | GMDSS (SAILOR) | A2 | |
| 20 | Pomalaa | IV A | GMDSS (SAILOR) | A2 | |
| | 6 Banabungi | IV B | | | ○ |
| | Bitung | | | | |
| | 1 Bitung | I | GMDSS (JRC) | A3 | |
| | 2 Pantoloan | III A | GMDSS (SAILOR) | A2 | |
| | 3 Poso | III A | GMDSS (JRC) | A2 | |
| 21 | 4 Toli-Toli | III A | GMDSS (JRC) | A2 | |
| | 5 Donggala | IV A | GMDSS (KENTA) | A2 | |
| | 6 Gorontalo | IV A | | | ○ |
| | 7 Luwuk | IV A | GMDSS (SAILOR) | A2 | |
| | 8 Siau | IV A | | | ○ |
| | 9 Manado | IV A | GMDSS (JRC) | A2 | |
| | 10 Tahuna | IV A | GMDSS (KENTA) | A2 | |
| | 11 Parigi | IV A | GMDSS (SAILOR) | A2 | |
| | 12 Kolonedale | IV A | | | ○ |
| | 13 Kwandang | IV A | GMDSS (SAILOR) | A2 | |
| | 14 Banggai | IV B | | | ○ |
| | 15 Ampana | IV B | | | ○ |
| | Ambon | | | | |
| | 1 Ambon | I | GMDSS (JRC) | A3 | |
| | 2 Ternate | III A | GMDSS (SAILOR) | A2 | |
| | 3 Namlea | III A | GMDSS (SAILOR) | A2 | |
| 22 | 4 Sanana | III A | GMDSS (SAILOR) | A2 | |
| | 5 Tobelo | IV A | | | ○ |
| | 6 Banda | IV A | GMDSS (INVELCO) | A2 | |
| | 7 Amahai | IV B | | | ○ |
| | Tual | | | | |
| | 1 Tual | III A | GMDSS (JRC) | A2 | |
| | 2 Saumlaki | III A | GMDSS (JRC) | A2 | |
| 23 | 3 Dobo | IV A | GMDSS (SAILOR) | A2 | |
| | Sorong | | | | |
| | 1 Sorong | II | GMDSS (JRC) | A3 | |
| | 2 Manokwari | III A | GMDSS (SAILOR) | A2 | |
| | 3 Fak-Fak | III A | GMDSS (INVELCO) | A2 | |
| | 4 Kaimana | IV A | GMDSS (INVELCO) | A2 | |
| 24 | 5 Birtuni | III A | GMDSS (INVELCO) | A2 | |
| | 6 Amamapare | IV B | | | ○ |
| | Jayapura | | | | |
| | 1 Jayapura | I | GMDSS (JRC) | A3 | |
| | 2 Biak | III A | GMDSS (SAILOR) | A2 | |
| 25 | 3 Serui | IV A | GMDSS (SAILOR) | A2 | |
| | 4 Sarmi | IV A | GMDSS (KENTA) | A2 | |
| | 5 Nabire | IV A | | | ○ |
| | Merauke | | | | |
| | 1 Merauke | III A | GMDSS (SAILOR) | A2 | |
| | 2 Agats | III A | GMDSS (JRC) | A2 | |
| | 3 Bado | IV A | | | ○ |

Component 3

Navigation Vessels



3 Background of Additional Work

Navigation Vessels

● Supporting Facilities and Vessels for Aids to Navigation

Office, Work-shop, Buoy-base, Storehouse, Jetty

| | <u>2002</u> | | <u>2019</u> |
|--------------|-----------------------|---|-----------------------------|
| • Office | 10,148 m ² | ⇒ | 11,545 m² |
| • Work-shop | 6,831 m ² | ⇒ | 7,429 m² |
| • Buoy-base | 5,038 m ² | ⇒ | 19,186 m² |
| • Storehouse | 3,452 m ² | ⇒ | 4,426 m² |
| • Jetty | 383 m | ⇒ | 3,146 m |

Comparing only DISNAVs that responded to the Questionnaire Survey



Workshop



Buoy-Base

Vessels for Aids to Navigation

| | <u>2002</u> | | <u>2019</u> |
|-------------------|-------------|---|-------------|
| • Buoy-tender | 6 | ⇒ | 23 |
| • Aids-tender | 56 | ⇒ | 30 |
| • Inspection Boat | 12 | ⇒ | 18 |



Aids-Tender

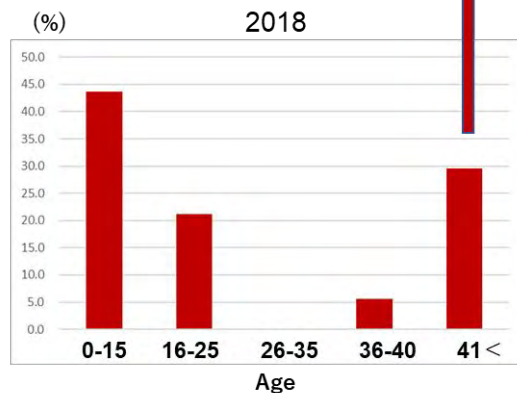
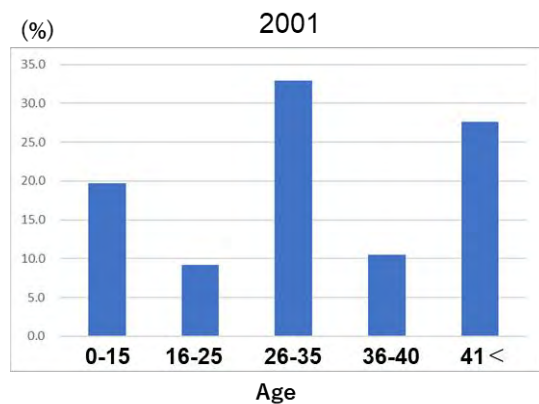


Buoy-Tender



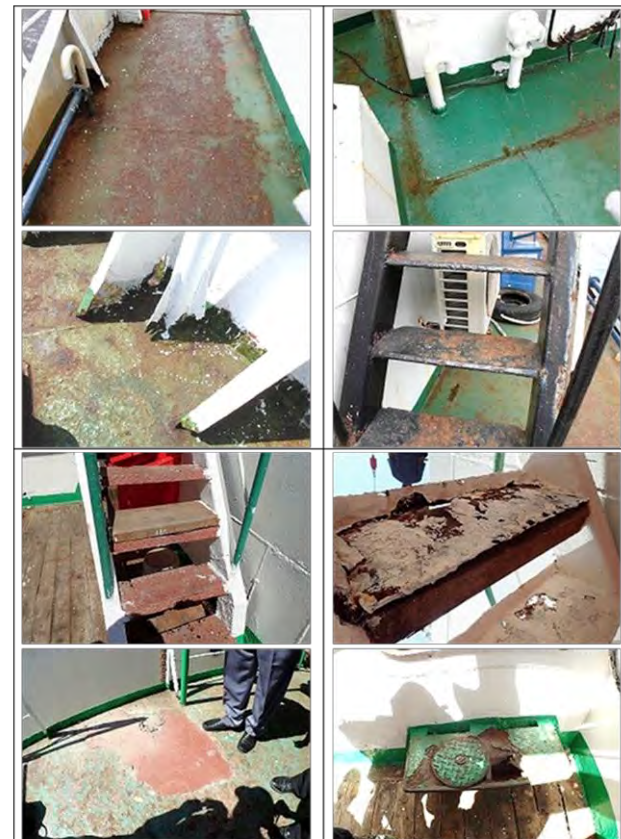
Age of Vessels

| Range of Age | As of May, 2001 | | As of Oct., 2018 | |
|--------------|-----------------|----------------|------------------|----------------|
| | Units | Percentage (%) | Units | Percentage (%) |
| 0 - 15 | 15 | 19.7 | 31 | 43.7 |
| 16 - 25 | 7 | 9.2 | 15 | 21.1 |
| 26 - 35 | 25 | 32.9 | 0 | 0 |
| 36 - 40 | 8 | 10.5 | 4 | 5.6 |
| 41 > | 21 | 27.6 | 21 | 29.6 |
| | 76 | | 71 | |



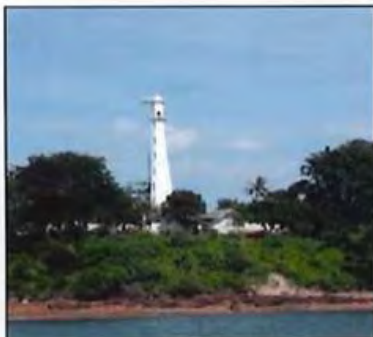
※ 15 Buoy Tenders were built in 2016 and 2017.

Floor and Step of Aids Tender

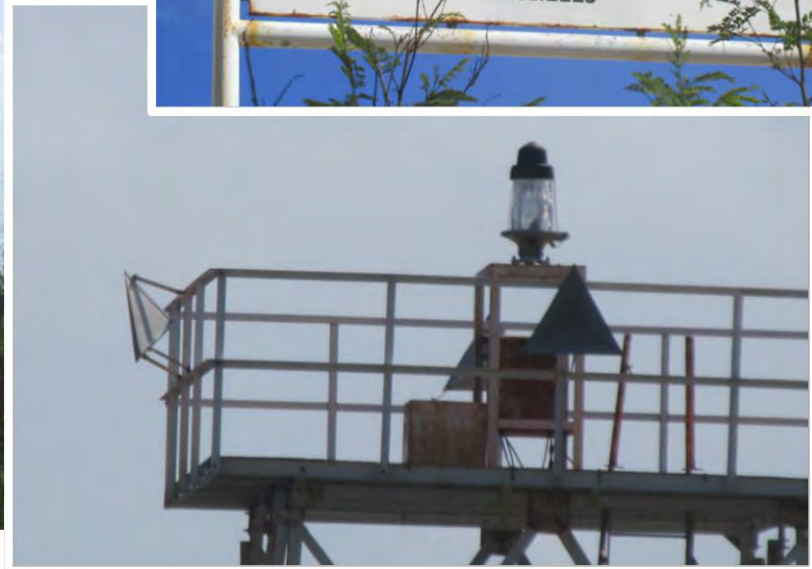


- Mission -

- a. Installation and replacement of buoys
- b. Inspection for the equipment
- c. Maintenance of AtoN
- d. Supply of ***fuel and goods*** for maintenance to the sites
- e. ***Transportation*** for the staff to the sites
- f. Search and Rescue (SAR) operation



Sekatung Lighthouse in Natuna

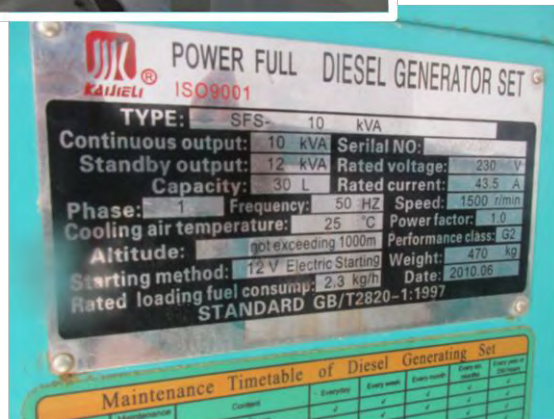


LED Lantern with Solar system

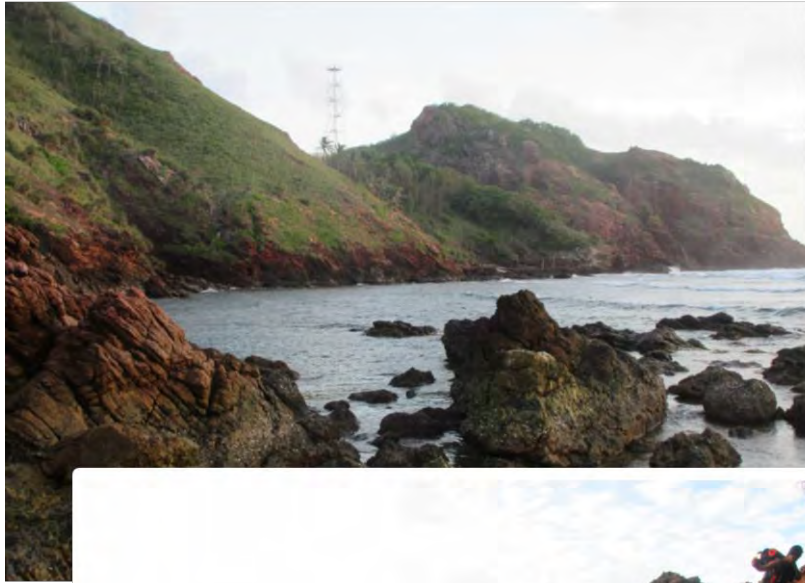
Unmanned Lighthouse



Empty inside



Unused Engine Generator



Ruined a landing place ((old wharf)

Outline of Work

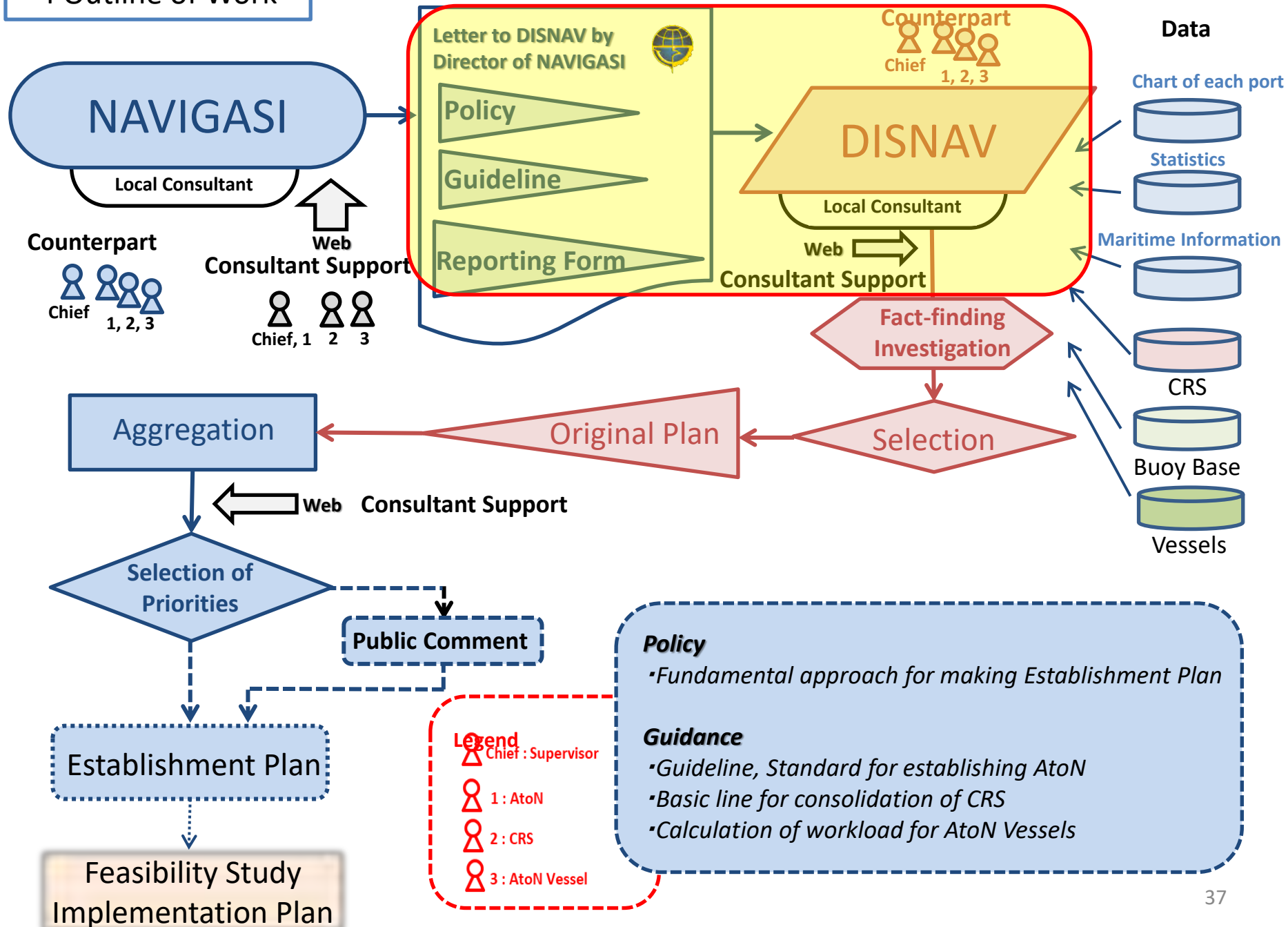
Excerpt from Annex 4 (TOR for the additional activities)

1. Preparation of necessary documents such as Policy, Guideline, and Questionnaire by NAVIGASI with assistance of the Consultants
2. Guidance to DISNAV by NAVIGASI and Consultants
3. Data collection by each DISNAV with supports from Consultants
4. Preparation of the Draft Establishment Plan by each DISNAV with the support from Consultants
5. Formulation of the draft Master Plan by NAVIGASI and Consultants

- Preparation of documents and Reporting forms
- Collection and Summarization of data and information
- Compilation of summarized plan

4 Outline of Work

The work flow for The Establishment Plan



5 Schedule

Schedule for Activities

| | | 2022 | | | | | | | | | | 2023 | | |
|------------|---------------|------|---|--------------------------------------|---------------------|---|---|---|----|----|----------------------------------|------|----|---|
| | | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 3 |
| Consultant | Domestic Work | ▲ | ▲ | ▲ | ▲ | ▲ | ▲ | ▲ | ▲ | ▲ | ▲ | ▲ | ▲ | |
| | Overseas Work | | | ■ | ■ | | | | | | ■ | | | |
| | | | | Meeting | Workshop | | | | | | Seminar | | | |
| NAVIGASI | Web-Meeting | ▲ | ▲ | ▲ | ▲ | ▲ | ▲ | ▲ | ▲ | ▲ | | ▲ | ▲ | |
| | Preparation | | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | |
| | | | | Meeting | Workshop | | | | ▲ | ▲ | Seminar | | | |
| DISNAV | Web-Meeting | | | | | ▲ | ▲ | ▲ | ▲ | ▲ | | | | |
| | Preparation | | | | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | |
| | | | | | Workshop | | | | | | Seminar | | | |
| Events | | | | Meeting with Consultant and NAVIGASI | Workshop in Jakarta | | | | | | Seminar in Jakarta (IWRAP, VDES) | DFR | FR | |
| | | | | | | | | | | | | | | |

▲ : Web-meeting between N and C

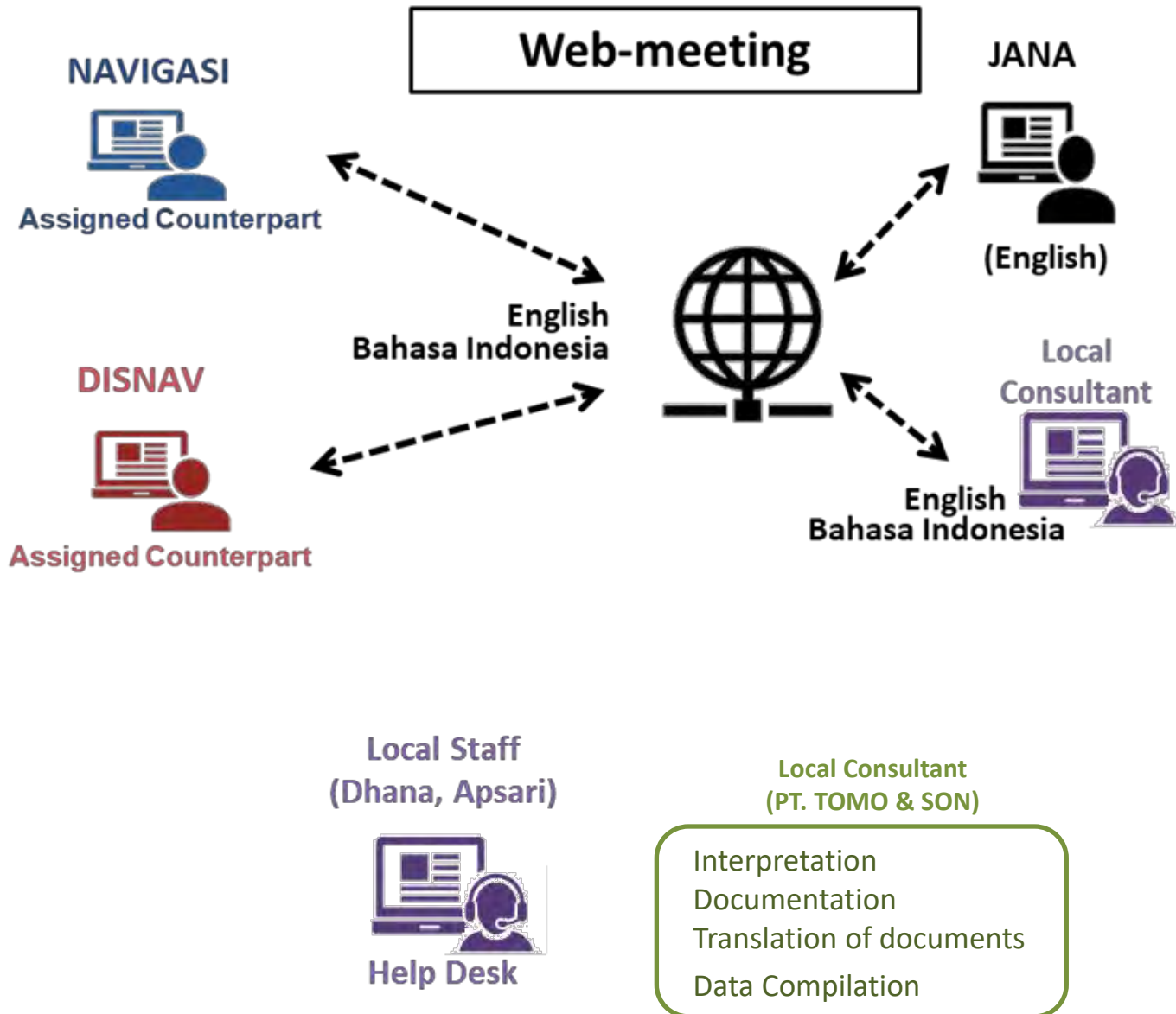
△ : Web-meeting among N, D and C

N : NAVIGASI

D : DISNAV

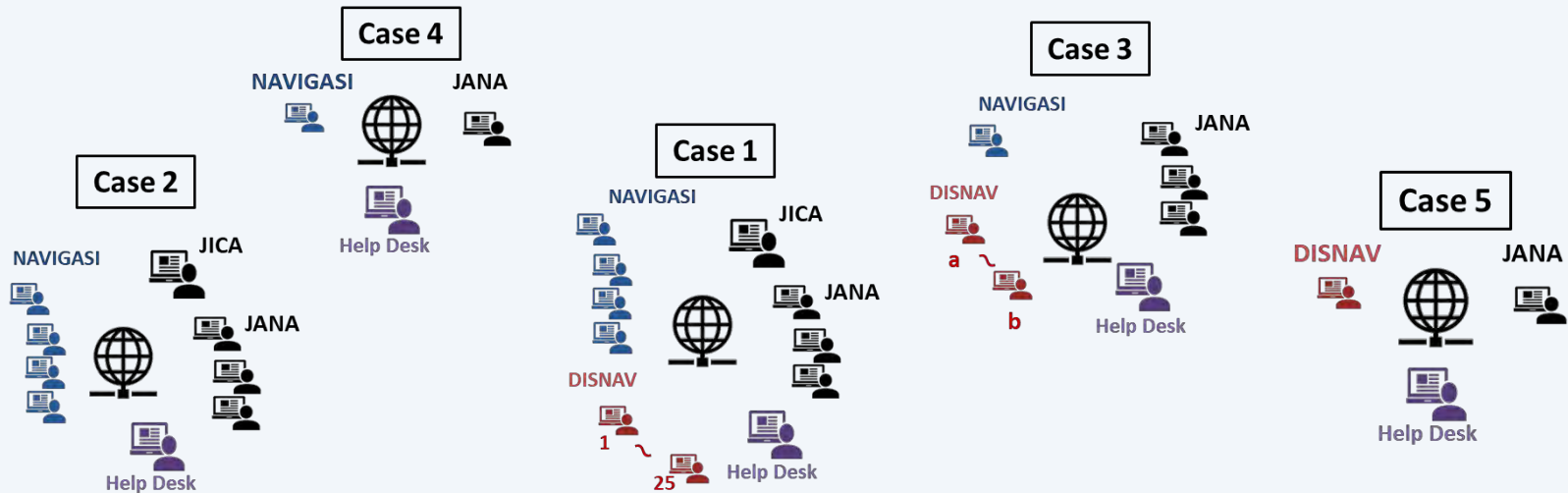
C : Consultant

■ : Jakarta (Meeting, Workshop, Seminar)




Schedule for Activities


| 2022 | | | | | | | | | | 2023 | | |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|------------|------------|------------|------------|-----|------------|----|------------|------|---|---|
| 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 3 |
| <div> <div>Meeting</div> <div>Workshop</div> <div>Seminar</div> <div> <div>NAVIGASI</div> <div>DISNAV</div> <div>NAVIGASI</div> </div> <div> <div>Preparation</div> <div>Data Collection</div> <div>Data Compilation</div> </div> </div> | | | | | | | | | | | | |
| ▲ | ▲ | ▲ | ▲ | △ | △ | △ | ▲ | | ▲ | ▲ | | |
| Web | Web | Web | Web | Web | Web | Web | Web | | Web | Web | | |
| C-2 | C-4 | C-2 C-4 | C-2 C-4 | C-1 C-3 | C-3 C-5 | C-5 | C-3 C-4 | | C-2 C-4 | C-2 | | |



Local Staff & Consultant

Counterpart (Consultant)

 **Component 1** (Aids to Navigation and VTS, including “Ships Routing”) **Yoku SANTO (JANA)**

 **Component 2** (Coastal Radio Station) **Goro TSUKAKOSHI (JANA)**

 **Component 3** (Vessels for Aids to Navigation) **Hajime KOGA (JANA)**

Local Staff

 **Mr. Dhana Mulyana**

 **Ms. Apsari Putri**

Local Consultant

PT. TOMO & SON

Name List of Counterpart

Name List of Counterpart

| | | Field | Supervisor | AtoN | CRS | Vessel | Local-staff | | | Field | Supervisor | AtoN | CRS | Vessel | |
|------------|----|----------------|--------------------------------------------------------|--------------------------------------------------------|------------------------------------------------------|------------------------------------------------------|----------------------------------------------------------------------|--------------|-------------|--------|------------|------|-----|--------|--|
| Consaltant | | Name | Yoku SANTO | Yoku SANTO | ioero TUKAKOST | Hajime KOGA | Dhana Mulyana | Headquarters | | Name | | | | | |
| JANA | | e-mail | santo@jana.or.id | santo@jana.or.id | goro@jana.or.id | koga@jana.or.id | dhana.jananet@gmail.com | NAVIGASI | | e-mail | | | | | |
| DISNAV | 1 | Sabang | Title | | | | | 14 | Pontianak | Title | | | | | |
| | | | Name | | | | | | | | Name | | | | |
| | | | e-mail | | | | | | | | e-mail | | | | |
| | 2 | Belawan | Title | | | | | 15 | Banjarmasin | Title | | | | | |
| | | | Name | | | | | | | | Name | | | | |
| | | | e-mail | | | | | | | | e-mail | | | | |
| | 3 | Sibolga | Title | | | | | 16 | Samarinda | Title | | | | | |
| | | | Name | | | | | | | | Name | | | | |
| | | | e-mail | | | | | | | | e-mail | | | | |
| | 4 | Dumai | Title | | | | | 17 | Tarakan | Title | | | | | |
| | | | Name | | | | | | | | Name | | | | |
| | | | e-mail | | | | | | | | e-mail | | | | |
| | 5 | Tanjung Pinang | Title | | | | | 18 | Makassar | Title | | | | | |
| | | | Name | | | | | | | | Name | | | | |
| | | | e-mail | | | | | | | | e-mail | | | | |
| | 6 | Teluk Bayur | Title | | | | | 19 | Kendar | Title | | | | | |
| | | | Name | | | | | | | | Name | | | | |
| | | | e-mail | | | | | | | | e-mail | | | | |
| | 7 | Palembang | Title | | | | | 20 | Bitung | Title | | | | | |
| | | | Name | | | | | | | | Name | | | | |
| | | | e-mail | | | | | | | | e-mail | | | | |
| | 8 | Tanjung Priok | Title | | | | | 21 | Ambon | Title | | | | | |
| | | | Name | | | | | | | | Name | | | | |
| | | | e-mail | | | | | | | | e-mail | | | | |
| | 9 | Semarang | Title | | | | | 22 | Tual | Title | | | | | |
| | | | Name | | | | | | | | Name | | | | |
| | | | e-mail | | | | | | | | e-mail | | | | |
| | 10 | Cilacap | Title | | | | | 23 | Sorong | Title | | | | | |
| | | | Name | | | | | | | | Name | | | | |
| | | | e-mail | | | | | | | | e-mail | | | | |
| | 11 | Surabaya | Title | | | | | 24 | Jayapura | Title | | | | | |
| | | | Name | | | | | | | | Name | | | | |
| | | | e-mail | | | | | | | | e-mail | | | | |
| | 12 | Benoa | Title | | | | | 25 | Merauke | Title | | | | | |
| | | | Name | | | | | | | | Name | | | | |
| | | | e-mail | | | | | | | | e-mail | | | | |
| | 13 | Kupang | Title | | | | | | | | | | | | |
| | | | Name | | | | | | | | | | | | |
| | | | e-mail | | | | | | | | | | | | |

43

付録 3.6 -4

プレゼン資料（航路標識）



Indonesia G20 Presidency
**Recover Together
Recover Stronger**

KEMENTERIAN PERHUBUNGAN REPUBLIK INDONESIA
DIREKTORAT JENDERAL PERHUBUNGAN LAUT
DIREKTORAT KENAVIGASIAN



S E M I N A R

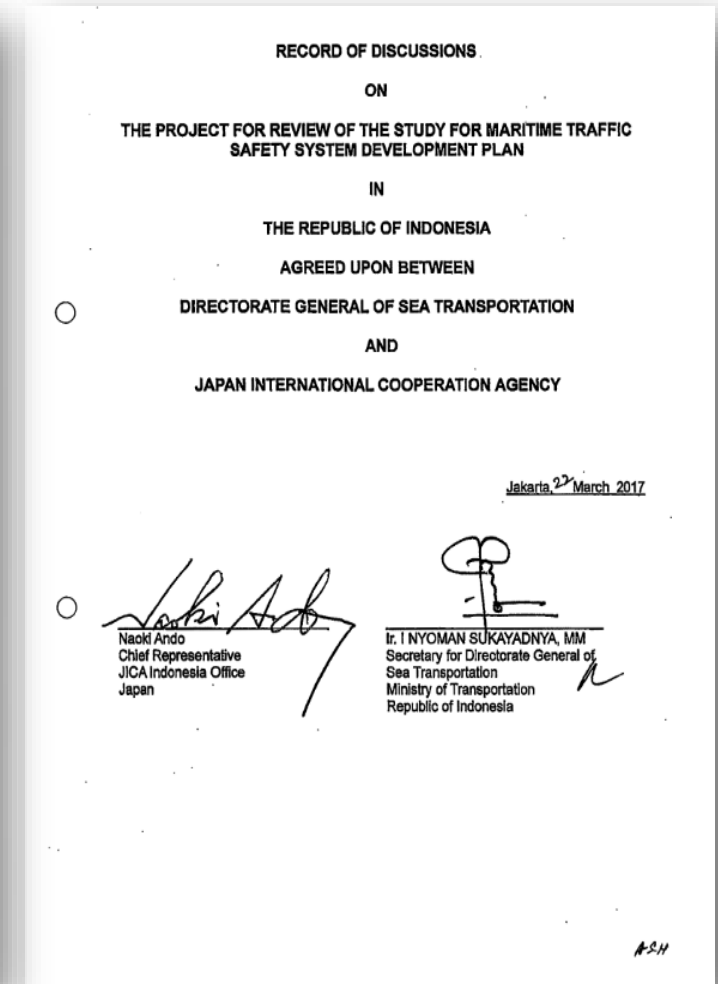
THE PROJECT FOR REVIEW OF THE STUDY FOR MARITIME TRAFFIC SAFETY SYSTEM DEVELOPMENT PLAN

JAKARTA, 16 JUNI 2022



LATAR BELAKANG

- Pada tahun 2002, DJPL telah melakukan Studi Rencana Pengembangan Sistem Keselamatan Lalu Lintas Maritim (*Maritime Traffic Safety System Development Plan*) yang berisi Rencana Induk sampai dengan tahun 2020 dan Rencana Jangka Pendek sampai dengan tahun 2007 bekerjasama dengan JICA.
- Pada tahun 2017, berdasarkan Record of Discussion yang ditandatangani oleh DGST dan JICA, disepakati pelaksanaan update dan review dari hasil *The Study for Maritime Traffic Safety Development Plan* di tahun 2002, termasuk untuk melaksanakan penyusunan Masterplan Kenavigasian sampai dengan tahun 2040.
- Pelaksanaan kegiatan tersebut berbentuk *in kind contribution* di bawah kegiatan *Technical Cooperation for Development Planning (TCDP)* antara JICA dan Pemerintah Indonesia, serta dilaksanakan dalam kerangka Kerjasama *Colombo Plan Technical Cooperation Scheme* antara Indonesia dan Jepang.



PELAKSANAAN KEGIATAN REVIEW STUDY

- Sebagai tindak lanjut telah ditandatangani Minutes of Meetings antara Sesditjen Hubla dan Chief Representative JICA Indonesia, untuk merevisi *Record of Discussion (ROD) on the The Project for the Review of the Study for Maritime Traffic Safety System Development Plan*.
- Revisi / amandemen berfokus pada perpanjangan waktu studi yang semula berakhir pada tahun 2021 menjadi tahun 2023 serta penekanan terkait dengan lingkup kegiatan yang telah mengakomodir masukan dari Ditjen Hubla.
- Lebih lanjut diperlukan peran serta dari Direktorat Kenavigasian dan Distrik Navigasi terhadap studi yang dilaksanakan oleh JICA agar dapat dilaksanakan secara komprehensif.
- Adapun pada pertengahan Februari 2022, telah dilaksanakan kick off meeting kegiatan studi tersebut.



KEMENTERIAN PERHUBUNGAN REPUBLIK INDONESIA
DIREKTORAT JENDERAL PERHUBUNGAN LAUT
DIREKTORAT KENAVIGASIAN

MINUTES OF MEETINGS
BETWEEN
JAPAN INTERNATIONAL COOPERATION AGENCY
AND
DIRECTORATE GENERAL OF SEA TRANSPORTATION
THE REPUBLIC OF INDONESIA
FOR AMENDMENT OF THE RECORD OF DISCUSSIONS
ON
THE PROJECT FOR REVIEW OF THE STUDY FOR MARITIME TRAFFIC SAFETY
SYSTEM DEVELOPMENT PLAN

The Japan International Cooperation Agency (hereinafter referred to as "JICA") and Directorate General of Sea Transportation in the Republic of Indonesia (hereinafter referred to as "DGST") hereby agree that the Record of Discussions on the Project for Review of the Study for Maritime Traffic Safety System Development Plan (hereinafter referred to as "the Project") signed on 22 March 2017 will be amended as follows:

1. Amendment of outline of the project

| Before | Amended Version |
|-------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 4. Activities | 4. Activities 4) NAVIGASI, each DISNAV, and JICA Experts formulate Master Plan about: i) Aids to Navigation and VTS, including "Ships Routing" which is derived from these ii) Coastal Radio Station iii) Vessels for Aids to Navigation In this activity, NAVIGASI and each DISNAV actively get and analyze data on i) Aids to Navigation and VTS, including "Ships Routing", ii) Coastal Radio Station, and iii) Vessels for Aids to Navigation following JICA experts' advices based on Annex 4. |
| 5. Input (2) Input by DGST | 5. Input (f) Input by DGST (f) Regarding with Activities 4), NAVIGASI and each DISNAV actively get and analyze data on i) Aids to Navigation and VTS, including "Ships Routing", ii) Coastal Radio Station, and iii) |

2. Retroactive (Record of Discussions Annex 1)

| Before | Amended Version |
|--------|---------------------------------------------------------|
| None | This amendment will become retroactive to April 1, 2021 |

Reason:
JICA and DGST agreed the necessity of the extension of the project by exchanging letters with the date of 25 December 2020 (Annex 2) and 8 January 2021 (Annex 3). However, the amendment of ROD has not been implemented in a timely manner due to the outbreak of COVID-19.
Therefore, this amendment shall be effective retroactively to 1 April, 2021, the expiration date of the previous duration.

The parties acknowledge and agree that this Minutes of Meetings may be executed by electronic signature, which is considered as an original signature for all purposes and has the same force and effect as an original signature. "Electronic signature" includes faxed versions of an original signature or electronically scanned and transmitted versions of an original signature.

Annex 1: Record of Discussions on the Project for Review of the Study for Maritime Traffic Safety System Development Plan in the Republic of Indonesia Agreed upon between Directorate General of Sea Transportation and Japan International Cooperation Agency (signed on 22 March 2017)

Annex 2: Additional work for "The Project for Review of the Study for Maritime Traffic Safety System Development Plan" (25 December 2020)

Annex 3: Re: "The project for Review of the Study for Maritime Traffic Safety System Development Plan" (Ref.No: AL703/1/6/DJPL/2021 Jakarta 8 January 2021)

Annex 4: TOR for the additional activities

Jakarta, October 2021

Shiori Ono
Chief Representative
JICA Indonesia Office
Japan

ARIF TOHA
Secretary for Directorate General of
Sea Transportation
Ministry of Transportation
Republic of Indonesia

KEMENTERIAN PERHUBUNGAN
DIREKTORAT JENDERAL PERHUBUNGAN LAUT

Ref No: AL 703/1/6/DJPL/2021 Jakarta, 8 January 2021

Director
Team 2, Transportation Group Infrastructure Management Department
Japan International Cooperation Agency

ATTN: Mr. ATSUSHI NAKAGAWA

Re: "The project for Review of the Study for Maritime Traffic Safety System Development Plan"

Dear Mr. Nakagawa,

First of all, we would like to extend our sincere appreciation to JICA for the support, contribution and cooperation for establishment of The Project for Review of the Study for Maritime Traffic Safety System Development Plan (MTSDP). Further, we would like to thank you for your efforts towards the completion of the Project of MTSDP.

Based on Record of Discussions on the Project for Review of the Study for Maritime Traffic Safety System Development Plan in the Republic of Indonesia Agreed Upon Between Directorate General of Sea Transportation and Japan International Cooperation Agency (JICA) (hereinafter referred to as "the ROD"), which signed on 22 March 2017, the output of the said study is to review and update the MTSDP elaborated in 2002, including to update the Master Plans on navigation related aspects up to 2040.

We do hope that the result of the said study of MTSDP could develop a comprehensive Master Plans based on the current policy and related international as well as national rules and regulations, in accordance with the said ROD. Further, we expected that the said Master Plans could be utilized as a main document to develop our very own National Strategic Plan on Navigation Aspects, which we are fully aware and understand will be drafted by the Directorate General of Sea Transportation.

We appreciate the efforts of the JICA study team to develop the content of the study, however, we still have the opinion that there are several areas that needed to be developed in order to accommodate the items which agreed on ROD. According to the discussion during the last Joint Coordination Committee meeting which held in August 2020, we draw a conclusion that document for the new master plan which was prepared by consultant appointed by JICA could not be identified as comprehensive Master Plan instead it could be describes as the list of priority projects.

"Membantu Pemerintah Indonesia dalam Meningkatkan Kualitas Infrastruktur Laut"

JICA
Japan International Cooperation Agency

Mr. Hengki Angkasanen
Director of Navigation
Directorate of Navigation, Directorate General of Sea Transportation

Dear Mr. Hengki,

Subject: Additional work for "The Project for Review of the Study for Maritime Traffic Safety System Development Plan"

We appreciate your support for "The Project for Review of the Study for Maritime Traffic Safety System Development Plan".

Since our last Joint Coordination Committee meeting held in August this year, NAVIGASI, JICA and the consultants had series of meetings and discussions about the contents and descriptions of the draft final report. Through these discussions, we noticed that each NAVIGASI, JICA and the consultants have different picture on the Masterplan and we need to clarify the activities to be covered in the Project. We have examined what we have done in the Project and what we are supposed to do, the contents of the final report, and the comments from NAVIGASI etc. which we have summarized in the attached sheets. We might be able to accept the request from NAVIGASI in some items while we cannot in others.

We kindly request you to confirm the attached sheets and send us the confirmation. We would appreciate it if you could send the comments with concrete details referring the previous Masterplan by 22nd January 2021 in case that you have a different view on particular items.

Yours sincerely,
中川 淳史
Atsushi Nakagawa
Director
Team 2, Transportation Group
Infrastructure Management Dept.
JICA

CC: Mr. Yoko Sato
Executive Director
Japan Aids to Navigation Association



TAHAPAN DAN KOMPONEN KEGIATAN

Tahapan Kegiatan:

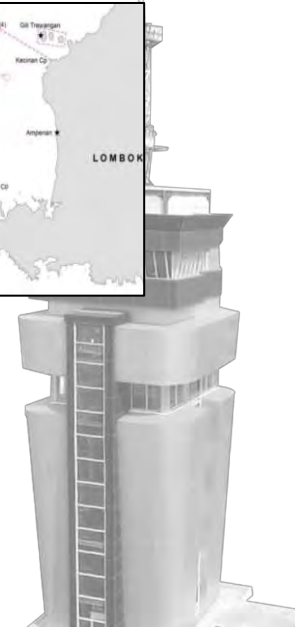
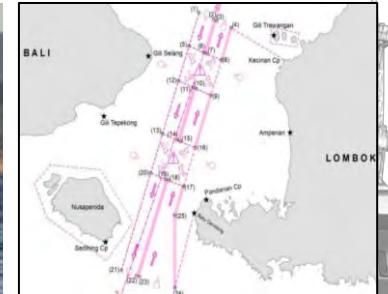
- Preparation necessary documents such as Draft of Policy, Guideline and Questionnaire by DITNAV and Consultants;
- Guidance to DISNAV by DITNAV and Consultants
- Data collection by DISNAV with supports from Consultants
- Preparation of the Draft Establishment Plan by Consultants
- Formulation of the draft Master Plan by Consultants

Lingkup Kegiatan

Komponen 1 : Sarana Bantu Navigasi-Pelayaran (SBNP) dan VTS termasuk Sistem Rute Alur-Pelayaran;

Komponen 2 : Stasiun Radio Pantai (SROP)

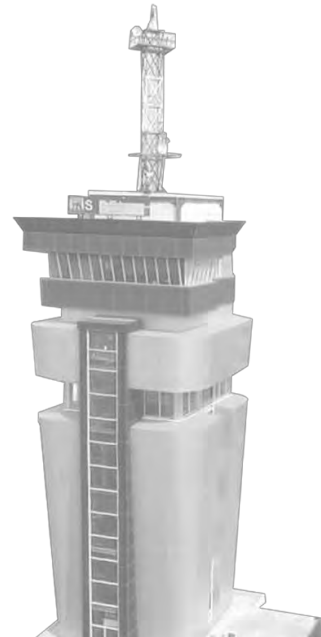
Komponen 3 : Kapal Negara Kenavigasian



STRATEGI DAN KEBIJAKAN



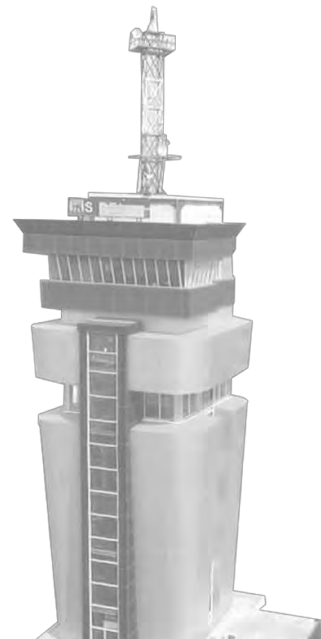
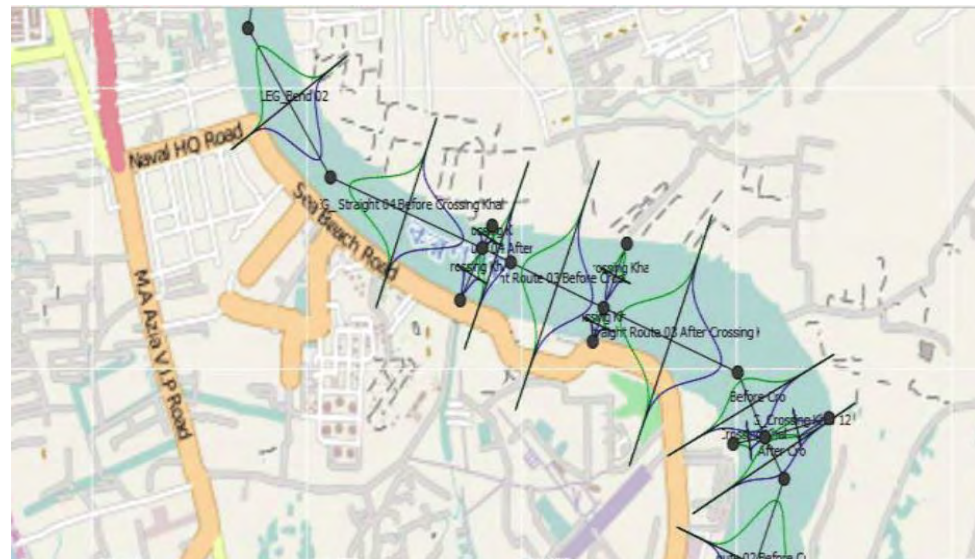
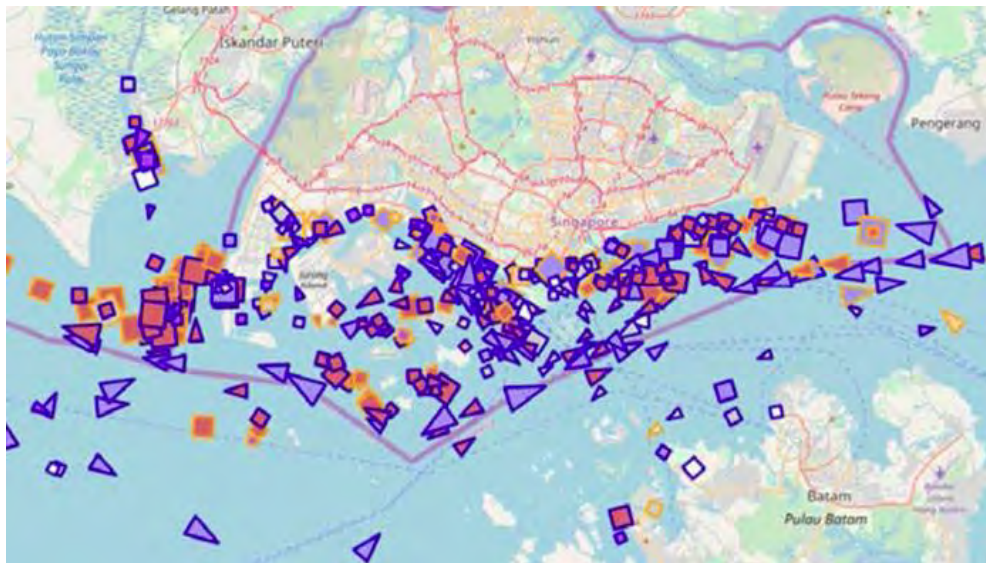
Dalam rangka keselamatan pelayaran yang aman dan efisien, pembangunan Sarana Bantu Navigasi-Pelayaran (SBNP) dan penyediaan informasi maritim memainkan peran yang sangat penting.



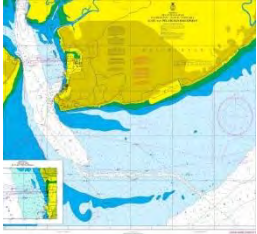
RISK ASSESSMENT



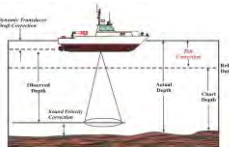
Untuk mengevaluasi validitas pada desain sistem rute (penyelenggaraan Alur-Pelayaran), penempatan/pengembangan Sarana Bantu Navigasi-Pelayaran dan VTS IALA Waterway Risk Assessment Program (IWRAP) Menggunakan data AIS akan digunakan untuk menganalisa pergerakan kapal dan kemungkinan terjadinya kecelakaan.



STRATEGI SISTEM RUTE



Justifikasi Perencanaan Sistem Rute (Contoh : Alur-Pelayaran Masuk Pelabuhan, Alur-Pelayaran Umum dan Perlintasan serta Masukan/Permintaan dari stakeholder)



Survey Hidro-Oseanografi, Pengumpulan dan Evaluasi Data Sekunder (Contoh : RIPN, RIP, Data Traffic, RZWP3K, DLL)



Perencanaan dan Analisa Risiko Desain Alur-Pelayaran, Sistem Rute, Tata Cara Berlalu Lintas, dan Daerah Labuh Kapal Sesuai Dengan Kepentingannya

STRATEGI PEMBANGUNAN SBNP



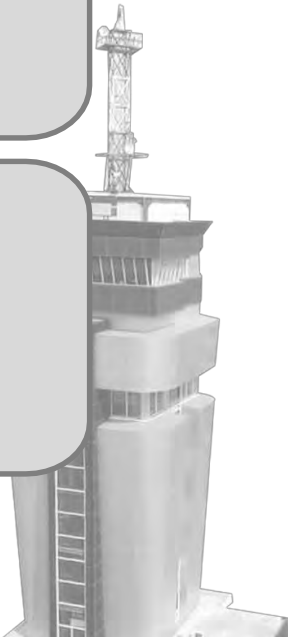
Justifikasi Pembangunan SBNP (Contoh : Lokasi Pelabuhan atau Masukan/Permintaan dari stakeholder)



Survey Penentuan Lokasi SBNP (Contoh : Penetapan Alur)



Detail Engineering Design (DED) SBNP



GUIDELINE



KATEGORI AREA PERAIRAN

1. Perairan lepas pantai;
2. Perairan pantai;
3. Area perairan memiliki traffic yang padat;
4. Pelabuhan (area perairan yang terbatas);
5. Perairan di sungai.

KATEGORI

a. VISUAL SBNP

*Referensi

Jarak terlihat yang direkomendasikan

- Coastal aid : 12 NM atau lebih
- Alur/Penanda Berbahaya, Penanda indikasi

b. Radio AtoN

(termasuk sistim penyediaan informasi)

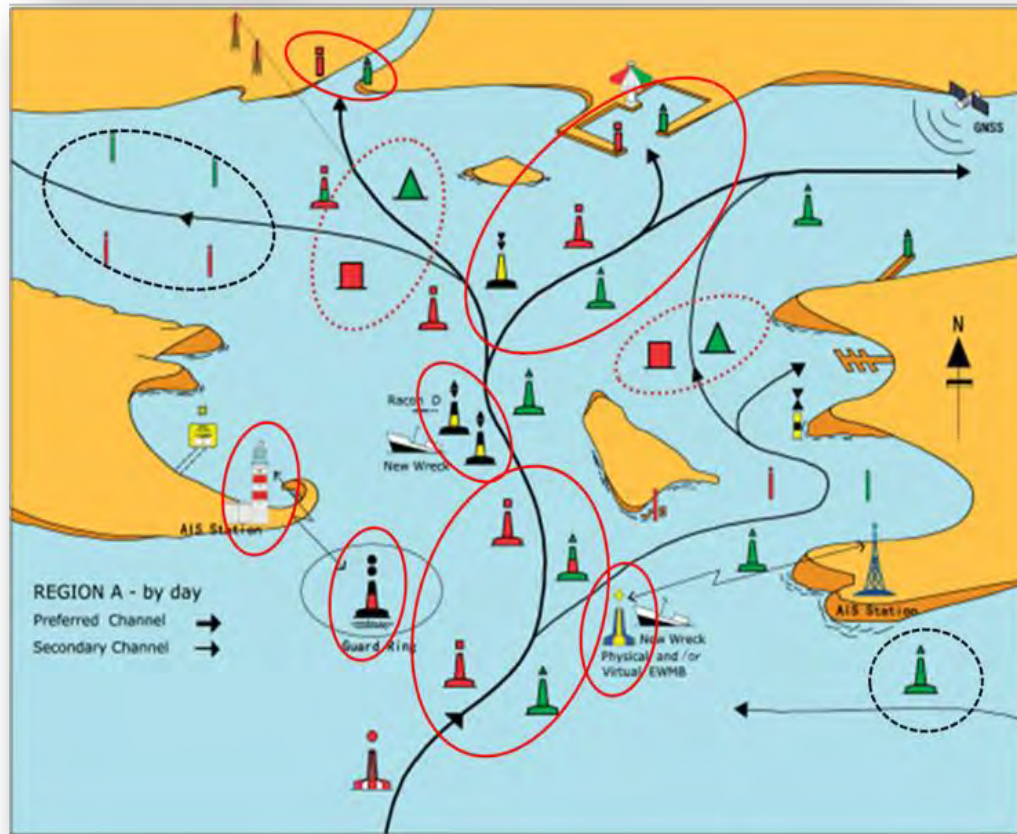
*Referensi

VTS, AIS AtoN, Radar-beacon, Signal station



KLASIFIKASI

Explanatory Figure for Classification of significance for the installation



KATEGORI 1 VITAL

- Pendaratan (Landfalls)
- Alur utama
- Bahaya

KATEGORI 2 PENTING

- Alur sekunder
- Penanda tambahan dari rute utama

KATEGORI 3 DIPERLUKAN

- Membantu/Berguna untuk navigasi pelayaran

PENEMPATAN SBNP

1. PENEMPATAN PADA AWAL ALUR-PELAYARAN (PERAIRAN AMAN)
2. PENEMPATAN PADA TITIK DIMANA:
 - Kapal harus mengubah arahnya;
 - Batas alur-pelayaran;
 - Area perairan dangkal dan batu, atau bahaya navigasi lainnya;
 - Alur berpotongan atau bercabang.
3. BAGAN PEMISAH (TSS)
Navigator harus dapat melihat dengan jelas konstruksi SBNP di perairan.



STRATEGI PEMBANGUNAN VTS

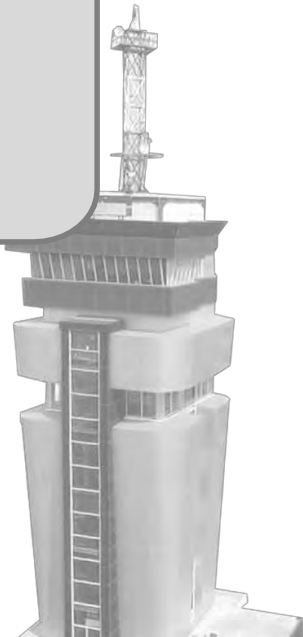


Pra Feasibility Study dan Feasibility Study

- *Preliminary Assessment, Feasibility dan Desain;*
- *Analisa Risiko dan Cost Benefit.*



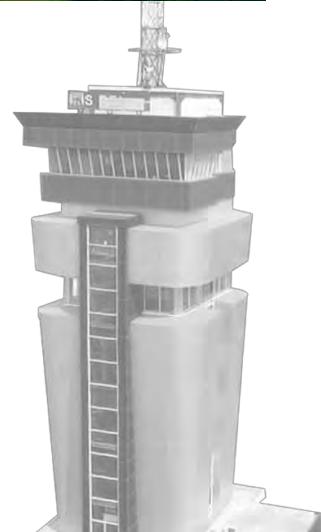
VTS Establishment



KLASIFIKASI V T S

Diklasifikasikan berdasarkan Tujuan dan Operasi tertentu

- a. INS : INFORMATION SERVICE SYSTEM
(Penyediaan Informasi)
- b. TOS : TRAFFIC ORGANIZATION/ MANAGEMENT SYSTEM
(Untuk menghindari kemacetan)
- c. NAS : NAVIGATIONAL ASSISTANCE SERVICE
(Membantu kapal lebih efisien dalam bernavigasi)
- d. OTHER : SURVEILLANCE, ALLIED SERVICE
(Keamanan, kerjasama/dukungan)



VESSEL TRAFFIC SERVICES

1. VTS Area (Type of VTS)

- Coastal waters (Coastal VTS)
- Port/Harbor (Port VTS)
- Inland Water/River

2. Provided Information

- Traffic
- Weather
- Tidal
- Berthing
- Allied services

3. Facilities

- Radar
- AIS
- Meteorological Instrument
- Radio Communication (VHF)
- Traffic/Tidal Signal
- Other sensors



OUTPUT



Meningkatkan keselamatan pelayaran pada wilayah perairan Pelabuhan dan teluk



Transformasi pelabuhan yang memiliki sistem rute yang aman dan selamat



Tujuannya adalah pelabuhan yang memiliki sistem rute digunakan kapal dalam bernavigasi dengan aman dan efisien

TERIMA KASIH





وَسَلَامٌ عَلَيْكُمْ وَرَحْمَةُ اللَّهِ وَبَرَكَاتُهُ



Direktorat Jenderal Perhubungan Laut
Kementerian Perhubungan

Direktorat Kenavigasian

Gedung Karya Lantai 21
Kementerian Perhubungan
Jl. Medan Merdeka Barat no. 8
Jakarta Pusat 10110

-  <https://i-motion.dephub.go.id/>
-  <http://hubla.dephub.go.id:82/e-licensing>
-  telkompel.ditnav@kemenhub.go.id
-  [telekomunikasi.pelayaran](#)

 Telekomunikasi Pelayaran - Direktorat Kenavigasian

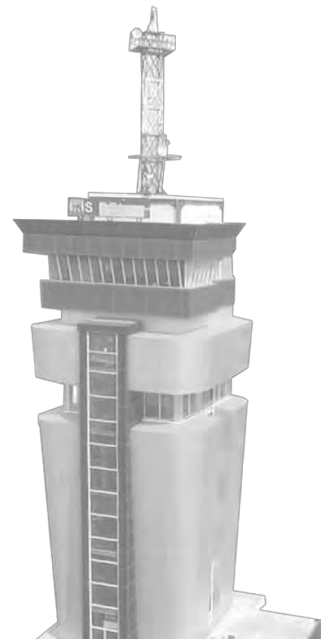


付録 3.6 -5

プレゼン資料（沿岸無線局）

PROJECT FOR REVIEW OF THE STUDY FOR MARITIME TRAFFIC SAFETY DEVELOPMENT PLAN (JICA MASTER PLAN)

COASTAL RADIO STATION (SROP)



TERMS OF REFERENCE FOR THE ADDITIONAL WORK

Terms of Reference for the additional work

Scope of the Additional Work

- There are three components in the additional work (support for arrangement of an establishment plan), namely:

Component 1 : Aids to Navigation and VTS, including “Ships Routeing”

Component 2 : Coastal Radio Station

Component 3 : Vessels for Aids to Navigation

- The goal of the additional work is for NAVIGASI to be able to draft a necessary Master Plan for the future with a view up to 2040 in the above 3 areas using the data collected and analyzed by DISNAV. Thus, the focus of the additional work is on the technical transfer of the necessary knowledge and skills in formulating draft Master Plans in the above 3 areas through advisory services from consultants. Cooperation between NAVIGASI and DISNAV for this purpose will be also strengthened.
- The consultants will guide the whole process including the setting up meetings and provide advices and supports such as policy inputs, advices in guidelines, advices in data compilation and analysis, suggestions of necessary questionnaires, formats, diagrams, charts, etc.
- Local Consultants will assist in coordination for setting up meetings, documentation, data compilation, interpretation in the meetings, and translation of documents. They will be selected by the Consultants following JICA’s regulations on the procurement.
- As a deliverable of the technical transfer activities, the Master Plan as described above will be formulated in each component jointly. The consultants will compile them and submit them which will be added to the Draft Final Report (2) and final report. This Master Plan should be elaborated and completed as NAVIGASI’s own Master Plan by NAVIGASI themselves after the due internal process.
- Charts and descriptions which NAVIGASI expects to be included in the Master Plan for each component will be summarized after the discussion between NAVIGASI and the

Outlines of the Necessary Activities

- Preparation of necessary documents such as Policy, Guideline, and Questionnaire by NAVIGASI with assistance of the Consultants

The Consultants will provide the templates of the following three documents. NAVIGASI will formulate the following documents officially for DISNAV with the advices and supports from the consultants;

- The Policy for fundamental approach in making the Master Plan. The Consultants will guide the points of consideration for preparing the Policy using its template.
- The Guideline for planning and installing aids to navigation in accordance with International standards and in taking into account regional characteristics.
- The format document Including Questionnaires for collecting the draft Establishment Plan of DISNAV in line with the Policy and the Guideline and for necessary information in planning the plan.

NAVIGASI with the support from consultants will identify the necessary data and agree with the consultants on the means of data collection through the discussion. In order to facilitate the discussion, the Consultants will provide the draft list of the necessary data as a suggestion for discussions to be built upon. The format of the Questionnaires for collecting those necessary data will be also agreed and developed jointly.

The format of the Establishment Plan which will be used by DISNAV in Activity 4 below “Preparation of the Draft Establishment Plan” will be also agreed and developed jointly.

- Guidance to DISNAV by NAVIGASI and Consultants

- NAVIGASI will issue a letter with the Director’s signature and deliver above Policy, Guidelines, Questionnaires, including Formats to all the DISNAV.
- NAVIGASI will organize online guidance sessions with all DISNAVs using above documents.
- Consultants will provide technical advices in the discussion especially in the Q&A sessions.

- Data collection by each DISNAV with supports from Consultants

- DISNAV, with the technical support from the Consultants, collect all necessary data using Questionnaire in line with the Policy and the Guidelines.
- Consultants will facilitate the discussion for consultation as a help desk (online-base) for the work going smoothly.
- Examples of necessary data anticipated are:

Component 1: Nautical chart around the requested aid (Nautical chart with existing aids to navigation indicated), Access map to the requested locations (route, means of access), chart of each port, maritime information, AIS, typical ship route, hearings from maritime stakeholders

Component 2: Data from CRS, Operating Log (Communication record) Operational hours, The total time (number of times) of received signals, The total time (number of times) of transmitted signals, Record of equipment trouble

Component 3: Information about buoy base and vessels, etc. which are necessary for estimating work load of each buoy tender, Operation statistics] Logbook (Navigation record) [Calculation of the workload to be done by vessels] Interval of lighthouse keeper’s shift, Itinerary (distance) for the transportation, Itinerary (distance) for the replacement of buoys, Type of vessels necessary

- Above necessary data will be derived from the concept of the documents in the Activity 1 above.
- Method for completing the format documents and Questionnaires will be discussed through the online meetings among the Consultants, NAVIGASI and each DISNAV, as needed.

- Preparation of the Draft Establishment Plan by each DISNAV with the support from Consultants

- The draft Establishment plan from DISNAV is a request to NAVIGASI regarding the DISNAV’s needs in establishing Aids to Navigation System in their jurisdiction, and to improve the CRS and Vessels for AtoN.

Component 1: The Establishment Plan from DISNAV will be the basis for installing visual aids to navigation, setting up VTS stations and considering Ships Routeing, and will be included in the short and/or long term Master Plan based on the policy, budget, etc.

Component 2: The draft Establishment Plan from DISNAV related to CRS will be basis for considering the modernization of GMDSS and the operation of stations from now on, namely consolidation of stations, and will be reference information on planning the new system. The results of the consideration based on the information will be reflected in the Master Plan.

Component 3: The draft Establishment Plan from DISNAV related to Vessels for AtoN will be basis for considering the renovation including scrap and build and relocation of a vessel that suits the workload. The results of the consideration based on the information will be reflected in the Master Plan.

- DISNAV, with the support from the Consultants, compiles and analyzes collected data, select the priorities, and prepare a draft Establishment plan in accordance with the Policy and the Guideline, and submit it to NAVIGASI.
- Local Consultants will also assist DISNAV in data compilation.

- Formulation of the draft Master Plan by NAVIGASI and Consultants

- With the technical advices and supports from the consultants, NAVIGASI will aggregate all the Establishment Plans from DISNAVs.
- Local Consultants will also assist NAVIGASI in aggregating the Establishment Plans from DISNAVs.
- Through above process, NAVIGASI and the Consultants will determine the order of implementation of all Establishment Plans from DISNAV. The Consultants will provide the points to be considered in determining the order of implementation.
- The hearings will be considered to gather public comments as necessary.
- By reflecting public comments and order of implementation, aggregated Establishment Plans will be elaborated and formulated as a draft Master Plan by NAVIGASI and the Consultants. The consultants will compile and submit the first draft and added to the Draft Final Report (2) and final report.

BACKGROUND:

1. Jumlah SDM operator dan teknisi di SROP yang terus menurun jumlahnya dan tidak sebanding dengan jumlah rekrutmen untuk SDM yang baru.
2. Coverage/cakupan SROP yang overlap/ tumpang tindih satu sama lain.
3. Sistem SROP di Indonesia saat ini mengadopsi sistem lama yang perlu untuk disesuaikan dengan sistem yang mampu menjadi solusi dalam masalah operasional SROP.
4. Modernisasi GMDSS oleh IMO menjadi suatu tuntutan ke depan untuk dapat diadopsi dalam master plan SROP.
5. Tidak terdapatnya MP untuk SROP menjadikan Disnav mengajukan usulan SROP baru berdasarkan KM 30 yang mana kondisinya sangat jauh berbeda dengan kebutuhan saat ini.
6. Belum adanya suatu kajian yang komprehensif dalam pendirian SROP.

MEASURE

OUTPUT:

1. Keterbatasan SDM dapat teratasi dengan ekspektasi hanya menggunakan 50% dari SDM yang ada saat ini dengan kualitas operator yang tetap handal.
2. Konsolidasi sistem 157 SROP yang telah terbangun saat ini dengan ekspektasi output
 - a. SROP HF menjadi 5 Stasiun
 - b. SROP MF menjadi 31 Stasiun
 - c. SROP VHF konsolidasi kurang lebih 80%
3. Modernisasi GMDSS dengan memasukkan unsur NAVDAT, VDES dan LTE dalam MP.
4. Sebagai acuan dan salah satu komponen utama dalam revisi KM 30 tahun 2006 terkait dengan SROP.

Inovasi dan pembentukan kembali Stasiun Radio Pantai (SROP)

Tujuan utama

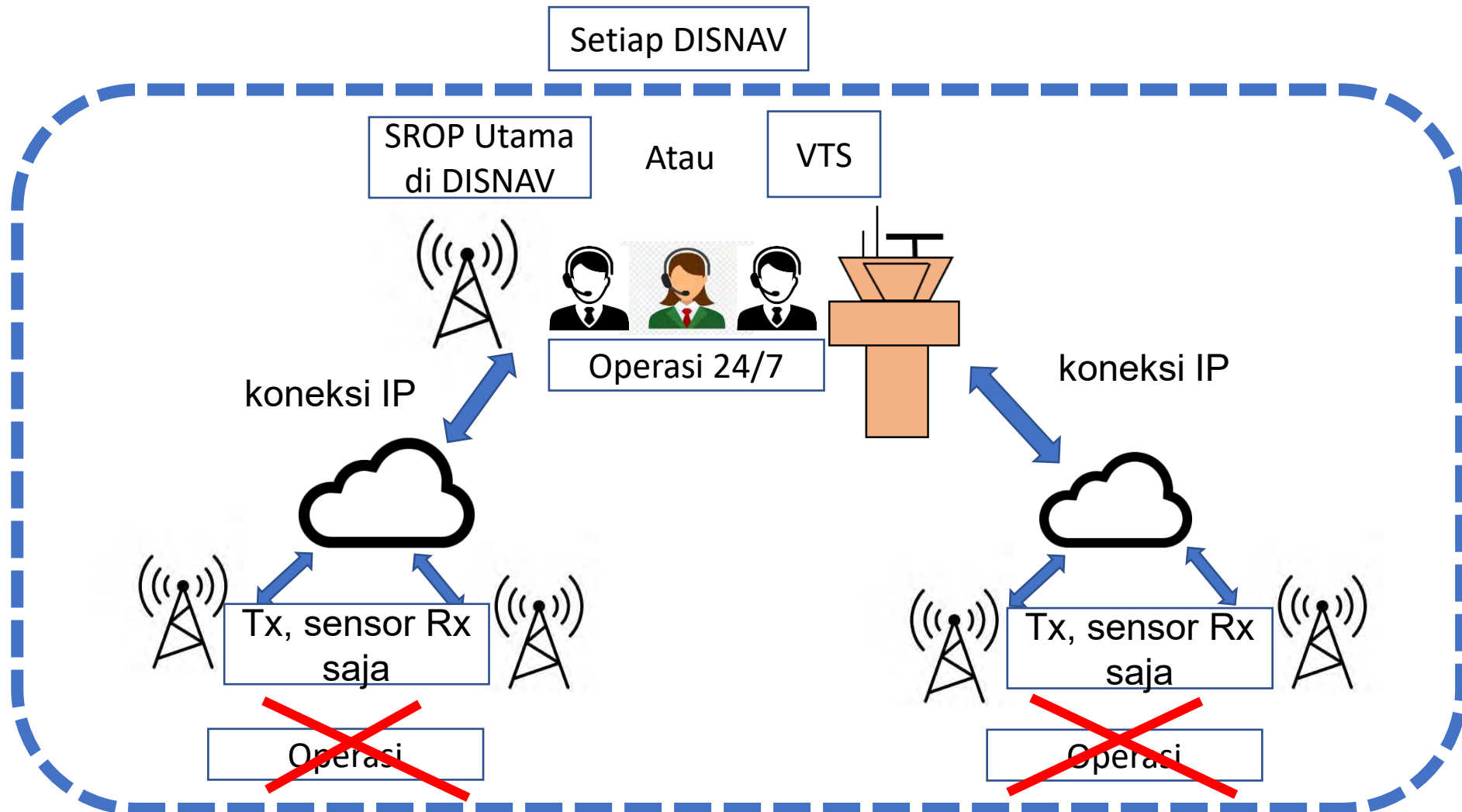
Untuk meninjau dan mencapai
Operasi yang efisien dan efektif

Kebijakan  **Utama**

**Konsolidasi operasi di 157 stasiun
di bawah setiap DISNAV atau VTS
untuk memusatkan**

| Kelas | | Stasiun | Fungsi | GMDSS | Area Layanan | Jam Operasi | Porsi |
|--------|---|---------|--------------------------------------------------------------------------------|-------|--------------|-------------|-------|
| 1 | | 11 | Layanan Maritim bergerak termasuk layanan telepon umum, stasiun tidak bergerak | O | A1, A2, A3 | 24 | 7% |
| 2 | | 7 | | O | A1, A2, A3 | 16-24 | 4% |
| 3 | A | 42 | | O | A1, A2 | 12-16 | 31% |
| | B | 7 | | O | A1, A2 | 12-16 | |
| 4 | A | 64 | Layanan Maritim bergerak dan/atau stasiun tidak bergerak | O | A1, A2 | 8-12 | 57% |
| | B | 26 | | X | A1 | | |
| Jumlah | | 157 | | | | | |

Rencana konsolidasi



Alur Pedoman

Situasi operasional saat ini dalam berbagai komunikasi
Ditugaskan SDM di setiap stasiun
Fasilitas di setiap stasiun

Tujuan dan isi operasi di
setiap SROP



- Setiap frekuensi
- Setiap komunikasi
- Setiap lokasi SROP

Penataan ulang SDM
yang efisien di setiap
SROP



- Operator radio
- Teknisi
- Admin dan lainnya

Formulir pelaporan

1. Buku catatan yang diekstraksi dalam durasi tertentu dari setiap stasiun (sampel dikumpulkan sebagian)
2. Master sheet SDM operator, teknisi, staf admin di setiap stasiun di bawah masing-masing DISNAV
3. Lembar induk untuk melengkapi fasilitas di setiap stasiun (sebagian dikumpulkan dalam kuesioner sebelumnya)
4. Informasi penganggaran di setiap DISNAV selama 3 tahun terakhir

Informasi dasar dengan fasilitas

| | |
|--------|---------|
| DISNAV | Tarakan |
|--------|---------|

Informasi dasar

| Nama lengkap SROP | Alamat | Garis Lintang | Garis bujur | Ketinggian (AMSL) | No Telp / No FAX | Alamat email | jumlah staf | Kelas | Area Pengamatan Laut | Jam operasional harian |
|-------------------|-----------------------------------------------|---------------|---------------|-------------------|------------------|--------------------------------------------------------------------|-------------|-------|----------------------|------------------------|
| Tarakan | Jl. Yos Sudarso No.6 Tarakan Kalimantan Utara | 03° 17' 20"N | 117°35' 25"BT | 20M | (0551) 2029482 | srop.tarakan@yahoo.com | 12 | III | A1, A2 | 24 |
| Nunukan | | | | | | | | | | |
| Tg. selor | | | | | | | | | | |
| Tg Redep | | | | | | | | | | |

| MF/HF | | | | | | | | | | | | |
|----------------------------|----------|--------|-----------------|---------|--------------|--------|-----------------|---------|----------------------|-----------------|---------|---------------|
| Pemancar/Penerima/Pemancar | | | | | Unit kontrol | | | | Antena dan pengumpan | | | |
| Nama model | Pabrikan | jumlah | Tahun terpasang | Kondisi | Nama model | jumlah | Tahun terpasang | Kondisi | Nama model | Tahun terpasang | Kondisi | Tinggi antena |
| TU6360/TU6260 (500W) | Sailor | 2 | 2015 | Baik | CU6301 | 2 | 2015 | Baik | KABEL | 1972 | Baik | 20 |

| VHF | | | | | | | | | Stasiun base AIS | |
|---------------|----------|--------|-----------------|---------|----------------------|-----------------|---------|---------------|------------------|-----------|
| Pemancar | | | | | Antena dan pengumpan | | | | | |
| Nama model | Pabrikan | jumlah | Tahun terpasang | Kondisi | Nama model | Tahun terpasang | Kondisi | Tinggi antena | Nama model | Pabrikan |
| CY51218 (35W) | Sailor | 3 | 2015 | Baik | SHAKESPEARE | 2015 | Baik | 20 | BS500 | Kongsberg |

lembar induk SDM

| | |
|------------------------|----------|
| DISNAV | Tg Priok |
| Nama Stasiun | panjang |
| Kelas | IIIA |
| Jam operasional harian | 12 |

CONTOH

daftar SDM[illegible]

CONTOH

| | | |
|------------------------|---------|---------|
| DISNAV | Belawan | Belawan |
| Nama Stasiun | Belawan | Belawan |
| Kelas | I | I |
| Jam Operasional Harian | 24 | 24 |

CONTOH

| | |
|--|---------------------|
| | Operator |
| | Teknisi |
| | Tidak bersertifikat |

Daftar SDM

| No | Nama Lengkap | NIP | Tanggal Lahir | Umur per tahun 2022 | Kelompok Umur | | | | | | | Penugasan Pekerjaan | | | | Pengalaman Kerja |
|----|--------------------|-----------------------|---------------|---------------------|--------------------------|-------|-------|-------|-------|-------|-----|---------------------|------------------|------------|----------------|----------------------------|
| | | | | | Per tanggal 16 Juni 2022 | | | | | | | Operator Radio | | Teknisi | | Tahun (Penugasan saat ini) |
| | | | | | 21-25 | 26-30 | 31-35 | 36-40 | 41-45 | 46-50 | 51~ | Lisensi Umum | Lisensi Terbatas | Sertifikat | Non Sertifikat | |
| 1 | Maswahyudi | 19670305 198903 1 002 | 1967 | 55 | | | | | | | X | X | | | | 33 |
| 2 | Anang Suhartono | 19641119 198403 1 002 | 1964 | 58 | | | | | | | X | X | | | | 38 |
| 3 | Lilik Usnanto | 19650523 198910 1 001 | 1965 | 57 | | | | | | | X | X | | | | 33 |
| 4 | Marupa Sitohang | 19690512 199103 1 003 | 1969 | 53 | | | | | | | X | X | | | | 31 |
| 5 | Karianto | 19660303 198903 1 001 | 1966 | 56 | | | | | | | X | X | | | | 33 |
| 6 | Leo Lupini Gultom | 19651213 199103 1 002 | 1965 | 57 | | | | | | | X | X | | | | 31 |
| 7 | Refni Handayani | 19790202 200812 2 002 | 1979 | 43 | | | | | X | | | X | | | | 14 |
| 8 | Maulidina Ulfah | 19820127 200803 2 001 | 1982 | 40 | | | | X | | | | X | | | | 14 |
| 9 | Jumi 'in | 19691010 199803 1 002 | 1969 | 53 | | | | | | | X | | | X | | 24 |
| 10 | Anggie Andhika | 19770630 201012 1 001 | 1977 | 45 | | | | | X | | | X | | | | 11 |
| 11 | Satria Pribadi | 19841229 200312 1 005 | 1984 | 38 | | | | X | | | | X | | | | 18 |
| 12 | Hidayat | 19831121 200212 1 002 | 1983 | 39 | | | | X | | | | | | X | | 19 |
| 13 | Irwan Hengki Sukma | 19840712 200712 1 001 | 1984 | 38 | | | | X | | | | | | X | | 15 |
| 14 | Daniel Tobias | 19840312 201012 1 004 | 1984 | 38 | | | | X | | | | X | | | | 11 |
| 15 | Nelly Simanjuntak | 19751123 200604 2 001 | 1975 | 47 | | | | | | X | | X | | | | 16 |
| 16 | Muslim | 19780714 200604 1 001 | 1978 | 44 | | | | | X | | | X | | | | 16 |
| 17 | Kahairul Fuad | 19730819 199303 1 001 | 1973 | 49 | | | | | | X | | | | | | 29 |
| 18 | Taufik Hidayat | 19841120 200712 1 001 | 1984 | 38 | | | | X | | | | X | | | | 11 |
| 19 | Lismayani Siregar | 19820125 200812 2 001 | 1982 | 40 | | | | X | | | | X | | | | 13 |
| 20 | Fernado Sitohang | 19841006 200604 1 002 | 1984 | 38 | | | | X | | | | X | | | | 16 |
| 21 | Ardilah Effendi | 19861001 200712 1 001 | 1986 | 36 | | | | X | | | | | | X | | 14 |
| 22 | Hotman Herianto | 19820623 201012 1 004 | 1982 | 40 | | | | X | | | | X | | | | 11 |
| 23 | Agus Afero | 19720817 200604 1 001 | 1972 | 50 | | | | | | X | | X | | | | 16 |
| 24 | Rifahmi | 19830801 201012 1 002 | 1983 | 39 | | | | X | | | | | | X | | 11 |
| 25 | Adrian Willys | 19841018 200212 1 003 | 1984 | 38 | | | | X | | | | X | | | | 19 |

Rata-rata

45.16

20

5

| | Umur per tahun 2032 | Kelompok Umur | | | | | | | Penugasan Pekerjaan | | | |
|-------|------------------------|--------------------------|-------|-------|-------|-------|-------|-----|---------------------|------------------|------------|----------------|
| | | Per tanggal 16 Juni 2022 | | | | | | | Operator Radio | | Teknisi | |
| | | 21-25 | 26-30 | 31-35 | 36-40 | 41-45 | 46-50 | 51~ | Lisensi Umum | Lisensi Terbatas | Sertifikat | Non Sertifikat |
| 1 | 53 | | | | | | X | | X | | | |
| 2 | 50 | | | | | X | | | X | | | |
| 3 | 55 | | | | | | X | | X | | | |
| 4 | 48 | | | | | X | | | X | | | |
| 5 | 49 | | | | | X | | | | | X | |
| 6 | 48 | | | | | X | | | | | X | |
| 7 | 48 | | | | | X | | | X | | | |
| 8 | 57 | | | | | | | X | X | | | |
| 9 | 54 | | | | | | X | | X | | | |
| 10 | 59 | | | | | | | X | | | | |
| 11 | 48 | | | | | X | | | X | | | |
| 12 | 50 | | | | | X | | | X | | | |
| 13 | 48 | | | | | X | | | X | | | |
| 14 | 46 | | | | | X | | | | | X | |
| 15 | 50 | | | | | X | | | X | | | |
| 16 | 49 | | | | | X | | | | | X | |
| 17 | 48 | | | | | X | | | X | | | |
| 50.59 | | | | | | | | | 13 | | 4 | |

Rincian penganggaran

| | |
|----------------|----------|
| DISNAV | Tg Priok |
| Jumlah stasiun | 5 |

CONTOH

Penganggaran (tahunan)

| nama SROP | Anggaran yang dialokasikan Rp | Kerusakan Rp | | | | Pendapatan penerimaan bukan pajak Rp |
|-------------------|----------------------------------|-----------------|--------------|-----------|-------------------|-----------------------------------------|
| | | Gaji staf | Pemeliharaan | Pembelian | Biaya operasional | |
| CONTOH Jakarta | | | | | | Layanan Telegram |
| panjang | | | | | | |
| Cirebon | | | | | | |
| Bengkulu | | | | | | |
| Cigading | | | | | | |

pengumpulan data internet

| | |
|----------------|----------|
| DISNAV | Tg Priok |
| Jumlah stasiun | 5 |

CONTOH

Data Internet/3G/4G/LTE

| nama SROP | Jaringan yang tersedia | Jenis | | | | | Hasil tes kecepatan (PING) Mb/s | |
|-----------|------------------------|-------------|--------------|-----|----|-----|---------------------------------|------------|
| CONTOH | Pemberi | Kabel | | GSM | | | | |
| | | Serat optik | Logam (ADSL) | 3G | 4G | LTE | Unduh | Mengunggah |
| | Jakarta | Telekomsel | | | | X | | 11.88 |

Analisis isi buku catatan operasi

BERITA ACARA HUBUNGAN KAPAL TANGGAL : 01 MARET 2012

| Waktu | | Stasiun Berhubungan | Nama Panggilan | Frekuensi | | Uraian Berhubungan | Paraf Petugas |
|-------|---------|---------------------|----------------|-----------|----------|------------------------|-----------------|
| Jam | Menit | | | TX | RX | | |
| 00 | 00 | AMBONIA RADIO | PKE | 2182 | 2182 | STW CW STBY T-LIST NIL | ART / RIS / REL |
| | 00 | - | - | 8215 | 8215 | STBY T-LIST NIL | - |
| | 00 | - | - | CW 16/73 | CW 16/73 | STBY | ART |
| | 00 - 03 | - | - | 2182 | 2182 | SP NIL | - |
| 01 | 00 | - | - | 13 | 12 | STBY T-LIST NIL | - |
| | 00 - 03 | - | - | 2182 | 2182 | SP NIL | - |
| | 30 - 33 | - | - | 2182 | 2182 | SP NIL | - |
| 02 | 00 | - | - | 13 | 12 | CLOSE | - |
| | 00 - 03 | - | - | 2182 | 2182 | SP NIL | - |
| | 30 - 33 | - | - | 2182 | 2182 | SP NIL | - |
| 03 | 00 - 03 | - | - | 2182 | 2182 | SP NIL | RIS |
| | 30 | - | - | 8 | 8 | STBY T-LIST NIL | - |
| | 30 - 33 | - | - | 2182 | 2182 | SP NIL | - |
| 04 | 00 - 03 | - | - | 2182 | 2182 | SP NIL | - |
| | 30 | - | - | 8/4 | 8/4 | CL / STBY T-LIST NIL | - |
| | 30 - 33 | - | - | 2182 | 2182 | SP NIL | - |
| 05 | 00 | - | - | 16 | 12 | STBY T-LIST NIL | - |
| | 00 - 03 | - | - | 2182 | 2182 | SP NIL | - |
| | 30 - 33 | - | - | 2182 | 2182 | SP NIL | - |

Model : B-18A Melihat Kepala SROP Ambon

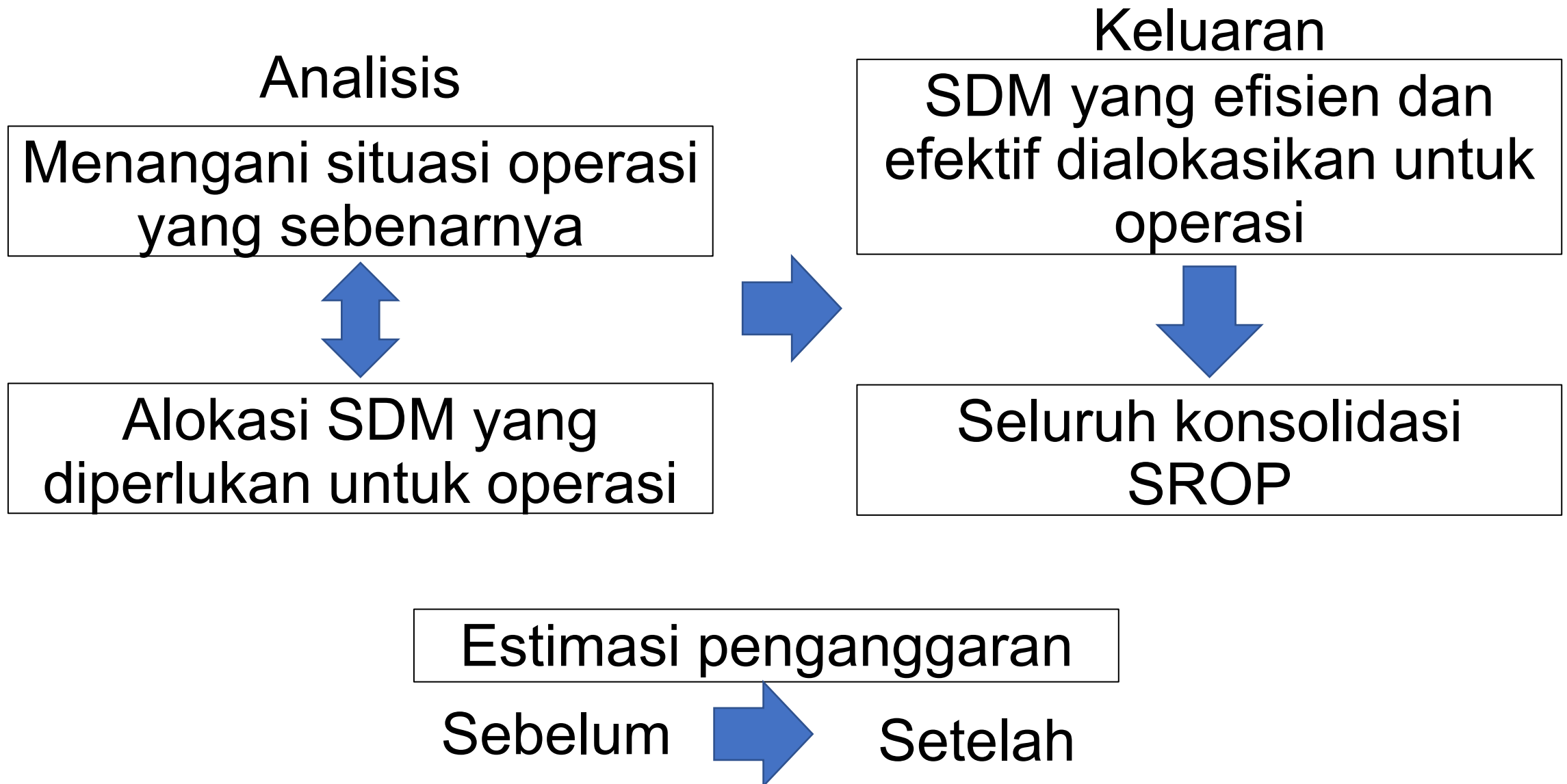


| | A | B | C | D | E | F | G | H |
|----|--------|--------|-------|-----|------|------|-----|-------|
| 1 | Ambon | | | | | | | |
| 2 | | | | | | | | |
| 3 | Date | Disnav | SROP | CQ | | | QSO | TOTAL |
| 4 | | | | VHF | MF | HF | VHF | |
| 5 | 01-Mar | Ambon | Ambon | 16 | 2182 | 6215 | 16 | 35 |
| 6 | 02-Mar | Ambon | Ambon | 1 | 32 | 1 | 7 | 41 |
| 7 | 03-Mar | Ambon | Ambon | 1 | 31 | 1 | 5 | 38 |
| 8 | 04-Mar | Ambon | Ambon | 1 | 31 | 1 | 8 | 41 |
| 9 | 05-Mar | Ambon | Ambon | 1 | 31 | 1 | 5 | 38 |
| 10 | 06-Mar | Ambon | Ambon | 1 | 32 | 1 | 6 | 40 |
| 11 | 07-Mar | Ambon | Ambon | 1 | 26 | 1 | 4 | 32 |
| 12 | 08-Mar | Ambon | Ambon | 1 | 31 | 1 | 7 | 40 |
| 13 | 09-Mar | Ambon | Ambon | 1 | 31 | 1 | 6 | 39 |
| 14 | 10-Mar | Ambon | Ambon | 1 | 30 | 1 | 5 | 37 |
| 15 | 11-Mar | Ambon | Ambon | 1 | 32 | 1 | 7 | 41 |
| 16 | 12-Mar | Ambon | Ambon | 1 | 31 | 1 | 9 | 42 |
| 17 | 13-Mar | Ambon | Ambon | 1 | 32 | 1 | 7 | 41 |
| 18 | 14-Mar | Ambon | Ambon | 1 | 31 | 1 | 6 | 39 |
| 19 | 15-Mar | Ambon | Ambon | 1 | 30 | 1 | 7 | 39 |
| 20 | 16-Mar | Ambon | Ambon | 1 | 30 | 1 | 8 | 40 |
| 21 | 17-Mar | Ambon | Ambon | 1 | 32 | 1 | 5 | 39 |
| 22 | 18-Mar | Ambon | Ambon | 1 | 31 | 1 | 5 | 38 |
| 23 | 19-Mar | Ambon | Ambon | 1 | 32 | 1 | 3 | 37 |
| 24 | 20-Mar | Ambon | Ambon | 1 | 31 | 1 | 7 | 40 |
| 25 | 21-Mar | Ambon | Ambon | 1 | 31 | 1 | 0 | 33 |
| 26 | 22-Mar | Ambon | Ambon | 1 | 32 | 1 | 8 | 42 |
| 27 | 23-Mar | Ambon | Ambon | 1 | 30 | 1 | 6 | 38 |
| 28 | 24-Mar | Ambon | Ambon | 1 | 41 | 1 | 5 | 48 |
| 29 | 25-Mar | Ambon | Ambon | 1 | 31 | 1 | 4 | 37 |
| 30 | 26-Mar | Ambon | Ambon | 1 | 32 | 1 | 6 | 40 |
| 31 | 27-Mar | Ambon | Ambon | 1 | 33 | 1 | 3 | 38 |
| 32 | 28-Mar | Ambon | Ambon | 1 | 35 | 1 | 7 | 44 |
| 33 | 29-Mar | Ambon | Ambon | 1 | 31 | 1 | 9 | 42 |
| 34 | 30-Mar | Ambon | Ambon | 1 | 32 | 1 | 9 | 43 |
| 35 | 31-Mar | Ambon | Ambon | 1 | 35 | 1 | 7 | 44 |
| 36 | TOTAL | | | 31 | 979 | 31 | 185 | |

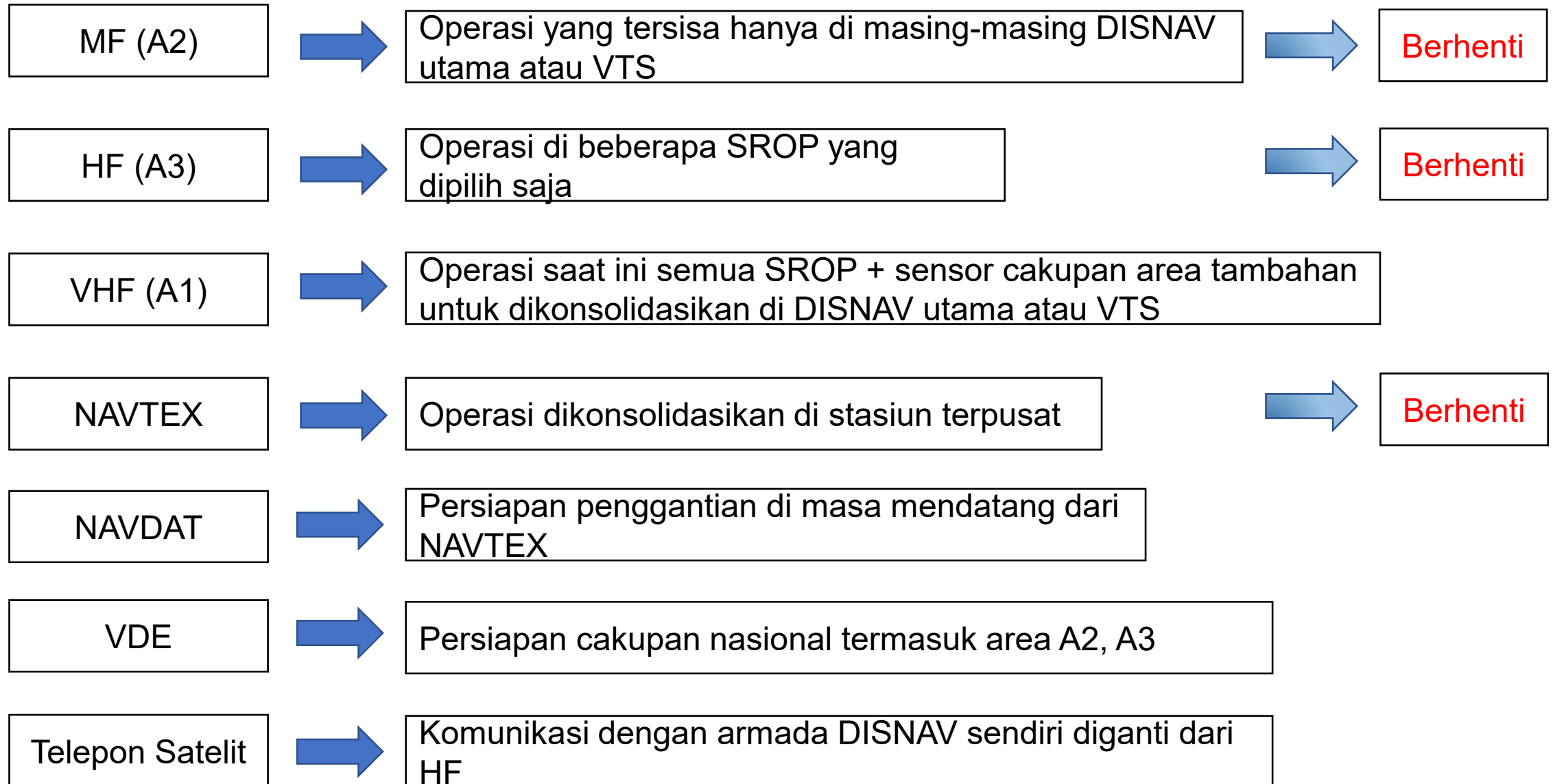
Rasio konten operasi bulanan
per setiap frekuensi
Di setiap SROP

| Contoh Kutipan bulan Maret 2022 selama selama 31 hari | | | Komunikasi harian | | | | | | |
|-------------------------------------------------------|-------------|------------------|-------------------|------|-------------|-------|-----------------|------|-------|
| | Disnav | SROP | CQ | | | | QSO | | |
| | | | VHF | MF | HF | Total | VHF | HF | Total |
| | | | 16 | 2182 | All channel | | Seluruh Channel | | |
| 1 | Ambon | Ambon | 1 | 32 | 1 | 34 | 6 | - | 6 |
| 2 | Banjarmasin | Banjarmasin | - | - | 3 | 3 | - | 0 | 0 |
| 3 | Banjarmasin | Kumani | - | 0 | - | 0 | 1 | - | 1 |
| 4 | Belawan | Pangkalan Susu | 1 | - | 1 | 2 | 0 | - | 0 |
| 5 | Belawan | Tg Balai | - | - | 8 | 8 | - | 2 | 2 |
| 6 | Belawan | Kuala Langsa | - | - | 4 | 4 | - | - | - |
| 7 | Bitung | Bitung | 0 | - | 2 | 2 | 0 | 1 | 1 |
| 8 | Cilacap | Cilacap | 10 | - | 6 | 16 | 1 | 0 | 2 |
| 9 | Dumai | Dumai | 2 | 2 | 13 | 17 | - | 0 | 0 |
| 10 | Kendari | Kendari | 1 | 4 | 1 | 6 | 0 | 1 | 1 |
| 11 | Kendari | Kolaka | 3 | - | 3 | 6 | 1 | 4 | 5 |
| 12 | Kupang | Kupang | - | - | - | - | 4 | - | 4 |
| 13 | Palembang | Palembang | - | 3 | 10 | 13 | - | - | - |
| 14 | Palembang | Tg Pandan | 7 | - | 6 | 13 | 2 | - | 2 |
| 15 | Palembang | Pg Balam | 2 | - | 2 | 4 | 6 | - | 6 |
| 16 | Semarang | Jepara | 3 | - | 6 | 8 | 2 | - | 2 |
| 17 | Semarang | Pekalongan | 1 | - | 11 | 12 | 0 | - | 0 |
| 18 | Semarang | Semarang | - | - | 16 | 16 | - | 0 | 0 |
| 19 | Tg Pinang | Batu Ampar | - | - | - | - | 2 | - | 2 |
| 20 | Tg Pinang | Dabo Singkep | - | - | - | - | 5 | - | 5 |
| 21 | Tg Pinang | Sei Kolak Kijang | - | - | - | - | 5 | - | 5 |
| 22 | Tg Pinang | Tarenpa | - | - | - | - | 2 | - | 2 |
| 23 | Tg Pinang | Tg Pinang | - | - | - | - | 14 | - | 14 |
| 24 | Tg Pinang | Tg Uban | - | - | - | - | 2 | - | 2 |
| 25 | Tual | Saumlaki | - | - | 8 | 8 | - | 2 | 2 |
| 26 | Tual | Tual | - | 0 | 23 | 23 | - | 2 | 2 |
| | | | 1.17 | 1.58 | 4.78 | 7.53 | 2.06 | 0.47 | 2.53 |

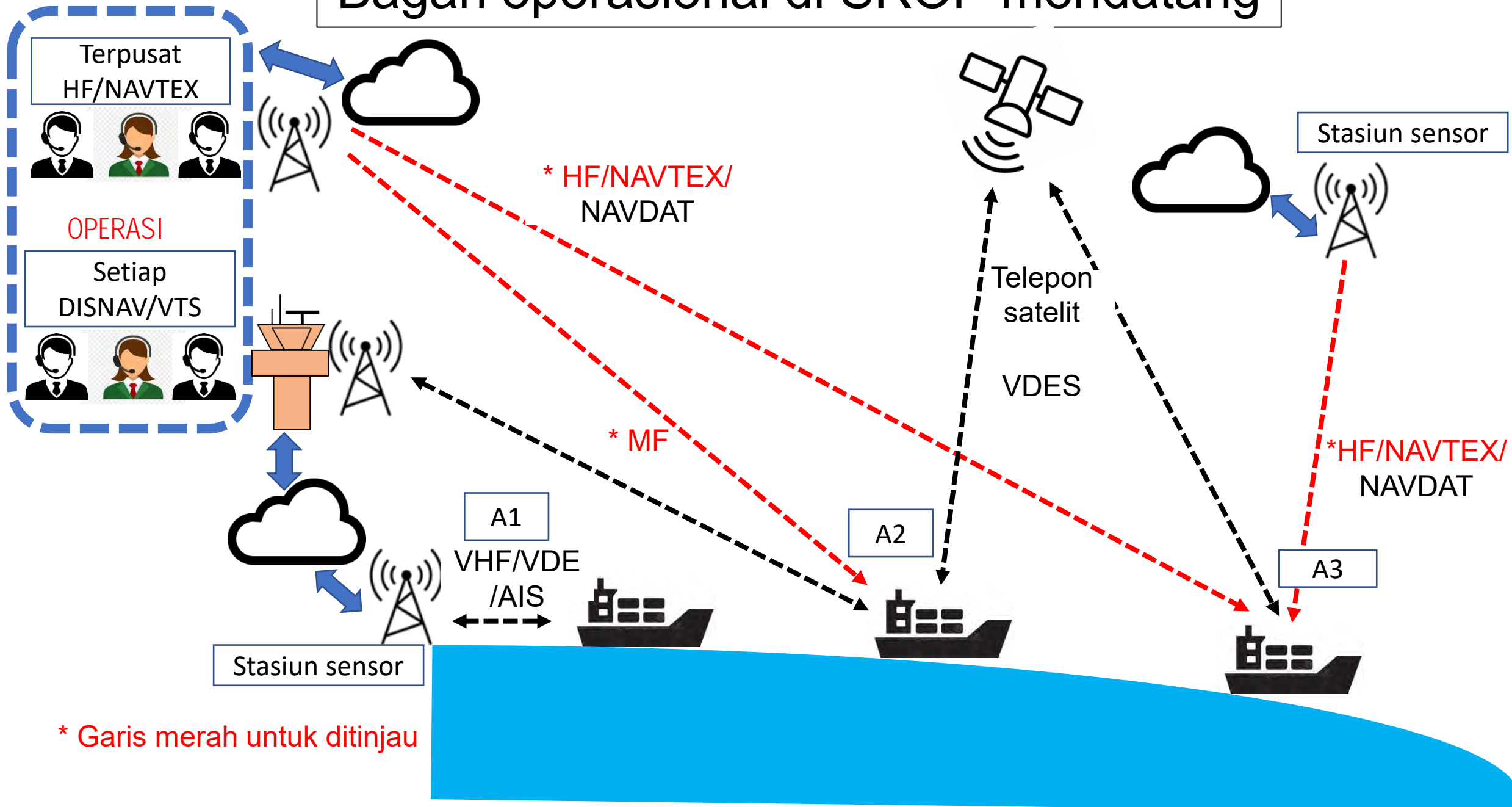
Alur studi



Output yang diharapkan untuk setiap metode komunikasi



Bagan operasional di SROP mendatang



VDE(S) (Pertukaran Data VHF)

Suara, Data teks dapat ditukar dalam rentang VHF

Penyedia layanan data untuk mendapatkan pendapatan bukan pajak



Pemancar
VDE

Stasiun sensor



Rentang A1

Pemancar
VDE

Router
Wi-Fi



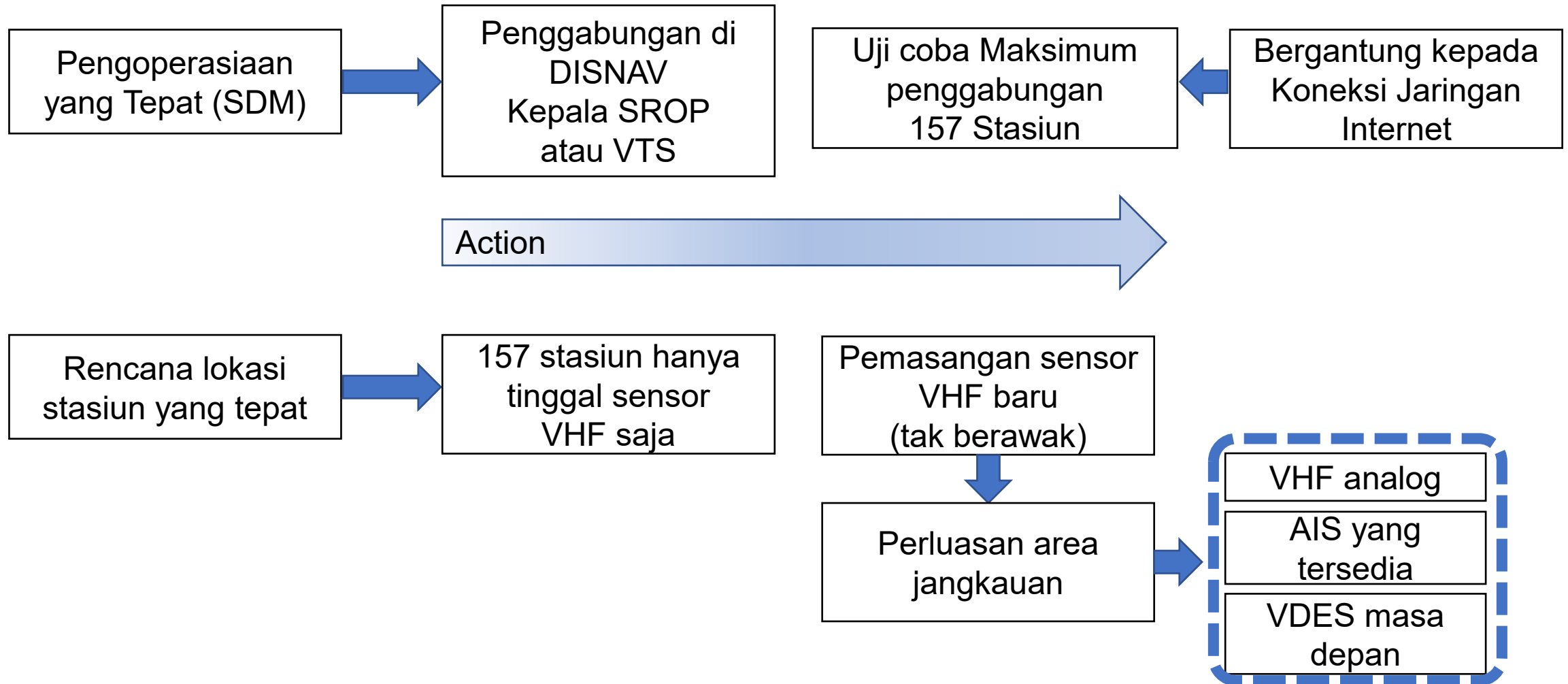
VDES



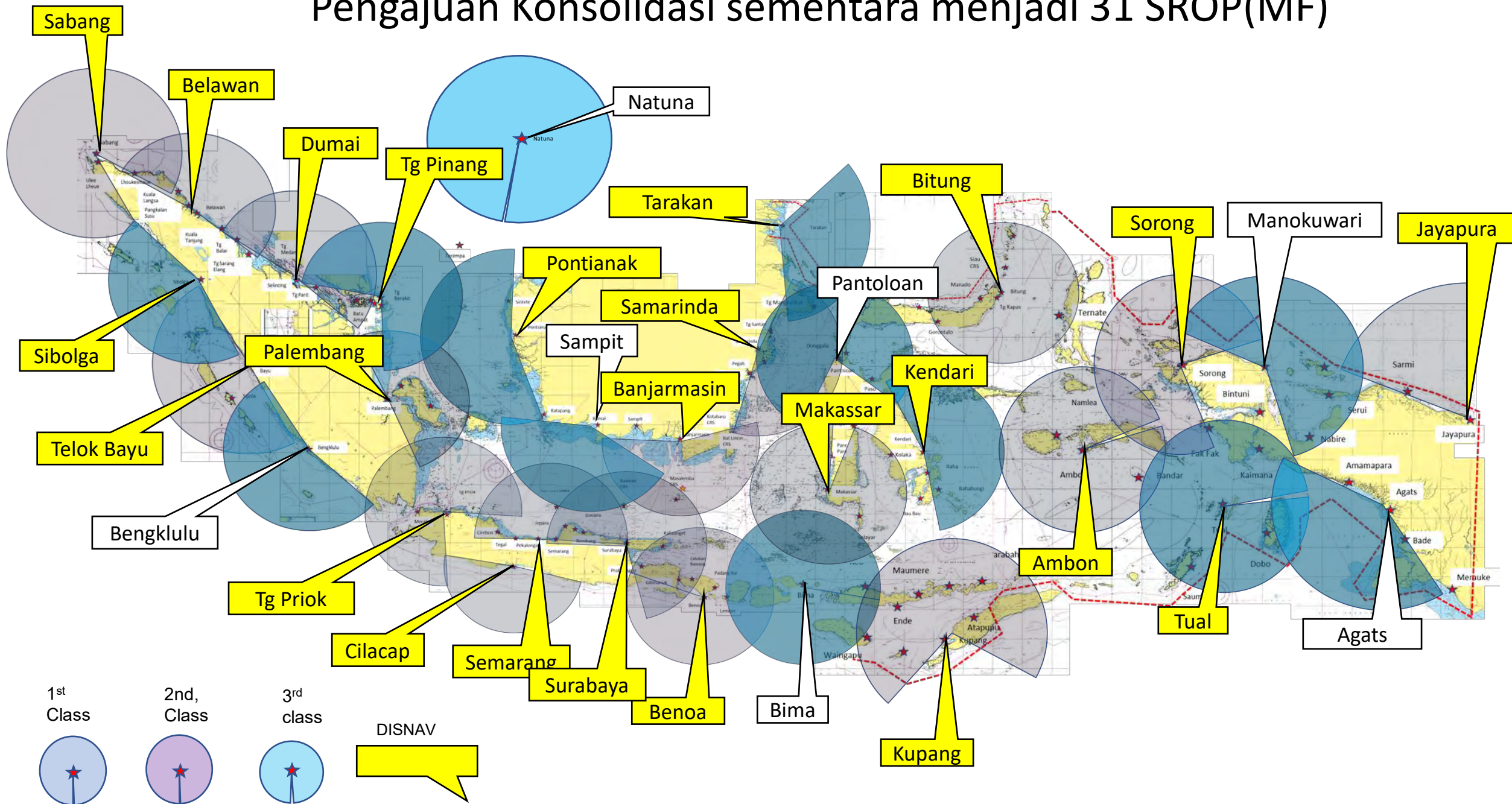
KM Wakashio keadaan Marabahaya di Mauritius 2020



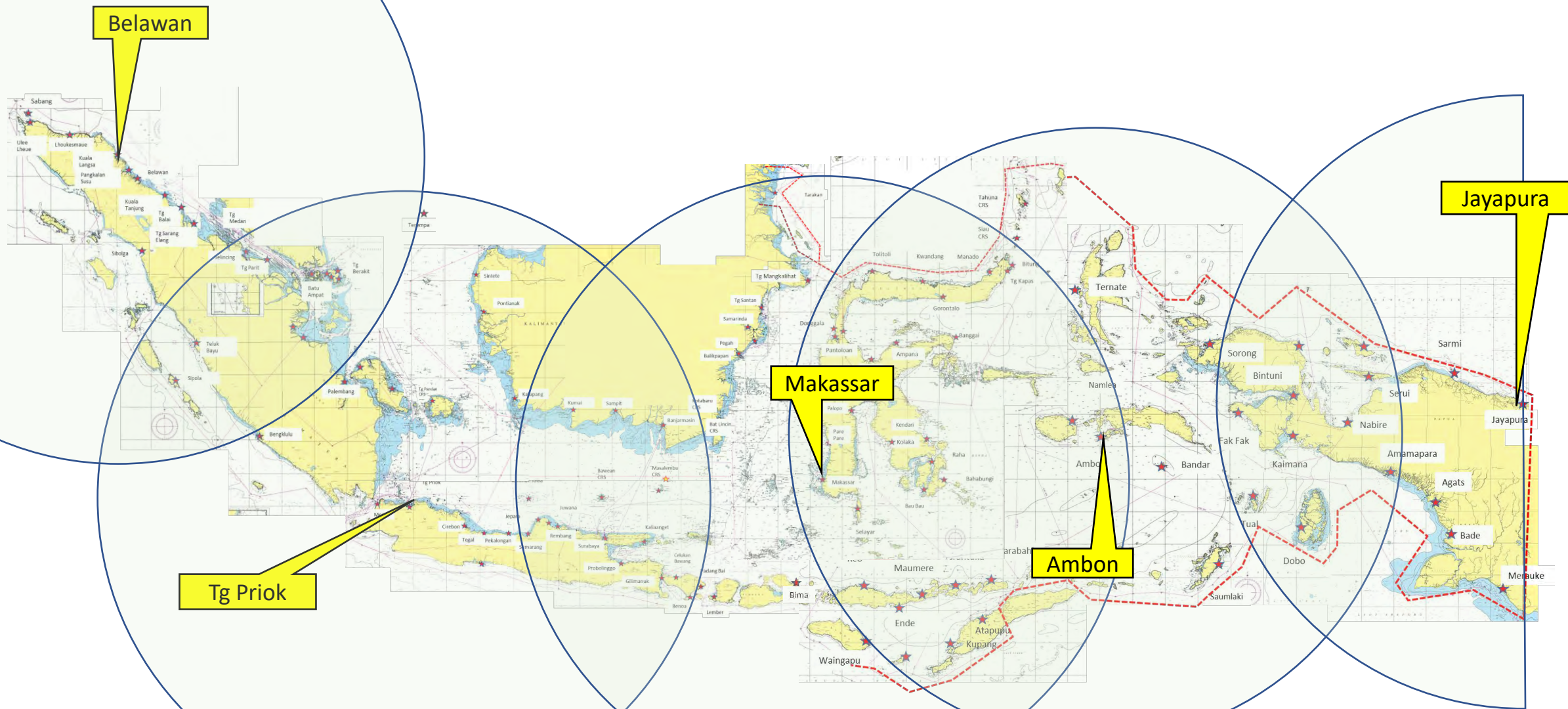
Output yang Diharapkan (Rekomendasi)



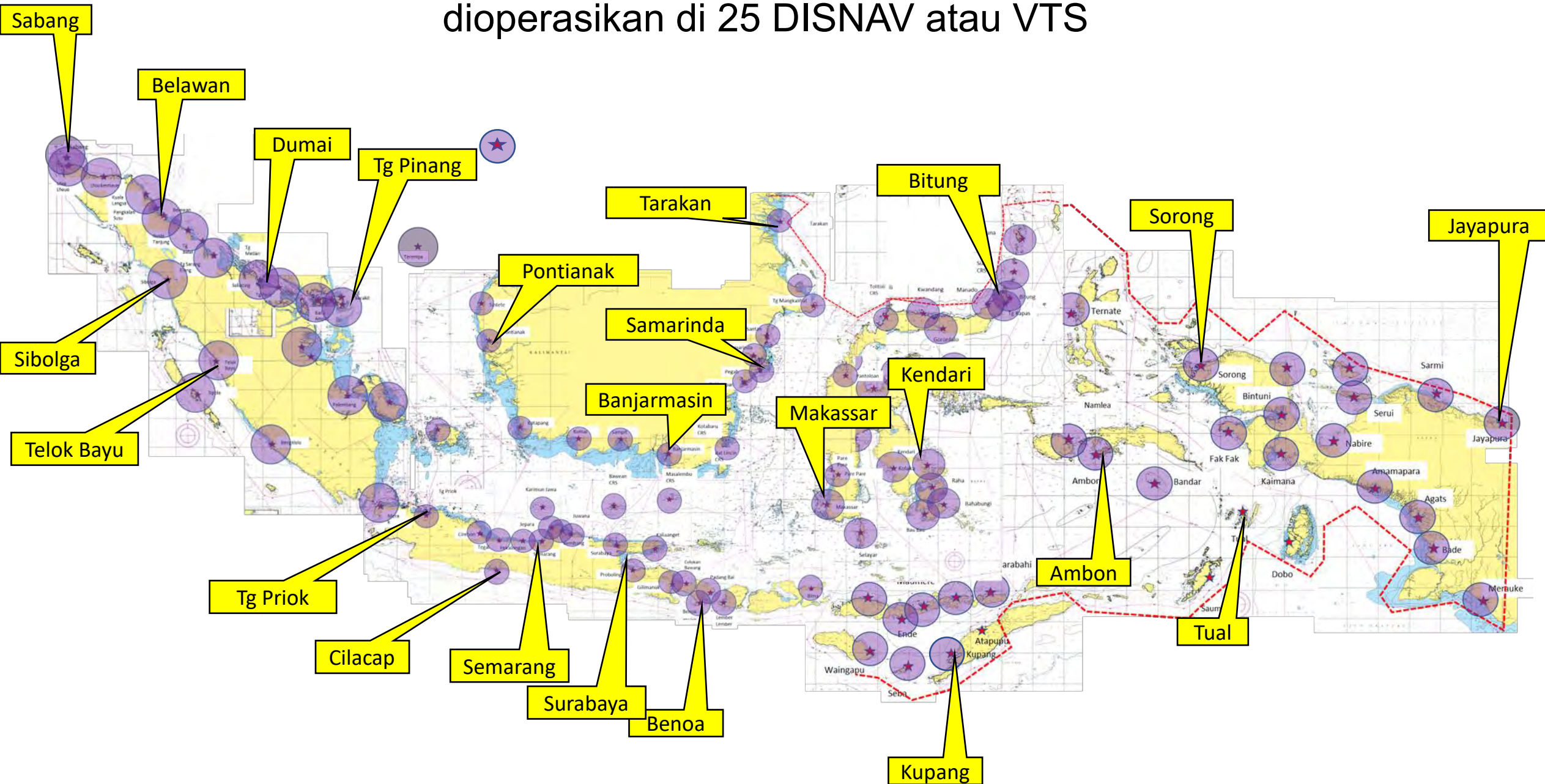
Pengajuan Konsolidasi sementara menjadi 31 SROP(MF)



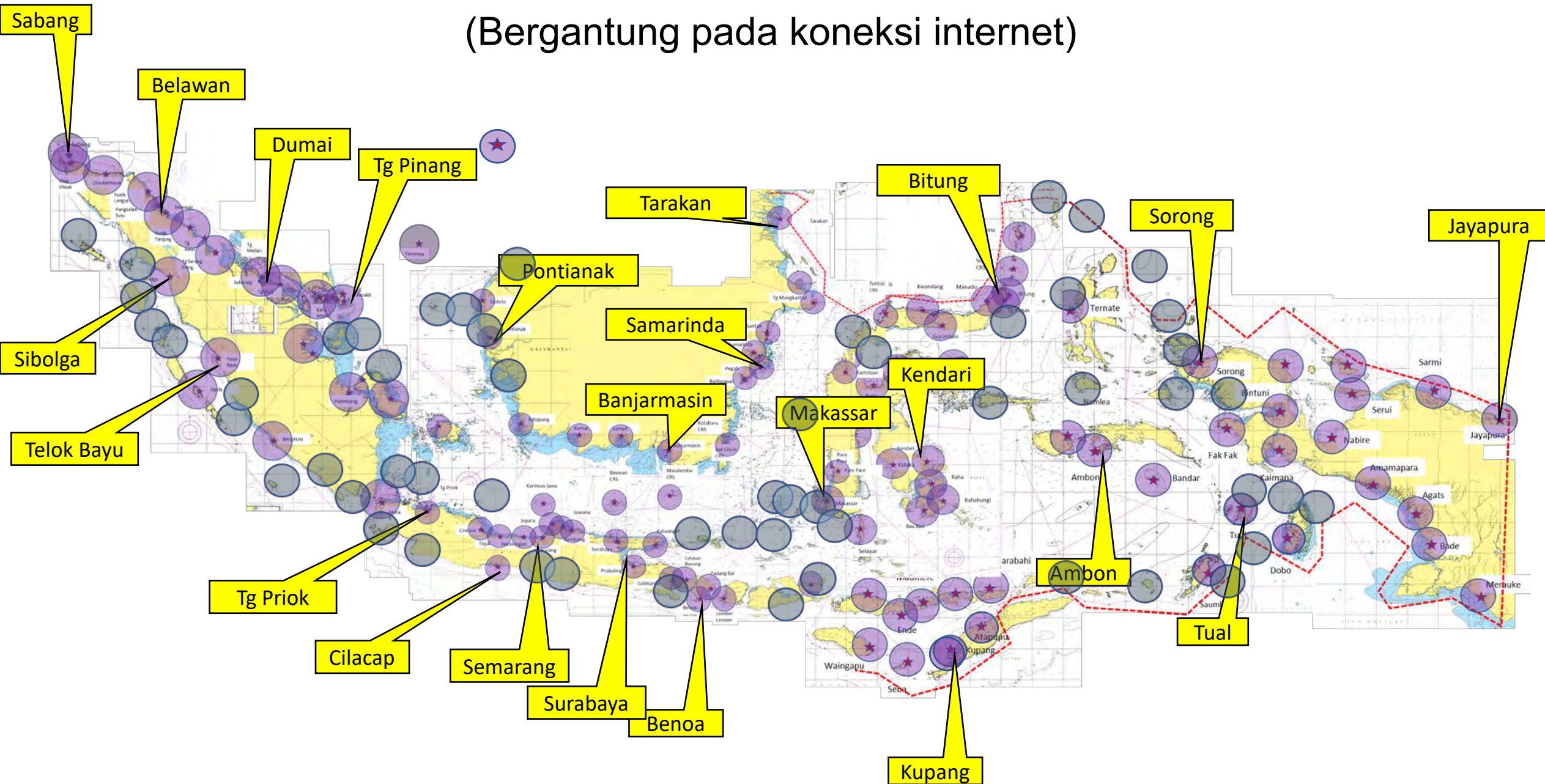
Konsolidasi sementara menjadi 5 DISNAV (HF)



Konsolidasi Sementara dari 157 SROP (VHF)
dioperasikan di 25 DISNAV atau VTS



Konsolidasi 157 SROP + Menara suar pilihan mencakup area A1 (Bergantung pada koneksi internet)



Terima Kasih

Thank you very much

ありがとうございました

付録 3.6 -6

プレゼン資料

(航路標識業務用船)

Policy for appropriate management of Navigation Vessels

Navigation Vessels are assigned to the District Navigation Authority (Disnav) to install, operate and maintain navigation signs (AtoN).

Existing Navigation Vessels face many challenges, including many aging vessels, a shortage of seafarers due to the aging of skilled seafarers, and huge fuel costs.

Therefore, by investigating and examining the vessels and crew in detail, we will make a plan to allocate appropriate vessels to each Disnav so that the AtoN managed by each Disnav can be appropriately managed and operated.

(1) Actual work and workload of Navigation Vessels

In recent years, in the AtoN, the utilization of semiconductors for the light source and solar cells for the power supply enables unmanned lighthouses, less frequency of transportation of fuel for power generation, less replacement of storage batteries for buoys, and less maintenance and inspection work. Since the amount of work for Navigation Vessels in the past has changed, the amount of work for each vessel shall be calculated to study and analyze content for each managed service sea area.

(2) Handling and activity survey of Navigation Vessels

Clarify the activity / maintenance / waiting rate of each vessel.

(3) Handling of Navigation Vessels and examination of work capacity

Clarification of daily operation capacity of each vessel (buoy replacement, underwater inspection work, AtoN maintenance inspection work, etc.)

(4) Examination of current issues

Collecting requests for Navigation Vessels from each Disnav and clarifying the challenges they face

(5) It is necessary to grasp the current situation and situation of the AtoN (SBNP) group accurately and in detail.

We will update the information as soon as possible due to lack of knowledge about internal meetings between the Nautical Ship Group and the AtoN (SBNP) Group, such as changes to the current status of AtoN (introduction of new technologies such as LED and solar power supply). Information and knowledge about how to manage and operate AtoN is important information for investigating and determining ship operation plans.

Guide Line

1. Collect and examine the monthly work contents of each ship and output the annual work amount. (3 years)

(1) Buoy Tender

a. Replacing the buoy

b. Underwater survey of buoys

c. Buoy repair

d. AtoN maintenance

e. Transportation of supplies required for AtoN

f. Operations other than the purpose of AtoN

(2) Aids Tender

- a. AtoN maintenance and inspection
- b. Transportation of the lighthouse keeper
- c. Transportation of fuel for generators
- d. Battery replacement
- e. Transportation of supplies required for AtoN
- f. Operations other than the purpose of AtoN

(3) Inspection vessel

- a. Transportation of AtoN maintenance inspectors
- b. Transportation of AtoN maintenance supervisors
- c. Operations other than the purpose of AtoN

2. Collection of basic data

Collect the following basic data:

- a. Buoy replacement cycle (complete replacement, partial replacement)
- b. Cardinal number exchanged in one voyage
- c. Buoy maintenance site (base, vessels)
- d. Types and numbers of AtoNs accessed by vessels
- e. AtoN Patrol Cycle
- f. Details of AtoN maintenance and the period required for maintenance
- g. AtoN traveling group
- h. Distance from ship base and travel time
- i. Crew training content and training period

3. Examination of annual operation results (past 3 years)

Create a monthly operation record table and process the annual operation record.

- a. Number of days of activity per year (including action content)
- b. Annual maintenance days (dock)
- c. Annual maintenance days (crew)
- d. Number of rest days per year

※ The reason for 3 years is to average the cases where there is a special year due to an accident or other reasons.

4. Extraction of issues faced by DISNAV

- a. Past repairs and contents of the navigation vessels
- b. Navigation Vessels failures at this time
- c. Crew technical capabilities
- d. Other problems, etc.

5. Create mastersheets for each Disnav staff in the sailors, engineers, buoy base technicians, and other categories related to Navigation Vessels.

a. Career

b. Age group (20-25 years old, 25-30 years old, 30-35 years old, 35-40 years old, 45-50 years old, 50-55 years old, 55 years old ~)

c. Previous work history

d. License, certificate

6. Budget allocation for each DISNAV

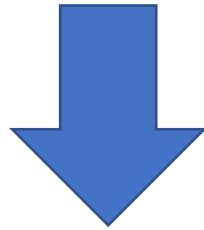
- a. Ship maintenance costs
- b. Subscription items and budget
- c. Fuel cost
- d. New vessels to be purchased
- e. Other running costs

7. Collection of survey results

- a. Aggregation of survey results
- b. Analysis of survey results

8. Creation of development plan (draft)

Create a development plan (draft) for disposal and replacement of aging vessels based on the amount of work and issues that Disnav has.



Inquire and adjust opinions to Disnav

9. Completion of development plan / notification to Disnav.

Work with Disnav to complete development plan



Notify Disnav

付録 3.9 -1

議事概要（第 6 回 JCC）

March 02, 2023

Minutes of 6th JCC

| | |
|-------------------|--------------------------------------------------------------------------------------------------------|
| 1 Name of Meeting | 6th Meeting of JCC Project for Review of the Study for Maritime Traffic Safety System Development Plan |
| 2 Date | March 02, 2023 09:30 ~ 15:00 (WIT) |
| 3 Meeting Style | Meeting and Seminar (Webcast) |
| 4 Venue | Milenium Hotel – Mutiara Room |
| 5 Participant | Appendix 1 (Participant's List) |
| 6 Subject | Appendix 2 (Meeting Agenda) |
| 7 Moderated by | Mr. Nanditya Darma Wardhana, NAVIGASI |

8 Note:

- 1) The meeting was opened by Director of Navigation Mr. Budi Mantoro, Capt. M.SI., M.Mar.

He took the opportunity to extend his sincere appreciation and gratitude to Government of Japan for their excellent support to Government of Indonesia in particular Directorate General of Sea Transportation to enhance maritime traffic safety and security in Indonesia waters. A good cooperation between the government of Indonesia and the government of Japan has made the project to review of the study for maritime traffic safety system development plan available.

He also highlighted that the new master plan is very important for Indonesia government as an umbrella to develop some projects or activities in maritime safety, security and marine environmental protection comprises of Vessel Traffic Services, Aids to Navigation, Ship Routing, Coastal Radio Station and Navigation Vessel. It shall consider some aspects at least developing guideline and policy, optimizing human resources and modernization infrastructure.

He also hoped for the development of Human Resources capabilities by means of Human Resources Training.

Finally, he looked forward that JICA could continue to support the government of Indonesia to enhance maritime safety and security in Indonesia in the future.

2) Overview of the draft report by the representative of each component:

- Component-1 AtoN, VTS and Ship Routing by Mr. Yoku SANTO
- Component-2 Coastal Radio Station by Mr. Goro TSUKAKOSHI
- Component-3 Navigation Vessel by Mr. Hajime KOGA

3) Question and Answer (Free discussion)

1. Mr. Ison Hendrasto, Deputy Director of Sea Lane and Passage Arrangement

He thanked JICA and JANA for carrying out a review of the Navigation Master Plan. According to the presentation from JANA, the method for determining the needs of ATON, which has been conducted this time, was by collecting Questionnaires and compiling their results. And then, a hearing will be conducted, and based on its results, a feasibility study will be performed for the implementation plan.

The question is whether the method used by JANA this time will also be implemented in Japan, because we, the Directorate of Navigation, determine the amount needed for ATON by identifying the channels, especially the inlet to the port, so that we can determine its adequacy.

For information, in Indonesia there are 636 port entry channels, while we only have 106 port entry channels, so there are a minimum of 520 channels.

(Ans.) by SANTO, JANA

In Japan, the necessity and appropriateness of the establishment of ATON is fundamentally considered based on user's requests, which are gotten from such as a hearing session, a petition and a safety commission. If there are nearly 500 channels remaining which have already been nominated in your country, the first step is to conduct a hearing at those ports and listen to the users' requests. A hearing session is an important process in developing an establishment plan of ATON.

2. Response from Mr. Raymond, DISNAV Tanjung Priok:

Mr. Raymond explained that Indonesia is:

- The largest archipelagic country in the world
- Member of International Maritime Community
- Acceleration of Industry and economic development.

So, the following things are needed:

- a. Ships Routing
- b. Aids to Navigation
- c. CRS and VTS
- d. Manning and Capacity Building
- e. Navigation Vessel
- f. And Financing Strategy.

Can the things that he described above become a FOCUS in the preparation of this Navigation Master Plan so that they become the basis for making regulations and policies for the future leadership?

3. Mr. Ketut Aries, DISNAV Benoa:

He greatly appreciated the results of JANA's study regarding the consolidation of the Coastal Radio Station (CRS) and Vessel Traffic Service (VTS) which would reduce HR requirements by 60%.

At this time in Indonesia in general data communication networks are not evenly distributed as a whole, especially in remote areas, what are the strategies to overcome the limitations of data communication in remote areas.

At this time there are several class 4 CRS that have MF/HF devices while in carrying out their duties Class 4 CRS do not serve MF/HF communication, the question is if the CRS is consolidated how will the existing equipment be? Will it be used as a spare if in the future there is damage to the main device?

At this time the CRS officer also doubles as an officer who collects Non-Tax State Revenue, is there any study related to the collection of Non-Tax State Revenue considering that CRS will be unmanned later.

(Ans.) by SANTO, JANA

As dealing with the existing equipment in consolidating the stations, they will most likely be replaced by new ones because many of those are to be past their useful life.

(Ans.) by Goro Tsukakoshi, JANA

As to current Non-Tax State Revenue collection and billing work, CRS consolidation does not mean to cease operation in each class 4 station. Operation including non-tax revenue such as telegram service is still carried on at DISNAV Head CRS or VTS. All the operation will be centralized and remotely continued to follow up in each unmanned sensor station even after consolidation.

4) Remarks by Mr. Yukimatu, JCG

He appreciated the cooperation of JANA and DGST to conveyed the masterplan report and he thinks the draft submitted in this meeting have reflected the current situation and issues of maritime traffic system in Indonesia. He hoped the report will be effectively utilized.

5) Remarks by Mr. Nakagawa, JICA Tokyo

He expressed his sincere appreciation for support and cooperation to complete the project for almost four years by DGST and related organizations, both in Indonesia and Japan. He was glad to have fruitful discussion of the result of the study. These days navigation system in maritime are changing due to digital technology such as GPS, so he believed that now is the right time to review the last masterplan for maritime system which was formulated nearly twenty years ago. Both Indonesia and Japan are maritime country and the sea is vital in the people life and economy. He believed this project can contribute to the economic and social development of Indonesia.

6) Closing comment by Mr. Nanditya, NAVIGASI

Indonesia hopes that further cooperation and support by Government of Japan, such as to realize the plan for capacity building of a VTS instructor and for a CRS consolidation project which have been proposed in this masterplan.

7) Seminar by Mr. T. Takimoto

Question by Mr. Fhatan, NAVIGASI

- Actual contents of service extendable in Indonesia
- Establishment of land infrastructure (land station)
- Demonstration of VDES

(Ans.) by Mr. Takimoto

A demonstration system would be available by the end of 2023 or 2024.
Sustainable necessary cooperation work about VDES could be proposed to NAVIGASI accordingly.

Capt. BUDI MANTORO, M.Si, M.Mar.
Director, Directorate of Navigation
Directorate General of Sea Transportation
Ministry of Transportation
The Republic of Indonesia

HONZU Shigeo
Senior Representative
JICA Indonesia

※ Pictures of 6th JCC & Seminar are attached on the next pages.

Picture of 6th JCC & Seminar



Opening Ceremony



Moderator (Mr. Nanditya)



Opening remarks by Director of NAVIGASI



Briefing on each component (AtoN, CRS, AtoN Vessel)



Question from participants



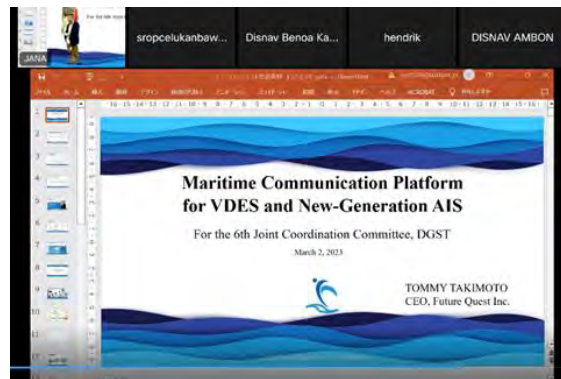
Interpreter



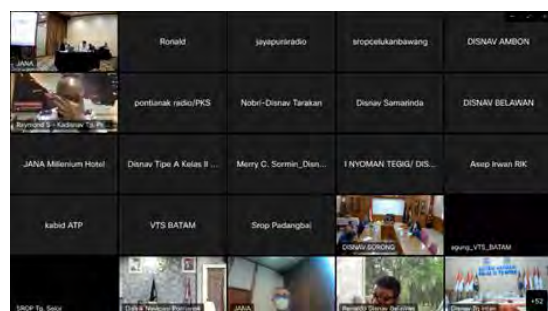
Remarks by JCG



Remarks by JICA, Tokyo



Seminar by Mr. Takimoto



On-line participants (105 at its peak)

Participants of 6th JCC Meeting and Seminar

| DGST | | | JICA / JST | | |
|---------------------|-------------------|---------------------------------------------------------------------------------------------------------|------------|---------------------|---------------------------------------------|
| No | Name | Title/Section | No | Name | Title/Section |
| 1 | Budi Mantoro | Director of NAVIGASI, DGST | 1 | Shigeo Honzu | Senior Representative, JICA Indonesia |
| 2 | Indra Santosa | Deputy Director for Maritime Telecommunication - Directorate of Navigation | 2 | Naoya Kuboshima | Project Formulation Adviser, JICA Indonesia |
| 3 | Nanditya Darmawan | Deputy Director for Technical Planning of Navigation - Directorate of Navigation | 3 | Syunsuke Yukimatu | Officer, Maritime Traffic Department, JCG |
| 4 | Ison Hendrasto | Deputy Director for Hip Routing and Passage Arrangement of Navigation - Directorate of Navigation | 4 | Tomoki Takimoto | CEO, Future Quest, Inc. |
| 5 | Fathan M. | Staff of Deputy Director for Maritime Telecommunication | 5 | Yoku Santo | JST, JANA |
| 6 | Rizki Cahyadi | Staff of Deputy Director for Maritime Telecommunication | 6 | Goro Tukakoshi | JST, JANA |
| 7 | Ms. Heny | Staff of Directorate of Navigation | 7 | Hajime Koga | JST, JANA |
| 8 | Zahara | Staff of Directorate of Navigation | 8 | Dhana Mulyana | Local staff, JANA |
| 9 | Arthur | Staff of Deputy Director for Maritime Telecommunication | 9 | Ms. Apsari Amanda P | Local staff, JANA |
| 10 | M. Arifin | Staff of Deputy Director for Maritime Telecommunication | 10 | Brigantono Tomo | Local Consultant, Tomo & Son |
| 11 | Dofito | Staff of Deputy Director for Maritime Telecommunication | 11 | Andre | Local Consultant, Tomo & Son |
| 12 | Ms. Andriany | Planning Bureau for Ministry of Transportation | 12 | Ms. Shadrinna | Local Consultant, Tomo & Son |
| 13 | Shandri | Staff of Directorate of Navigation | 13 | Arman | Interpreter |
| 14 | Tony Rafiq | Staff of Deputy Director for Maritime Telecommunication | 14 | Ms. Lina | Interpreter |
| 15 | Malik Aziz | Staff of Directorate of Navigation | 15 | | |
| 16 | Ryan | Staff of Directorate of Navigation | 16 | | |
| 17 | | | 17 | | |
| On-line Participant | | JCC : 105 | | | |
| | | Seminar : 69 | | | |

Program of the Meeting
on
The Six Joint Coordination Committee and the Seminar
for
The Project for Review of the Study for Maritime Traffic Safety System Development Plan
(Date / Venue : March 2, 2023 / Milenium Hotel, Jakarta)

1. Opening Remarks by Director of Navigation ----- 0900 - 0915
2. Briefing on the Overview of the Draft Report
for the Phase-2 Activities by JANA ----- 0915 - 1030
3. (Coffee Break) 1030 - 1045
4. Q & A, Free Discussion ----- 1045 - 1115
5. Remarks by Mr. Yukimatu, JCG 1115 - 1130
6. Remarks by Mr. Nakagawa, JICA 1130 – 1145
7. (Buffet Lunch) 1145 – 1300
8. Seminar (Presentation by Mr. T. Takimoto) ----- 1300 - 1400
(Title : Maritime Communication Platform)

※ The Session and the Seminar will be webcast (Web-Broadcast) with “Webex”.

Join from the meeting link

<https://jana.webex.com/jana-en/j.php?MTID=ma199a01db9f8c2df4e99f65ffaad1541>

Meeting number (access code): 2517 679 0986

Meeting password: cpFwhVp4U74

Seminar : By Mr. Takimoto



Maritime Communication Platform for VDES and Next-Generation AIS

CoastalLink is a digital platform which enables all ships and ports to share their location and other information and to communicate with each other.

VDES (VHF Data Exchange System) is a new maritime communication standard introduced by the International Association of Marine Aids to Navigation and Lighthouse Authorities (IALA) and the International Telecommunication Union (ITU), and it is known as the next generation AIS. Currently, some countries are developing **VDES Relay Communication Satellite** with additional messaging and data exchange capacity, and dedicated satellite constellations are scheduled to be launched in 2023.

Source : "FutureQuest HP"

付録 3.9 -2

プレゼン資料（航路標識）



**Directorate General of Sea Transportation
Ministry of Transportation
Republic of Indonesia**

The 6th Meeting of JCC

The Project for Review of the Study For Maritime Traffic Safety System Development Plan

March 2, 2023



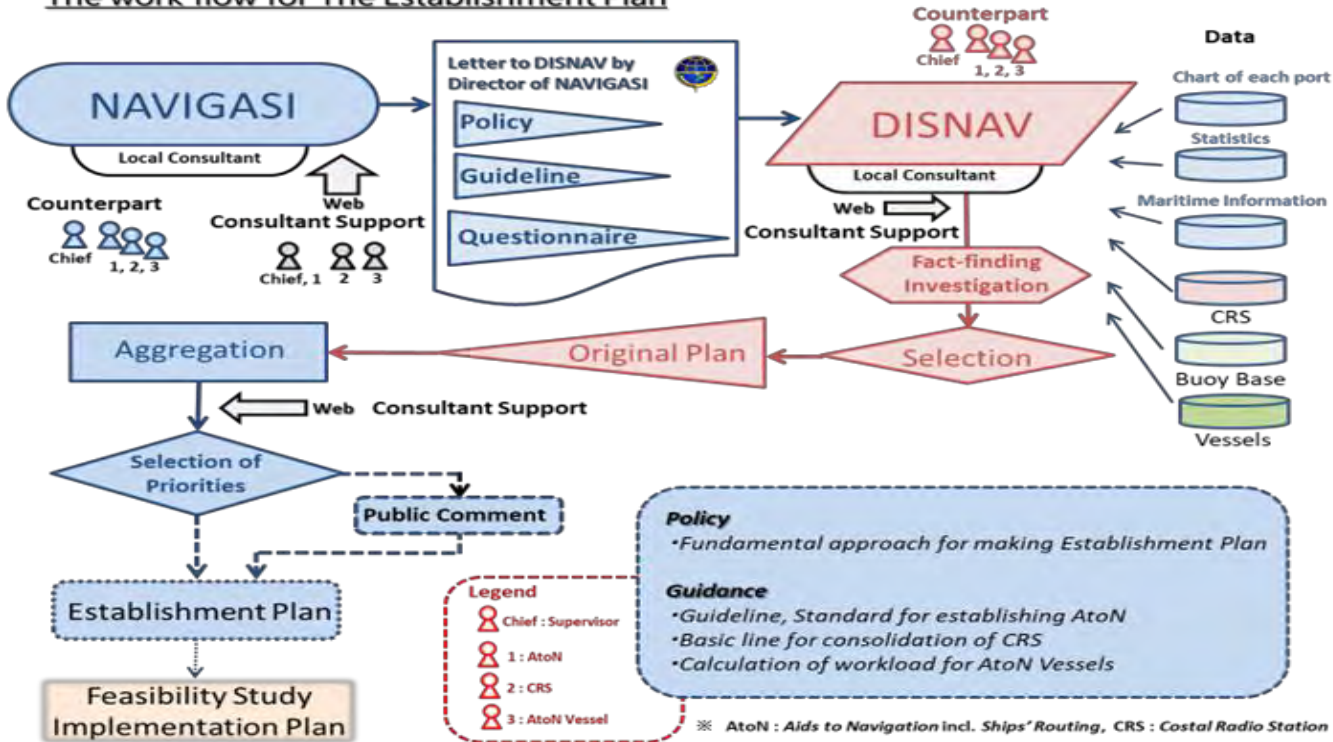
Japan International Cooperation Agency (JICA)



Japan Aids to Navigation Association (JANA)

Outline of Activities

The work flow for The Establishment Plan



Schedule for Activities

| | | 2022 | | | | | | | | | | | 2023 | | | |
|------------|---------------|------|---|---|---|---|---|---|---|----|----|----|------|---|---|--|
| | | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 3 | |
| Consultant | Domestic Work | | | | | | | | | | | | | | | |
| | Overseas Work | | | | | | | | | | | | | | | |
| NAVIGASI | Activities | | | | | | | | | | | | | | | |
| DISNAV | Activities | | | | | | | | | | | | | | | |
| Events | | | | | | | | | | | | | | | | |

Preparation of Establishment Plan

➤ Component 1 : Aids to Navigation and VTS, including Ship Routing



➤ Component 2 : Coastal Radio Station



➤ Component 3 : Vessels for Aids to Navigation



Component 1

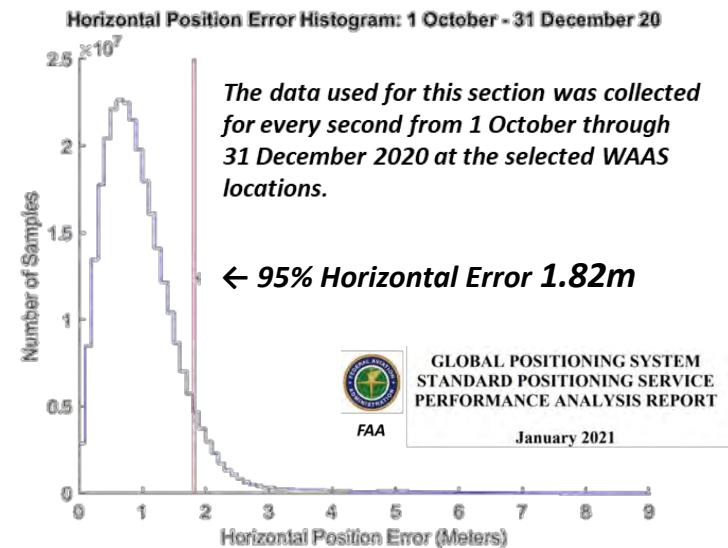
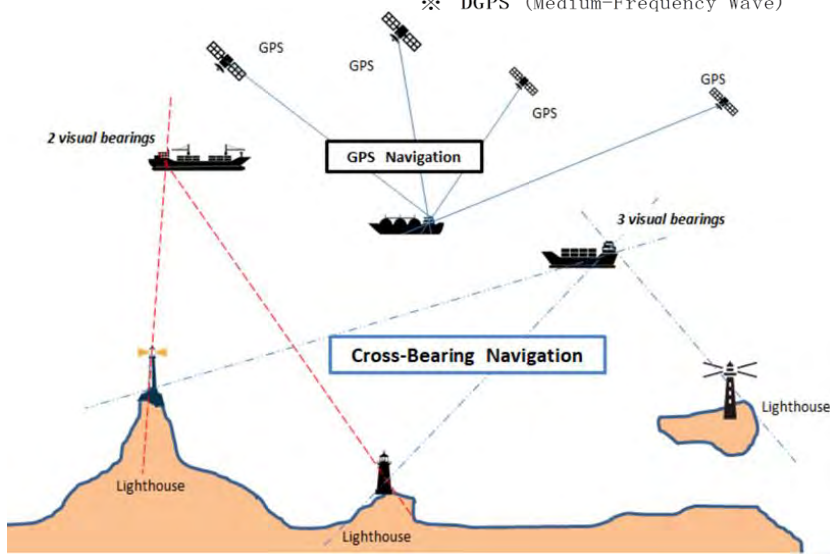
Aids to Navigation and VTS, including “Ships Routing”

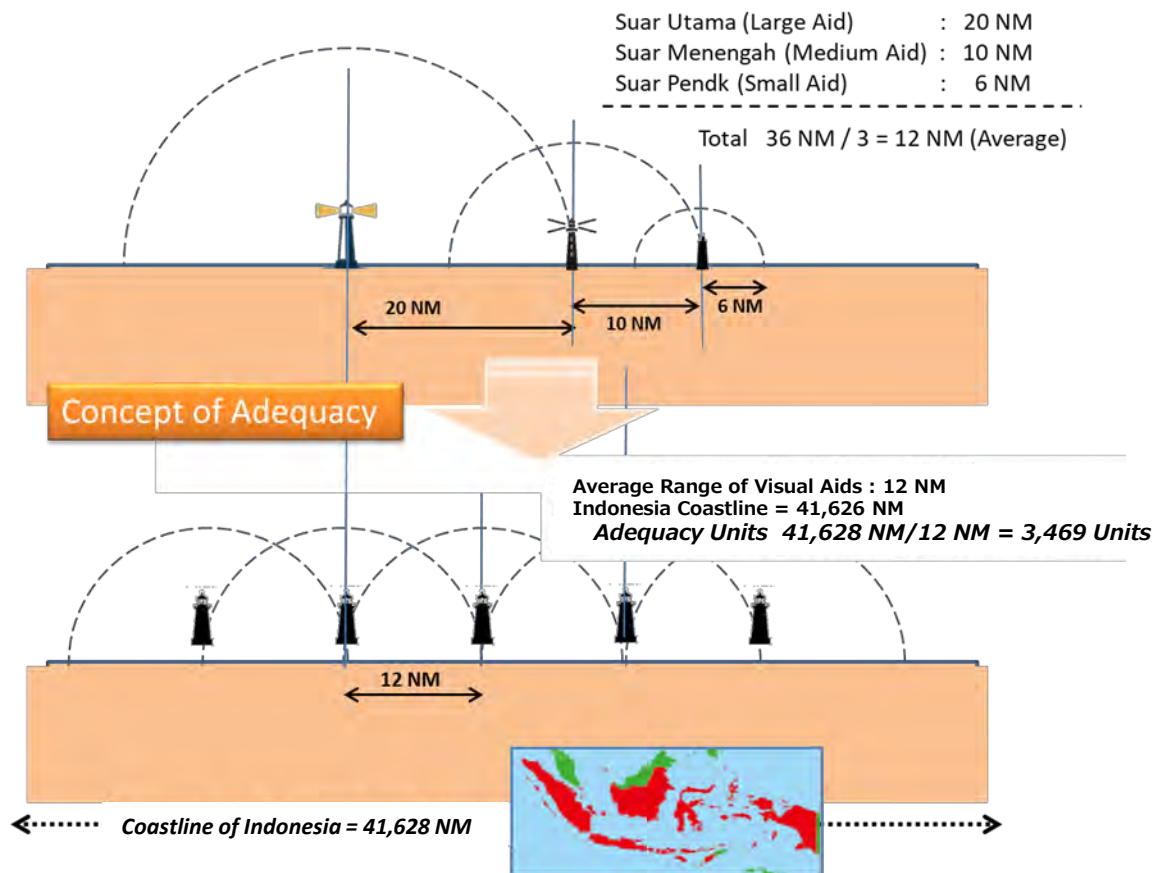


Fixing Position of a Huge Vessel at Sea

| | Visual Observation | | Satellite System | | | Radio Navigation System | | Auxiliary Device | |
|---------|--------------------|-----------------------------------|------------------|-------------------------------|------|---------------------------------|------|------------------|-------|
| | Cross Bearing | Celestial Navigation | NNSS | GPS | SBAS | DGPS | AIS | ARPA | ECDIS |
| 1960' s | | INS | 1964 | | | | | | |
| 1970' s | | | | | | | | | |
| 1980' s | | | | | | | | | |
| 1990' s | | 1998 Exclusion from US Navy | 1996 | 1990 | | | | 1985 | |
| 2000' s | | | | 2000 Cancellation of SA | 2002 | 1997 | 2008 | | |
| 2010' s | | | | | | 2019 Termination in Japan | | | 2012 |

- ※ SBAS (Satellite Based Augmentation System)
- ※ DGPS (Medium-Frequency Wave)

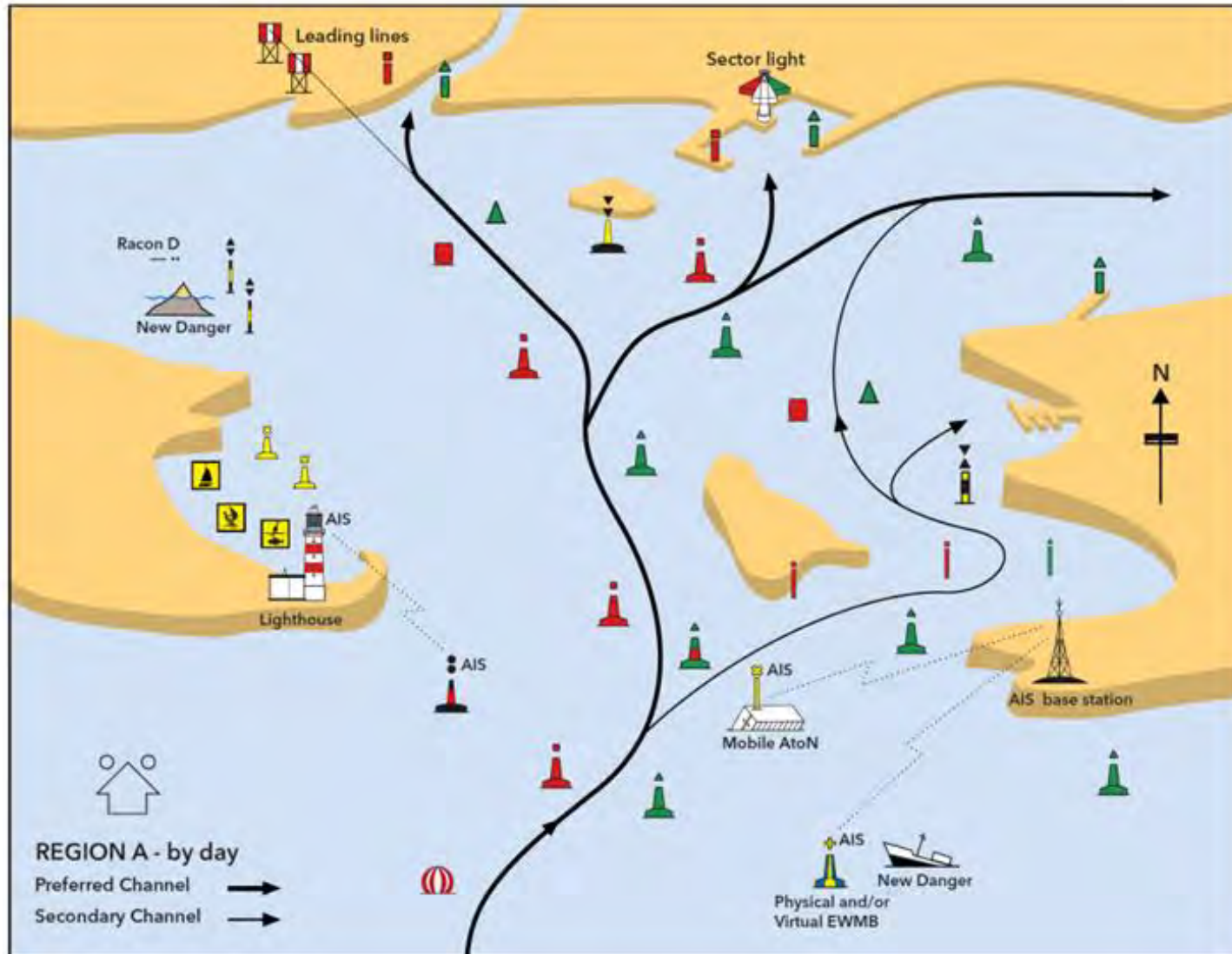




| Development/Establishment Status | | 2002 | 2016 | | 2019 | |
|-------------------------------------|----------|-------------|----------------|-------------|----------------|-------------|
| | | Existing | Five-Year Plan | Existing | Five-Year Plan | Existing |
| Lighthouse | | 235 | 286 | 282 | 306 | 284 |
| Light Beacon | DGST | 1,168 | 1,756 | 1,557 | 2,281 | 1,877 |
| | Non-DGST | 437 | | 743 | | 843 |
| Total | | 1,840 | (2,042) | 2,582 | (2,587) | 3,004 |
| Adequacy (%) | | 53 % | | 74 % | | 87 % |

Calculated Adequacy Number of SBNP 3,469 Units / 41,628 Mile, as of 2015

IALA Maritime Buoyage System



Policy of Establishment Plan for providing Aids to Navigation

a. Eliminating unlit bays and harbors

Navigation at night is very dangerous to approach a coastal area and / or a harbor without marine lighted aids to navigation, even though with the advantage of local knowledge.

b. Transformation into a port where vessels can enter more safely

Regional ports are expected to increase in vessel traffic progressively, and further safety of their navigation must be ensured.

In order to mitigate navigation risks caused by in traffic volume, it is necessary to properly and more effectively arrange marine aids to assist navigators with determining their position, a safe course and to warn them of dangers and obstructions.

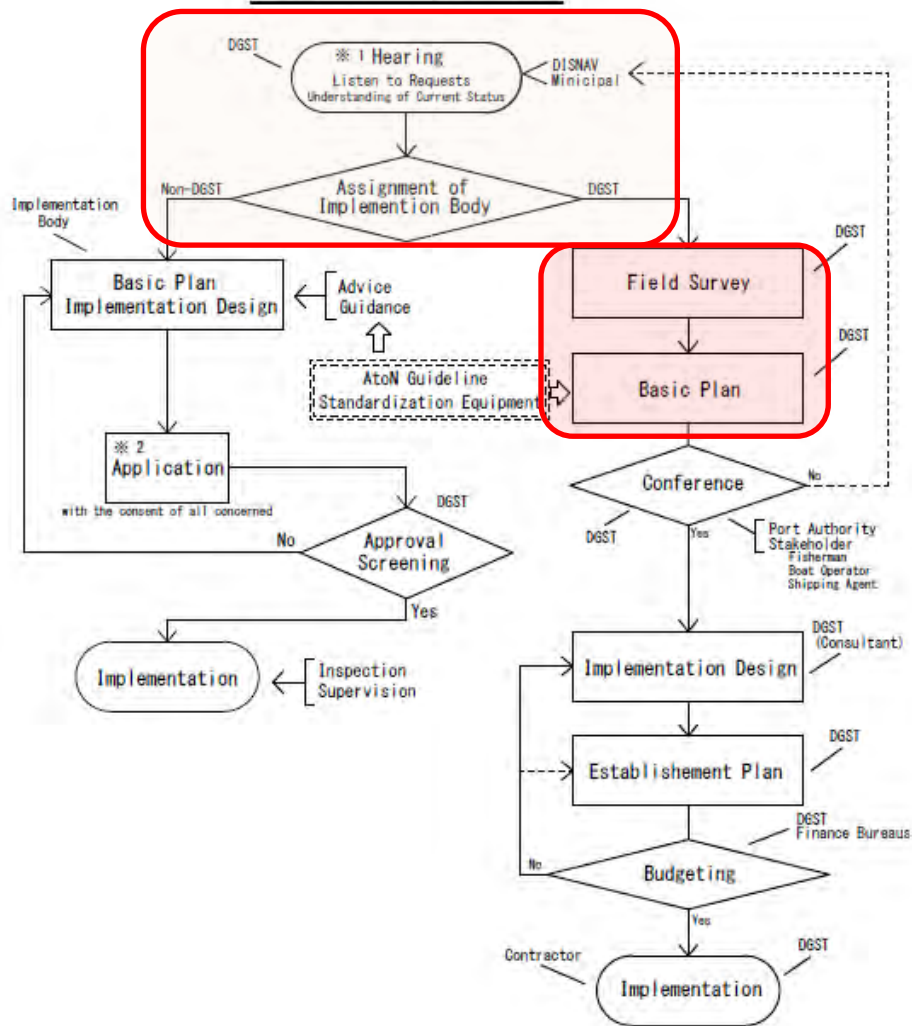
c. A goal is the port that vessels can navigate safely and efficiently at any time

For the prosperity of the region and the nation, it goes without saying that safe and stable marine traffic is secured, but for further prosperity a port that is always open is required.

To achieve this goal, it is indispensable to establish aids to navigation suitable for the purpose and to provide appropriate and reliable maritime information.

Maritime Traffic Safety Measures - establishing Process

Existing Port/Harbor



DGST

※¹

Hearing
Listen to Requests
Understanding of Current Status

DISNAV
Municipal

※¹ Hearing will be held once a year at DISNAV

Hearing Survey on the Wants and Needs for AtoN

- 1 Preparation
 - a Collection of information
 - b Planning of Survey
- 2 Prior consultations
 - a Contact with stakeholders
- 3 Hearing Survey
 - a Stakeholder Hearing held in sites
 - b Site Investigation
 - c Collection of data
- 4 Compilation of Hearing results
 - a Wants and Needs
 - b Data
- 5 Preparation of Report

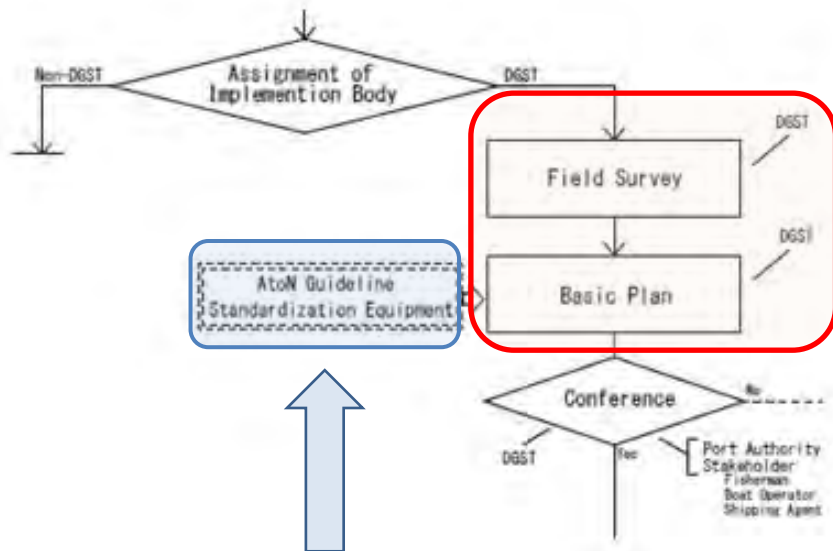
Stakeholders

- Sailor
- Fisher
- Marine engaged person
- Maritime Administration

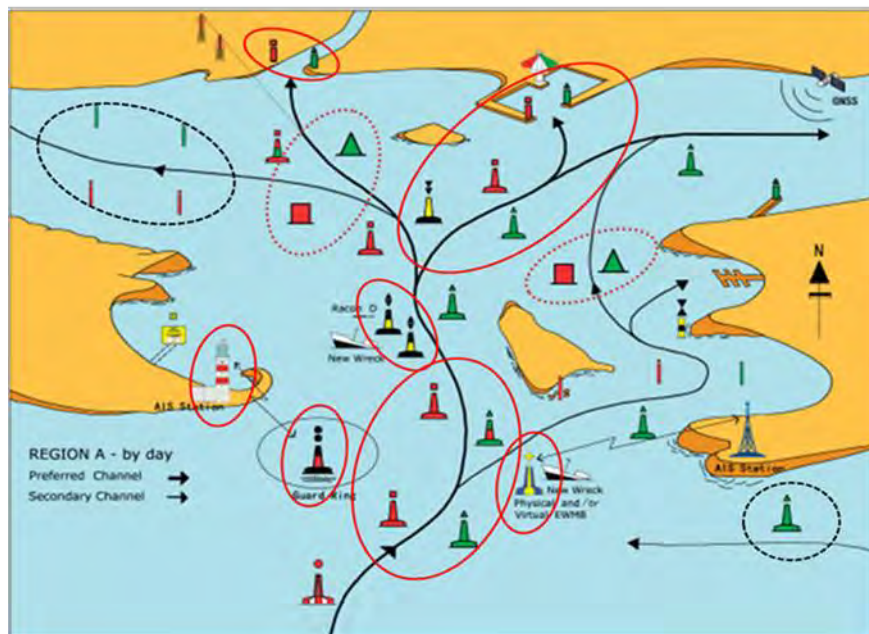
Information

- Marine Accidents
- Volume of Traffic
- Development of Port
- Marine Chart





Explanatory Figure for Classification of significance for the installation



**Category 1
Vital**

- Landfalls
- Primary routes
- Dangers

**Category 2
Important**

- Secondary routes
- Supplemental marks of primary routes

**Category 3
Necessary**

- Helpful/useful to navigation

Feasibility Study & Implementation Design

1 Preparation

- a Collection of information
- b Planning of Investigation

2 Prior consultation

- a Contact with related parties

3 Site survey

- a Hearing of user's opinion
- b Collection of data
- c Selection of AtoN
- d Field validation

4 Designing

- a Decide on specification
- b Risk Management
(Identification, Analysis, Assessment)

5 Estimation of Cost

6 Preparation of Report

Questionnaires Sheet -①, -②

Sheet ① Reporting Format for Nominated Area of Establishing VTS

District

| Priority | Name (Area/Port) (Fill out) | 1. Main Purpose of VTS | 2. VTS Area | Necessary Data/Information | | | | | | Reference (Fill out) | |
|----------|--------------------------------|------------------------|----------------|----------------------------|---------------|-----------------------|-------------------|-------------------------|------------------------|----------------------|-------------------------|
| | | | | 3. Nautical Chart | 4. AIS Data | 5. Conventional Route | 6. Traffic Volume | 7. Marine Accident Data | 8. Stakeholder Demands | National Strategy | Special Situation |
| Example | | a INS, TOS | b Port/Harbour | c General Scale | a Independent | a Existing | a Existing | a Existing | a Sailor | Tradition | Target of small vessels |
| 1 | | | | | | | | | | | |
| 2 | | | | | | | | | | | |
| 3 | | | | | | | | | | | |

Sheet ② Reporting Format for Nominated Area of Establishing/Planned VTS

Name of Sea Area / Port

District

Chart No. (Name)

List of Existing/Planned VTS

Sheet ②

| Nominated Area/Port | Type of VTS | Location of Center (Full out) | | Type of VTS | 3 Facilities (Number) | | | | | | | | | | Legal Basis Regulation/Law (Fill out) |
|---------------------|-------------|-------------------------------|--------------|---------------|-----------------------|-------------------------------------------|------------------|-------|-----|------|----------------------|------|------------------|------------------|---------------------------------------|
| | | Name (of VTS) | Longitude | | Latitude | Purpose (Multiple Answer) | Operation Center | Range | AIS | CCTV | Marine Accident Data | Cost | Port/Coast Scale | Other (Fill out) | |
| Example | a Existing | ABCD | 01-27-45.00S | 125-34-00.25E | b Port/Harbour | TOS, TOS, NAS, Navigation, Marine Service | 1 | 2 | 2 | 2 | 1 | 2 | 1 | | |
| | b Planning | GHIJKL | 00-56-06.33S | 133-10-45.10E | c Coastal Waters | TOS, NAS, Surveillance | 2 | 3 | 2 | 1 | 2 | 3 | 0 | | |
| 1 | | | | | | | | | | | | | | | |
| 2 | | | | | | | | | | | | | | | |
| 3 | | | | | | | | | | | | | | | |
| 4 | | | | | | | | | | | | | | | |

Drop Down List

1. Main Purpose of VTS

| | | |
|---|------------------|--------------------------------------------------------------------------|
| 1 | a INS, TOS | INS (Information Service), TOS (Traffic Organisation/Management Service) |
| 2 | b INS, TOS, NAS | NAS (Navigation Assistance Service) |
| 3 | c INS, NAS | |
| 4 | d INS | |
| 5 | e TOS | |
| 6 | f NAS | |
| 7 | g Surveillance | Coastal Surveillance and Maritime Security |
| 8 | h Allied Service | Pilotage, Immigration, Customs, Coast Guard |

5. Conventional Route

| | | |
|---|------------|----------------------------------------------------|
| 1 | a Existing | Regulated route, Traditional lane, Habitual course |
| 2 | b None | |

6. Traffic Volume

| | | |
|---|------------|-----------------------------------------|
| 1 | a Existing | Number of Vessels in each vessel's type |
| 2 | b None | |

8. Stakeholder Demands

| | | |
|---|-------------------------|-------------------------------------------------------|
| 1 | a Sailor | Navigator, Seaman, Pilot |
| 2 | b Fisherman | |
| 3 | c Marine Person | People who is engaged in marine activities, business. |
| 4 | d Sailor, Fisherman | |
| 5 | e Sailor, Marine Person | |
| 6 | f None | |

2. VTS Area

| | | |
|---|------------------------|--|
| 1 | a Coastal Waters | |
| 2 | b Port/Harbour | |
| 3 | c Inland Water (River) | |

3. Nautical Chart

| | | |
|---|-----------------|---------------------------|
| 1 | a Big Scale | Scale : 1/15000, 1/50,000 |
| 2 | b General Scale | Scale : 1 / 250000 |
| 3 | c None | Ocean Seemap, Google Map |

4. AIS Data

| | | |
|---|---------------|-------------------|
| 1 | a Independent | Stand-alone, VTS |
| 2 | b Internet | Marinetraffic.com |
| 3 | c None | |

7. Marine Accident Data

| | | |
|---|------------|----------------------------------------------|
| 1 | a Existing | Number of accidents in each type of accident |
| 2 | b None | |

Questionnaires Sheet -③

Sheet ③ Reporting Format for Planned AtoN

Name of Sea Area / Port

District

Chart No (Name)

List of Planned Aids to Navigation

Sheet ③

| Reference Number | Location | | | Aid | | Category | | Type of Marks | | | | Remarks |
|------------------|--------------|--------------|---------------|----------------|--------------------|-------------------------------|------------------------|---------------|----------------------|---------------------------------|------------------|--------------|
| | Name of AtoN | Position | | Type (*1) | Specification (*2) | Sea Area (*3) | Significance (*4) | Lateral (*5) | Cardinal (*6) | Special (*7) | Light Color (*8) | Popular name |
| | | Longitude | Latitude | | | | | | | | | |
| Example | ABCDEF | 00-25-45.00N | 130-23-55.00E | Lighted Beacon | Short range Light | Harbor/Port (Restricted area) | Category 2 (Important) | Port | Not Applicable (n/a) | Special Marks (Quarantine Area) | Red | |
| 1 | | | | | | | | | | | | |
| 2 | | | | | | | | | | | | |
| 3 | | | | | | | | | | | | |
| 4 | | | | | | | | | | | | |

Drop Down List

| No | Name of Aid | Items |
|----|-------------|--------------------|
| 1 | Type (*1) | Lighthouse |
| | | Breakwater Light |
| | | Harbor Light |
| | | Lighted Beacon |
| | | Lighted Buoy |
| | | Leading Lights |
| | | Sector Light |
| | | Beacon (Unlighted) |
| | | Buoy (Unlighted) |
| | | Landmark |
| | | AtoN AIS |

| No | Category | Items |
|----|---------------|-------------------------------|
| 3 | Sea Area (*3) | Offshore waters |
| | | Coastal waters |
| | | Congested area |
| | | Harbor/Port (Restricted area) |
| | | Inland waters (River) |

| No | Category | Items |
|----|--------------|------------------------|
| 4 | Significance | Category 1 (Vital) |
| | | Category 2 (Important) |
| | | Category 3 (Necessary) |

| No | Type of Marks | Items |
|----|---------------|--------------------------------|
| 5 | Lateral (*5) | Starboard |
| | | Port |
| | | Preferred Channel of Starboard |
| | | Preferred Channel of Port |
| | | Not Applicable (n/a) |

| No | Type of Marks | Items |
|----|---------------|----------------------|
| 6 | Cardinal (*6) | North |
| | | East |
| | | South |
| | | West |
| | | Not Applicable (n/a) |
| | | |

| No | Type of Marks | Items |
|----|---------------|---------------------------------|
| 7 | Special (*7) | Special Marks (Work Zone) |
| | | Special Marks (Quarantine Area) |
| | | Special Marks (Anchorage) |
| | | Special Marks (Wreck Marking) |
| | | Transition Mark |
| | | Safe Water Mark |
| | | Approach Mark |
| | | Not Applicable (n/a) |

| No | Type of Marks | Items |
|----|------------------|--------|
| 8 | Light Color (*8) | White |
| | | Red |
| | | Yellow |
| | | Green |

| No | Name of Aid | Items |
|----|--------------------|---------------------------|
| 2 | Specification (*2) | Landfall Light |
| | | Long-range Light |
| | | Medium-range Light |
| | | Short-range Light |
| | | Channel Light |
| | | Leading Lights |
| | | Radio Aids (Medium-range) |

| Category | Shape |
|-------------------------|---------------------------------------------------------|
| 1 LATERAL MARKS | 1-1 Single red cylinder (can) |
| | 1-2 Single green cylinder (can) |
| | 1-3 Single green cone, point upwards |
| | 1-4 Single red cone, point upwards |
| 2 CARDINAL MARKS | 2-1 2 black cones, one above the other, pointing upward |
| | 2-2 2 black cones, one above the other, base to base |
| | 2-3 2 black cones, one above the other, points downward |
| | 2-4 2 black cones, one above the other, point to point |
| 3 ISOLATED DANGER MARKS | 3 2 black spheres, one above the other |
| 4 SAFE WATER MARKS | 4 Single red sphere |
| 5 SPECIAL MARKS | 5 Single yellow "X" shape (St Andrew's Cross) |

Status of Reply to Questionnaire for Aton

As of December 12, 2022

| NO | AREA | CLASS | SHEET 1 | SHEET 2 | SHEET 3 | DATA | NO | AREA | CLASS | SHEET 1 | SHEET 2 | SHEET 3 | DATA |
|----|-----------------|-----------|------------------------------------------|-------------------------------------------------------------|------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|------------------|-----------|---------------------------------------------------|-----------------------------------------------|------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1 | Sabang (1) | Class II | Nominated Area VTS * (2110) | Existing/Planned VTS (2110) | Planned AtoN (2110) | Ship Routing Report | 14 | Kupang (14) | Class II | - | Existing AtoN * (0811) | - | - |
| 2 | Belawan (2) | Class I | - | Existing/Planned VTS | - | - | 15 | Benjarmasin (15) | Class II | Nominated Area VTS | Existing AtoN & Existing/Planned VTS | - | - |
| 3 | Sibolga (3) | Class III | - | - | - | Report of existing AtoN (0111) Master Plan Navigasi Sibolga (0111) | 16 | Tarakan (16) | Class III | Nominated Area VTS * (2910) | Existing/Planned VTS * (2910) | - | Chart / Data - Traffic Lane to enter Port of Tarakan (2710) - Establishment Port/VTS Center Tarakan Center Site/Tg. Batu Pulau Bunyu (2710) - Traffic Volume 2022 (2710) - List of Marine Accident (2810) |
| 4 | Teluk Bayur (4) | Class I | - | Existing AtoN (2111) | Planned AtoN (2111) | - | 17 | Samarinda (17) | Class I | Nominated Area AtoN & Nominated Area VTS * (2510) | Existing AtoN Existing & Planned VTS | Planned AtoN | Chart / Data - Nautical Chart (2910) |
| 5 | Tg. Pinang (5) | Class I | Nominated Area VTS | Existing/Planned VTS & Existing AtoN * Existing AtoN (0811) | Planned AtoN | - | 18 | Makassar (18) | Class I | Nominated Area AtoN | Existing VTS * (2510) | Planned AtoN * Planned AtoN (2510) | - |
| 6 | Dumai (6) | Class I | Nominated Area AtoN & Nominated Area VTS | Existing AtoN & Existing/Planned VTS | Planned AtoN | - | 19 | Kendari (19) | Class III | - | Existing/Planned VTS | - | - |
| 7 | Palembang (7) | Class I | - | Existing/Planned VTS | - | - | 20 | Bitung (20) | Class I | - | Existing AtoN * (2112) | - | - |
| 8 | Pontianak (8) | Class III | Nominated Area AtoN & Nominated Area VTS | Existing/Planned VTS | - | - | 21 | Ambon (21) | Class I | Nominated Area VTS | Existing/Planned VTS & Existing AtoN * (2910) | - | - |
| 9 | Tg. Priok (9) | Class I | Nominated Area AtoN & Nominated Area VTS | Existing AtoN & Existing/Planned VTS | Planned AtoN | - | 22 | Sorong (22) | Class I | - | Existing/Planned VTS | - | - |
| 10 | Gilacap (10) | Class III | Nominated Area AtoN | Existing AtoN * Existing AtoN (2710) | Planned AtoN (NL) Planned AtoN (2710) | - | 23 | Jayapura (23) | Class II | - | Existing AtoN * (0811) | Planned AtoN * (0811) | Nautical Chart (2910) Route at Chart with AtoN position (0811) |
| 11 | Semarang (11) | Class II | - | Existing/Planned VTS | - | Ship Routing (Koridor Crossing Route, Legat Bajak Shading Route, Koridor Jawa Route, Bajak Route, Thematic Chart (Laporan, Kendal, Paksi, Jombang, Rembang, Semarang) (2111)) | 24 | Merak (24) | Class III | - | - | - | - |
| 12 | Surabaya (12) | Class I | Nominated Area AtoN (2710) | Existing/Planned VTS | - | (Chart) 7 Terletak Persebaran AtoN Tg. Paksi 2021 8 Terletak Persebaran AtoN Tadjan 2021 9 Persebaran AtoN Bism 2022 standar RUM 10 Persebaran AtoN K. abal 2022 standar RUM | 25 | Tual (25) | Class III | Nominated Area AtoN | Planned VTS | - | - |
| 13 | Benoa (13) | Class II | Nominated Area AtoN * (0811) | Existing AtoN & Existing/Planned VTS | Planned AtoN * (0811) | (Chart) AtoN Pelabuhan Lombok AtoN Pantai Jember dan Selat AtoN Penang AtoN Sampiran Nautal a Chart Existing AtoN & Planned AtoN (0811) | | | | | | | |

Summary Table for Planned AtoN requested by DISNAV

December 12, 2022

| No | DISNAV | Number of Nominated Area | Number of Planned AtoN | Planned AtoN | | |
|----|-------------|--------------------------|------------------------|--------------|----------------|--------------|
| | | | | Lighthouse | Lighted Beacon | Lighted Buoy |
| 1 | Sabang | 2 | 4 | 2 | 2 | |
| 2 | Belawan | 0 | 0 | | | |
| 3 | Sibolga | 0 | 0 | | | |
| 4 | Teluk Bayur | 2 | 3 | | 3 | |
| 5 | Tg. Pinang | 3 | ---- | --- | --- | --- |
| 6 | Dumai | 3 | 7 | | 7 | |
| 7 | Palembang | 0 | 0 | | | |
| 8 | Pontianak | 1 | ---- | --- | --- | --- |
| 9 | Tg. Priok | 2 | 7 | | 7 | |
| 10 | Cilacap | 2 | 2 | | 2 | |
| 11 | Semarang | 2 | 8 | | 4 | 4 |
| 12 | Surabaya | 1 | ---- | --- | --- | --- |

| No | DISNAV | Number of Nominated Area | Number of Planned AtoN | Planned AtoN | | |
|-------|--------------|--------------------------|------------------------|--------------|----------------|--------------|
| | | | | Lighthouse | Lighted Beacon | Lighted Buoy |
| 13 | Benoa | 6 | 15 | | 15 | |
| 14 | Kupang | 0 | 0 | | | |
| 15 | Banjarmashin | 0 | 0 | | | |
| 16 | Tarakan | 0 | 0 | | | |
| 17 | Samarinda | 2 | 10 | | 3 | 7 |
| 18 | Makassar | 3 | 8 | | | 8 |
| 19 | Kendari | 0 | 0 | | | |
| 20 | Bitung | 0 | 0 | | | |
| 21 | Ambon | 2 | 4 | 4 | | |
| 22 | Sorong | 0 | 0 | | | |
| 23 | Jayapura | 5 | 21 | 1 | 12 | 8 |
| 24 | Merauke | 0 | 0 | | | |
| 25 | Tual | 0 | 0 | | | |
| Total | | 36 | 89 | 7 | 55 | 27 |

Table of Establishment Plan for AtoN

(1/9)

| No. | DISNAV | Nominated Area | Planned AtoN | Item | Implementation (AtoN) | | | | | | Reference |
|-----|---------------|----------------|--------------|-----------------------|-----------------------|-------------|-----------|-------------|-------------|--------------------------|------------------|
| | | | | | 2024 | 2025 | 2026 | 2027 | 2028 | Subsequent Year til 2040 | |
| 1 | Sabang (II) | 2 | 4 | Hearing Survey | | | | | | Ox2 | Pulau Sumat Aceh |
| | | | | Feasibly Study | Oa | | Oa | | | | |
| | | | | Implementation Design | | | | | | | |
| | | | | Construction | | OL | | OL | OLB x2 | | |
| | | | | Budget | IDR 830.M | IDR 3,000.M | IDR 830.M | IDR 3,000.M | IDR 1,750.M | IDR 490.M | |
| 2 | Belawan (I) | 0 | 0 | Hearing Survey | O | | O | | O | Ox2 | |
| | | | | Feasibly Study | | | | | | | |
| | | | | Implementation Design | | | | | | | |
| | | | | Construction | | | | | | | |
| | | | | Budget | IDR 245.M | | | | | | |
| 3 | Sibolga (III) | 0 | 0 | Hearing Survey | O | | | | | | |
| | | | | Feasibly Study | | | | | | | |
| | | | | Implementation Design | | | | | | | |
| | | | | Construction | | | | | | | |
| | | | | Budget | IDR 245.M | | | | | | |

Table of Establishment Plan for AtoN

(2/9)

| No. | DISNAV | Nominated Area | Planned AtoN | Item | Implementation (AtoN) | | | | | | Reference |
|-----|-----------------|----------------|--------------|-----------------------|-----------------------|-------------|-------------|-------------|-------------|--------------------------|-----------|
| | | | | | 2024 | 2025 | 2026 | 2027 | 2028 | Subsequent Year til 2040 | |
| 4 | Teluk Bayur (I) | 2 | 3 | Hearing Survey | | | | O | | Ox2 | |
| | | | | Feasibly Study | Oa | | | | | | |
| | | | | Implementation Design | | | | | | | |
| | | | | Construction | | OLB | OLB x2 | | | | |
| | | | | Budget | IDR 830.M | IDR 1,000.M | IDR 1,500.M | IDR 245.M | | IDR 490.M | |
| 5 | Tg. Pinang (I) | 3 | --- | Hearing Survey | O | | O | | O | Ox2 | |
| | | | | Feasibly Study | Oa | | | | | | |
| | | | | Implementation Design | | | | | | | |
| | | | | Construction | | | | | | | |
| | | | | Budget | IDR 915.M | | IDR 245.M | | IDR 245.M | IDR 490.M | |
| 6 | Dumai (I) | 3 | 7 | Hearing Survey | | | O | | O | Ox2 | |
| | | | | Feasibly Study | Oa | | | | | | |
| | | | | Implementation Design | | | | | | | |
| | | | | Construction | | OLB x2 | OLB x2 | OLB x2 | OLB | | |
| | | | | Budget | IDR 830.M | IDR 1,500.M | IDR 1,745.M | IDR 1,500.M | IDR 1,245.M | IDR 490.M | |

1-A Summary Table for Planned AtoN

1 DISNAV Sabang

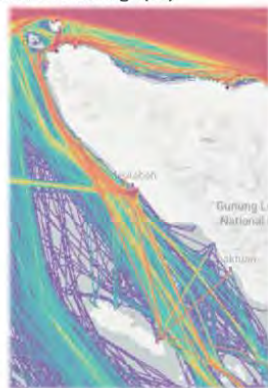
| No | Area | Planned AtoN | | | | | Reference (Purpose) |
|----|-------------|--------------|----------------------------|-----------------|------------------|----------------|---------------------|
| | | No | Name | Location | | Type | |
| | | | | Latitude | Longitude | | |
| 1 | Pulau Sumat | 1 | Mensu Pulau Sumat Sinabang | 02°38' 44.43" N | 096°23' 46.82" E | Lighthouse | Long-range Light |
| 2 | Aceh | 1 | Mensu Peusangan Bireun | 05°16' 25.16" N | 096°51' 6.29" E | Lighthouse | Long-range Light |
| | | 2 | Ramsu Ujung Raja Sigli | 05°14' 15.68" N | 096°27' 55.20" E | Lighted Beacon | Middle-range Light |
| | | 3 | Ramsu Merdu Sigli | 05°15' 43.10" N | 096°15' 33.09" E | Lighted Beacon | Middle-range Light |

1 Sabang (II)

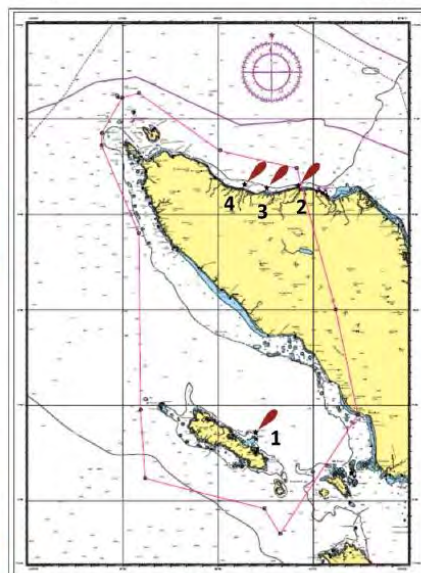
Planned AtoN

Pulau Sumat

- 1 Mensu Pulau Sumat Sinabang (*L*)
- Ache
- 2 Mensu Peusangan Bireun (*L*)
- 3 Ramsu Ujung Raja Sigli (*LB*)
- 4 Ramsu Merdu Sigli (*LB*)



Location Map



Planned AtoN

- 1 Mensu Pulau Sumat Sinabang
(02° 38' 44.43" N 96° 23' 46.82" E)

(*Lighthouse*)



Table of Establishment Plan for AtoN

(1/9)

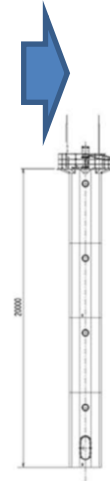
| No. | DISNAV | Nominated Area | Planned AtoN | Item | Implementation (AtoN) | | | | | | Reference |
|-----|---------------|----------------|--------------|-----------------------|-----------------------|-------------|-----------|-------------|-------------|--------------------------|-------------------|
| | | | | | 2024 | 2025 | 2026 | 2027 | 2028 | Subsequent Year til 2040 | |
| 1 | Sabang (II) | 2 | 4 | Hearing Survey | | | | | | Ox2 | Pulau Slumat Ache |
| | | | | Feasibly Study | Oa | | Oa | | | | |
| | | | | Implementation Design | | | | | | | |
| | | | | Construction | | OL | | OL | OLB x2 | | |
| | | | | Budget | IDR 830.M | IDR 3,000.M | IDR 830.M | IDR 3,000.M | IDR 1,750.M | IDR 490.M | |

Feasibility Study & Implementation Design

- 1 Preparation
 - a Collection of information
 - b Planning of Investigation
- 2 Prior consultation
 - a Contact with related parties
- 3 Site survey
 - a Hearing of user's opinion
 - b Collection of data
 - c Selection of AtoN
 - d Field validation
- 4 Designing
 - a Decide on specification
 - b Risk Management
(Identification, Analysis, Assessment)
- 5 Estimation of Cost
- 6 Preparation of Report



Detail design
Specifications
Drawings



Contract
Construction

1-A Summary Table for Planned AtoN

6 DISNAV Dumai

| No | Area | Planned AtoN | | | | | Reference (Purpose) |
|----|------------------------------------|--------------|-------------------------|------------------|-------------------|--------|---------------------|
| | | No | Name | Location | | Type | |
| | | | | Latitude | Longitude | | |
| 1 | Pulau Tebingtinggi | 1 | Ramsu Selat Panjang 1 | 00° 45' 25.46" N | 102° 47' 43.52" E | Strait | Restricted area |
| | | 2 | Ramus Selat Panjang 2 | 00° 40' 33.80" N | 102° 58' 06.62" E | Strait | Restricted area |
| 2 | Pulau Pandang | 3 | Ramsu Tg. Buton | 00° 55' 56.03" N | 102° 18' 08.46" E | Strait | Harbor |
| | | 7 | Ramsu Selat Padang | 01° 19' 58.61" N | 102° 22' 23.15" E | Strait | Restricted area |
| 3 | Sungai Guntung Sungai Indragiri | 4 | Ramsu Sungai Guntung | 00° 22' 38.79" N | 103° 36' 25.46" E | Strait | Restricted area |
| | | 5 | Ramsu Sungai Indagiri 1 | 00° 18' 09.22" S | 103° 12' 41.68" E | Strait | Restricted area |

| | | | | | | | | | | | | | |
|---|-------------|---|---|-----------------------|-----------|-------------|-------------|-------------|-------------|--|-----------|--|-------------|
| 6 | Dumai (I) | 3 | 7 | Hearing Survey | | | | | | | | | |
| | | | | Feasibly Study | ○a | | | | | | | | |
| | | | | Implementation Design | | | | | | | | | |
| | | | | Construction | | OLB x2 | OLB x2 | OLB x2 | OLB | | | | |
| | | | | Budget | IDR 830.M | IDR 1,500.M | IDR 1,745.M | IDR 1,500.M | IDR 1,245.M | | IDR 490.M | | IDR 7,310.M |

Planned AtoN

- 1 Ramsu Selat Panjang
- 2 Ramsu Selat Panjang
- 3 Ramsu Tg. Buton
- 4 Ramsu Sungai Guntung
- 5 Ramsu Sungai Indagiri
- 6 Ramsu Sungai Indagiri
- 7 Ramsu Selat Padang

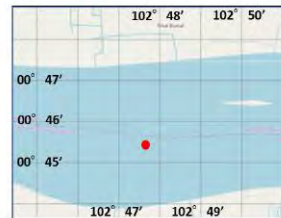
- 1 (00°45'25.46" N 102°47'43.52" E)
- 2 (00°40'33.80" N 102°58'06.62" E)
- 3 (00°55'56.03" N 102°18'08.46" E)
- 4 (00°22'38.79" N 103°36'25.46" E)
- 5 (00°18'09.22" S 103°12'41.68" E)
- 6 (00°19'53.64" S 103°18'44.40" E)
- 7 (01°19'58.61" N 102°22'23.15" E)



Planned AtoN

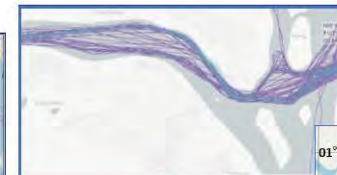
1 Ramsu Selat Panjang

(00°45'25.46" N 102°47'43.52" E)



2 Ramsu Selat Panjang

(00°40'33.80" N 102°58'06.62" E)



| | | | | | | | | | | | |
|---|------------------|---|-------|-----------------------|-----------|--|-----------|--|-----------|-----------|-------------|
| 5 | Tg. Pinang (I) | 3 | ----- | Hearing Survey | ○ | | ○ | | ○ | Ox2 | |
| | | | | Feasibly Study | ○b | | | | | | |
| | | | | Implementation Design | | | | | | | |
| | | | | Construction | | | | | | | |
| | | | | Budget | IDR 915.M | | IDR 245.M | | IDR 245.M | IDR 490.M | IDR 1,895.M |

1-B Outline Map of Planned AtoN

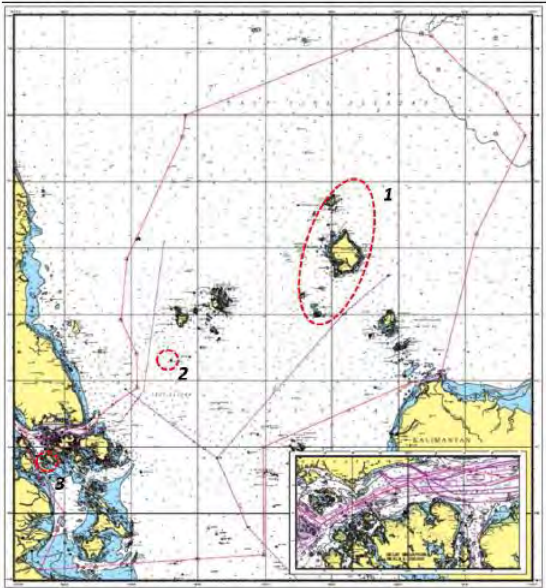
5 Tg. Pinang (I)

Planned AtoN (Nominated Area)

- 1 Pelabuhan Selat Lampa
- 2 Rambu Suar Malang Biru
- 3 Rambu Suar Menvil



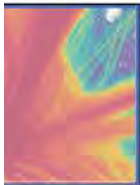
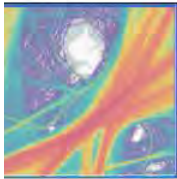
Location Map



1-A Summary Table for Planned AtoN

5 DISNAV Tg. Pinang

| No | Area | Planned AtoN | | | | | Reference (Purpose) |
|----|------------------------|--------------|------|----------|-----------|----------------|----------------------|
| | | No | Name | Location | | Type | |
| | | | | Latitude | Longitude | | |
| 1 | Pelabuhan Selat Lampa | | ---- | ---- | ---- | Harbor/Port | Pelabuhan Pengumpul |
| 2 | Rambu Suar Malang Biru | | ---- | ---- | ---- | Offshore Water | Tanda Pulau Terdepan |
| 3 | Rambu Suar Menvil | | ---- | ---- | ---- | Offshore Water | |



| No. | DISNAV | Nominated Area | Planned AtoN | Item | Implementation (AtoN) | | | | | | Reference |
|-----|-----------------|----------------|--------------|-----------------------|-----------------------|------|-----------|------|-----------|--------------------------|-------------|
| | | | | | 2024 | 2025 | 2026 | 2027 | 2028 | Subsequent Year til 2040 | |
| 2 | Belawan (I) | 0 | 0 | Hearing Survey | ○ | | ○ | | ○ | Ox2 | |
| | | | | Feasibly Study | | | | | | | |
| | | | | Implementation Design | | | | | | | |
| | | | | Construction | | | | | | | |
| | | | | Budget | IDR 245.M | | IDR 245.M | | IDR 245.M | IDR 490.M | IDR 1,225.M |
| 3 | Sibolga (III) | 0 | 0 | Hearing Survey | ○ | | ○ | | ○ | Ox2 | |
| | | | | Feasibly Study | | | | | | | |
| | | | | Implementation Design | | | | | | | |
| | | | | Construction | | | | | | | |
| | | | | Budget | IDR 245.M | | | | | | IDR 1,225.M |

Hearing Survey on the Wants and Needs for AtoN

1 Preparation

a Collection of information

b Planning of Survey

2 Prior consultations

a Contact with stakeholders

3 Hearing Survey

a Stakeholder Hearing held in sites

b Site Investigation

c Collection of data

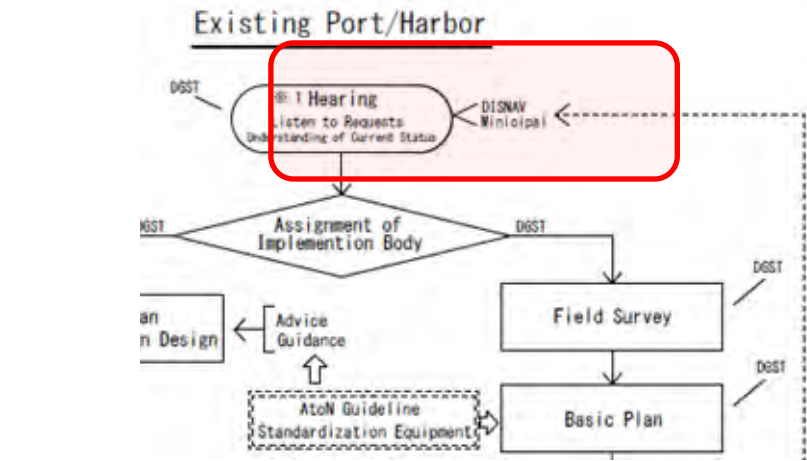
4 Compilation of Hearing results

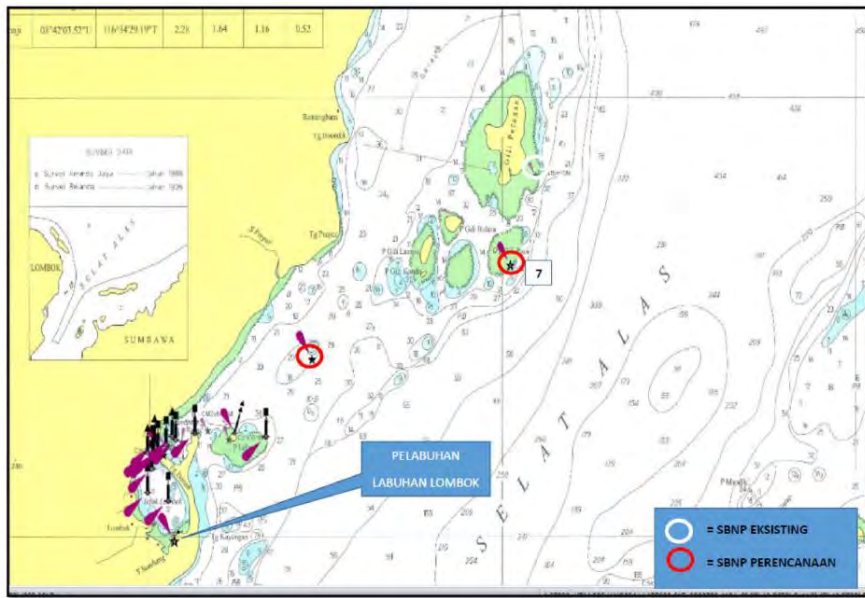
a Wants and Needs

b Data

5 Preparation of Report

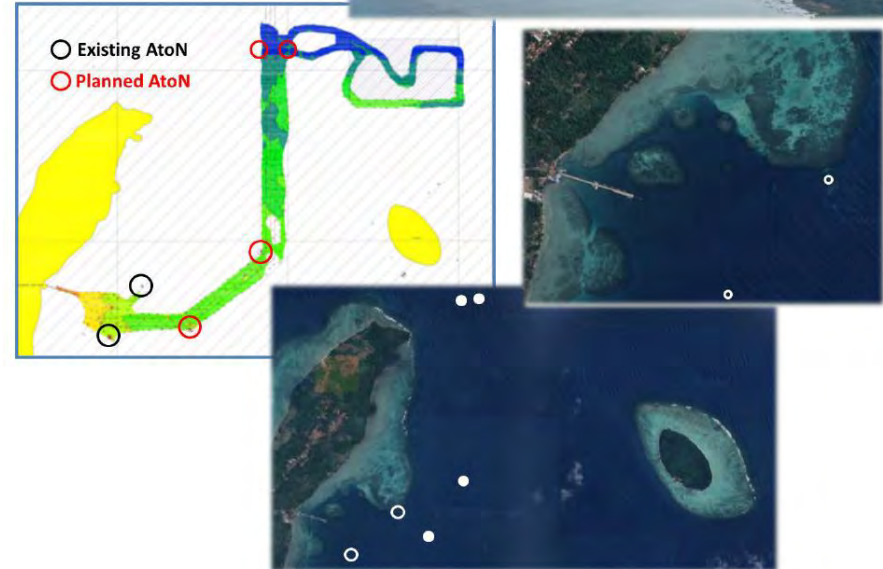
- Marine Accidents
- Volume of Traffic
- Development of Port
- Marine Chart





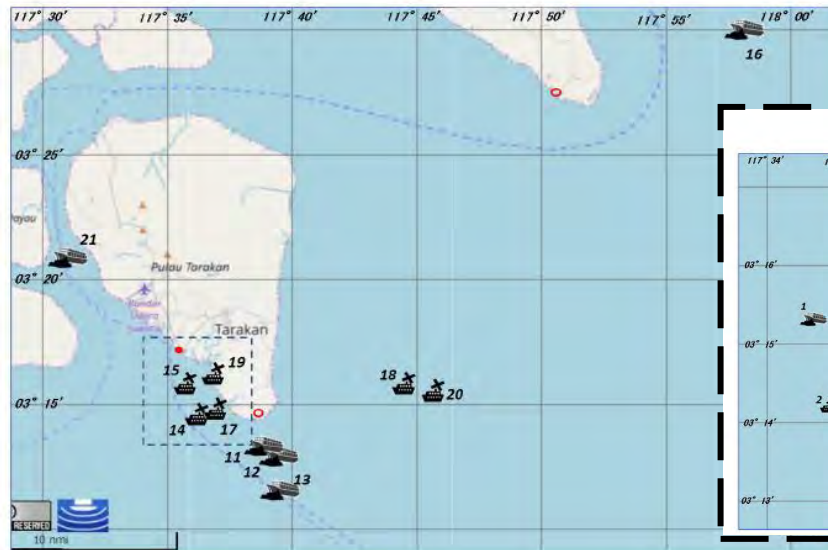
7 Rambu Suar Pulau Pasir : 116° 45' 06.4407" BT / 08° 26' 54.3896" LS di laut pada kedalaman -3 m Lws tinggi 10 meter;

1 PELABUHAN Logon Bajak



Marine Accident (2021~2022)

- Tarakan VTS
- Planned Sensor St. for VTS



Marine Accident (2018~2020)



Table of Budget Plan for AtoN

| No. | DISNAV | Nominated Area | Planned AtoN | Implementation Cost (AtoN) | | | | | | Total |
|-------|---------------------|----------------|--------------|----------------------------|-----------------------|-----------------------|-----------------------|-----------------------|--------------------------|------------------------|
| | | | | 2024 | 2025 | 2026 | 2027 | 2028 | Subsequent Year til 2040 | |
| 1 | Sabang (II) | 2 | 4 | IDR 830.00M | IDR 3,000.00M | IDR 830.00M | IDR 3,000.00M | IDR 1,750.00M | IDR 490.00M | IDR 9,900.00M |
| 2 | Belawan (I) | 0 | 0 | IDR 245.00M | | IDR 245.00M | | IDR 245.00M | IDR 490.00M | IDR 1,225.00M |
| 3 | Sibolga (III) | 0 | 0 | IDR 245.00M | | IDR 245.00M | | IDR 245.00M | IDR 490.00M | IDR 1,225.00M |
| 4 | Teluk Bayur (I) | 2 | 3 | IDR 830.00M | IDR 1,000.00M | IDR 1,500.00M | IDR 245.00M | | IDR 490.00M | IDR 4,065.00M |
| 5 | Tg. Pinang (I) | 3 | --- | IDR 915.00M | | IDR 245.00M | | IDR 245.00M | IDR 490.00M | IDR 1,895.00M |
| 6 | Dumai (I) | 3 | 7 | IDR 830.00M | IDR 1,500.00M | IDR 1,745.00M | IDR 1,500.00M | IDR 1,245.00M | IDR 490.00M | IDR 7,310.00M |
| 7 | Palembang (I) | 0 | 0 | IDR 245.00M | | IDR 245.00M | | IDR 245.00M | IDR 490.00M | IDR 1,225.00M |
| 8 | Pontianak (III) | 1 | --- | | | IDR 245.00M | | IDR 245.00M | IDR 490.00M | IDR 980.00M |
| 9 | Tg. Priok (I) | 2 | 7 | IDR 830.00M | IDR 3,670.00M | IDR 2,425.00M | IDR 1,000.00M | IDR 245.00M | IDR 490.00M | IDR 8,660.00M |
| 10 | Cilacap (III) | 2 | 2 | IDR 830.00M | IDR 1,000.00M | IDR 1,245.00M | | IDR 245.00M | IDR 490.00M | IDR 3,810.00M |
| 11 | Semarang (II) | 2 | 8 | IDR 830.00M | IDR 4,830.00M | IDR 3,245.00M | | IDR 245.00M | IDR 490.00M | IDR 9,640.00M |
| 12 | Surabaya (I) | 1 | --- | | | IDR 245.00M | | IDR 245.00M | IDR 490.00M | IDR 980.00M |
| 13 | Benoa (II) | 6 | 15 | IDR 830.00M | IDR 3,830.00M | IDR 4,580.00M | IDR 3,245.00M | IDR 2,250.00M | IDR 490.00M | IDR 15,225.00M |
| 14 | Kupang (II) | 0 | 0 | IDR 245.00M | | IDR 245.00M | | IDR 245.00M | IDR 490.00M | IDR 1,225.00M |
| 15 | Banjarmashin (II) | 0 | 0 | IDR 245.00M | | IDR 245.00M | | IDR 245.00M | IDR 490.00M | IDR 1,225.00M |
| 16 | Tarakan (III) | 0 | 0 | | IDR 245.00M | IDR 245.00M | | IDR 245.00M | IDR 490.00M | IDR 1,225.00M |
| 17 | Samarinda (I) | 2 | 10 | IDR 830.00M | IDR 2,250.00M | IDR 3,830.00M | IDR 2,495.00M | | IDR 490.00M | IDR 9,895.00M |
| 18 | Makassar (I) | 3 | 8 | IDR 830.00M | IDR 1,830.00M | IDR 4,830.00M | IDR 2,250.00M | IDR 245.00M | IDR 490.00M | IDR 10,475.00M |
| 19 | Kendari (III) | 0 | 0 | | | IDR 245.00M | | IDR 245.00M | IDR 490.00M | IDR 980.00M |
| 20 | Bitung (I) | 0 | 0 | IDR 245.00M | | IDR 245.00M | | IDR 245.00M | IDR 490.00M | IDR 1,225.00M |
| 21 | Ambon (I) | 2 | 4 | IDR 670.00M | IDR 425.00M | IDR 3,670.00M | IDR 2,825.00M | IDR 3,000.00M | IDR 490.00M | IDR 11,080.00M |
| 22 | Sorong (I) | 0 | 0 | IDR 245.00M | | IDR 245.00M | | IDR 245.00M | IDR 490.00M | IDR 1,225.00M |
| 23 | Jayapura (II) | 5 | 21 | IDR 830.00M | IDR 3,330.00M | IDR 3,830.00M | IDR 3,000.00M | IDR 3,245.00M | IDR 490.00M | IDR 14,725.00M |
| 24 | Merauke (III) | 0 | 0 | IDR 245.00M | | IDR 245.00M | | IDR 245.00M | IDR 490.00M | IDR 1,225.00M |
| 25 | Tual (III) | 0 | 0 | | | IDR 245.00M | | IDR 245.00M | IDR 490.00M | IDR 980.00M |
| Total | | 36 | 89 | IDR 11,845.00M | IDR 26,910.00M | IDR 35,160.00M | IDR 19,560.00M | IDR 15,900.00M | IDR 12,250.00M | IDR 121,625.00M |

Table of Establishment Plan for AtoN

| No. | DISNAV | Nominated Area | Planned AtoN | Item | Implementation Cost (AtoN) | | | | | | Total |
|-----|---------------|----------------|--------------|-----------------------|----------------------------|-------------|-------------|-------------|-------------|--------------------------|--------------|
| | | | | | 2024 | 2025 | 2026 | 2027 | 2028 | Subsequent Year til 2040 | |
| 1 | DISNAV (1-25) | 36 | 89 | Hearing Survey | IDR 2,205M | IDR 490M | IDR 4,410M | IDR 980M | IDR 4,900M | IDR 12,250M | IDR 25,235M |
| | | | | Feasibly Study | IDR 9,640M | IDR 3,990M | IDR 4,820M | | | | IDR 18,450M |
| | | | | Implementation Design | | IDR 180M | IDR 180M | IDR 180M | | | IDR 540M |
| | | | | Construction | | IDR 22,250M | IDR 25,750M | IDR 18,400M | IDR 11,000M | | IDR 77,400M |
| | | | | Budget | IDR 11,845M | IDR 26,910M | IDR 35,160M | IDR 19,560M | IDR 15,900M | IDR 12,250M | IDR 121,625M |

Summary Table for Planned VTS requested by DISNAV

As of December 12, 2022

| No | DISNAV | Number of Nominated Area | Number of Planned VTS |
|----|-------------|--------------------------|-----------------------|
| 1 | Sabang | 1 | 1 |
| 2 | Belawan | 0 | 0 |
| 3 | Sibolga | 0 | 0 |
| 4 | Teluk Bayur | 0 | 0 |
| 5 | Tg. Pinang | 13 | 3 |
| 6 | Dumai | 0 | 0 |
| 7 | Palembang | 0 | 0 |
| 8 | Pontianak | 2 | ---- |
| 9 | Tg. Priok | 1 | 1 |
| 10 | Cilacap | 0 | 0 |
| 11 | Semarang | 0 | 0 |
| 12 | Surabaya | 0 | 0 |

| No | DISNAV | Number of Nominated Area | Number of Planned VTS |
|-------|--------------|--------------------------|-----------------------|
| 13 | Benoa | 0 | 0 |
| 14 | Kupang | 0 | 0 |
| 15 | Banjarmashin | 0 | 0 |
| 16 | Tarakan | 1 | 1 |
| 17 | Samarinda | 2 | 3 |
| 18 | Makassar | 0 | 0 |
| 19 | Kendari | 1 | 1 |
| 20 | Bitung | 0 | 0 |
| 21 | Ambon | 1 | 1 |
| 22 | Sorong | 0 | 0 |
| 23 | Jayapura | 0 | 0 |
| 24 | Merauke | 0 | 0 |
| 25 | Tual | 3 | 3 |
| Total | | 25 | 14 |

1 Sabang (II)

Planned VTS

1 Sabang

VTS Center
(5 53 59.67N 95 19 21.10E)

Facilities

- AIS x 1
- VHF x 2
- VHF x 2
- Tide St. x 1



Location Map



1-A Summary Table for Planned VTS

1 DISNAV Sabang

| No | Name (Place) | Type | Location | | Other |
|----|--------------|-------------|----------------|-----------------|-------|
| | | | Latitude | Longitude | |
| 1 | Sabang VTS | Port/Harbor | 5°53' 59.67° N | 95°19' 21.10° E | |

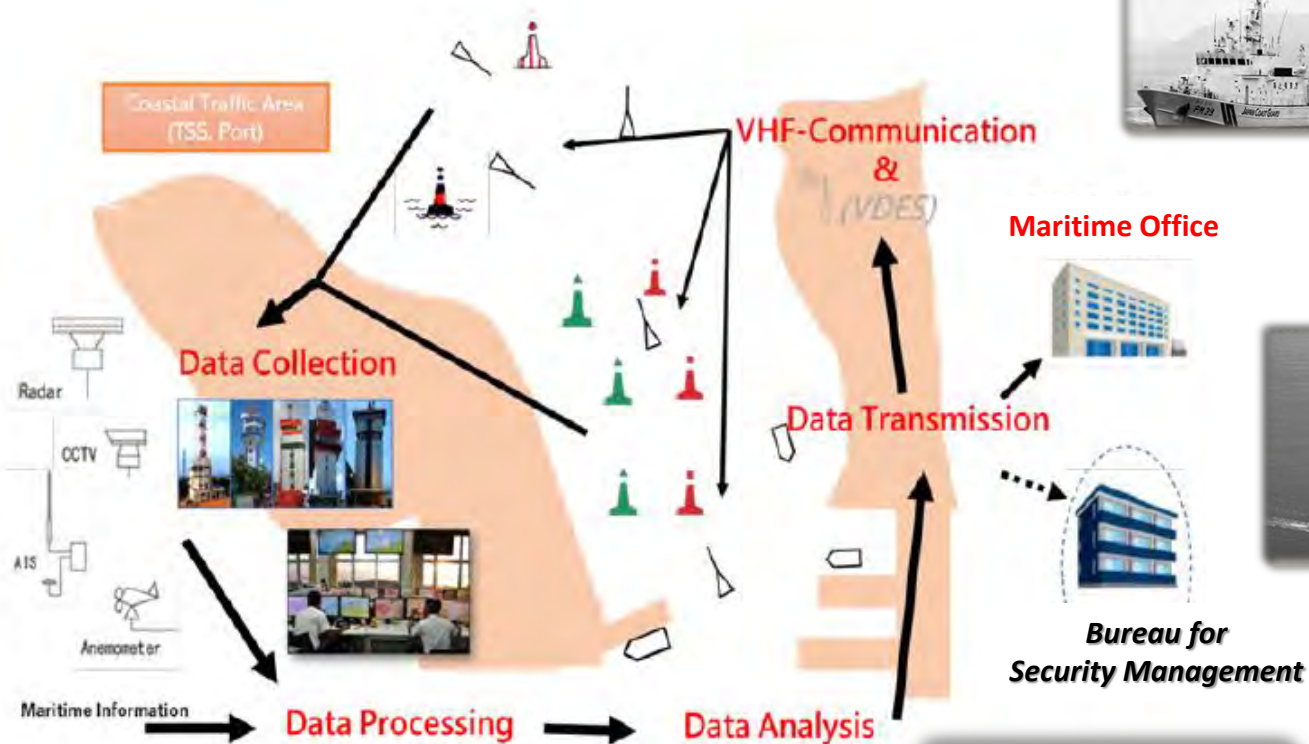
| Facilities | | | | | | | |
|------------------|-------|-----|------|---------------------------|-----|----------------------|--------------|
| Operation Center | Radar | AIS | CCTV | Meteorological Instrument | VHF | Traffic/Tidal Signal | Other |
| 1 | 0 | 1 | 0 | 0 | 2 | | Tide Station |

Table of Establishment Plan for VTS

(1/9)

| No. | DISNAV | Nominated Area | Planned VTS | Item | Implementation (VTS) | | | | | | Reference |
|-----|---------------|----------------|-------------|-----------------------|----------------------|-------------|---------------|----------------|-------------|---------------------------|----------------|
| | | | | | 2024 | 2025 | 2026 | 2027 | 2028 | Subsequent Year till 2040 | |
| 1 | Sabang (II) | 1 | 1 | Hearing Survey | | | | ○ | | ○x2 | |
| | | | | Feasibly Study | ○b | | | | | | |
| | | | | Implementation Design | | ○ | | | | | |
| | | | | Construction | | | ○ 1, 2 | ○ 3, 4, 5 | ◎ | | ◎ Training |
| | | | | Budget | IDR 670.00M | IDR 180.00M | IDR 6,000.00M | IDR 16,545.00M | IDR 710.00M | IDR 490.00M | IDR 24,595.00M |

Function and Mission of VTS



Extended Cooperative Network VTS Mission



Search & Rescue



Sea Patrol



Drug Enforcement



Monitoring and Surveillance



Maritime Refugees

**Ship-to-Ship
Illegal Transfer**

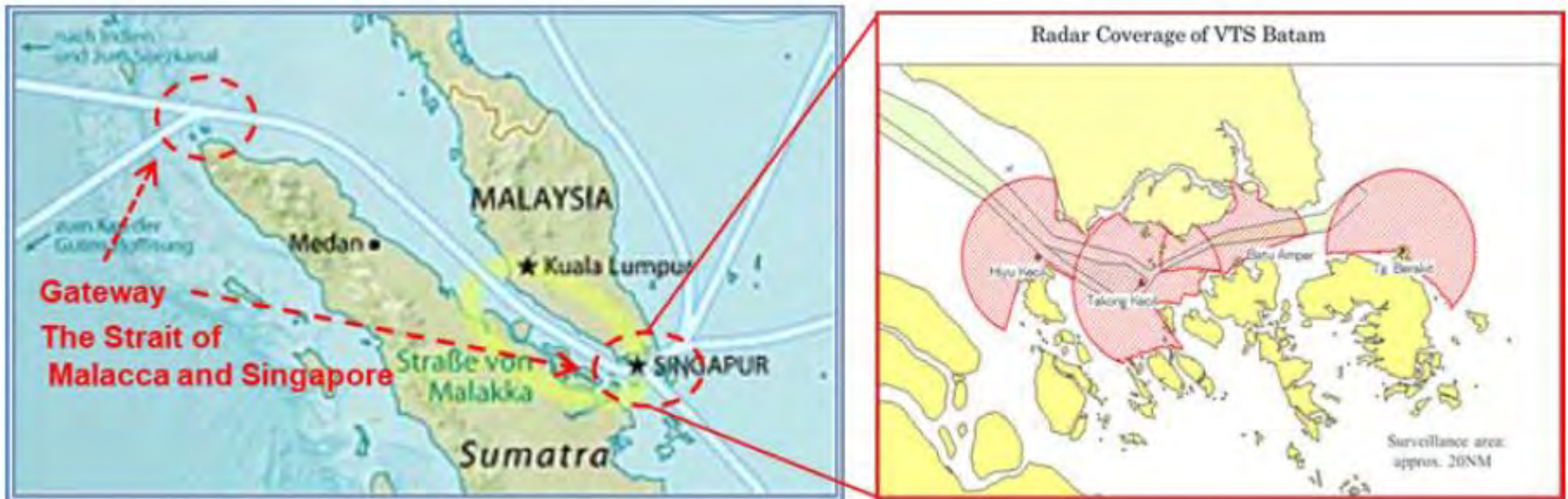


Figure 7.2.4 -2 : Gateways of the Straits of Malacca and Singapore

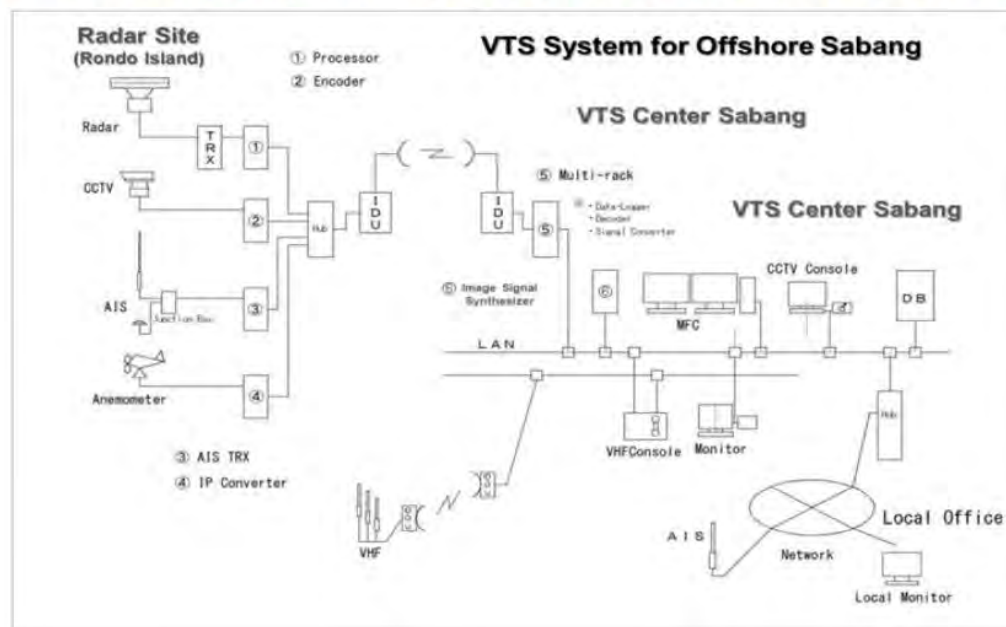


Figure 7.2.4 -3 : Fundamental Configuration of VTS

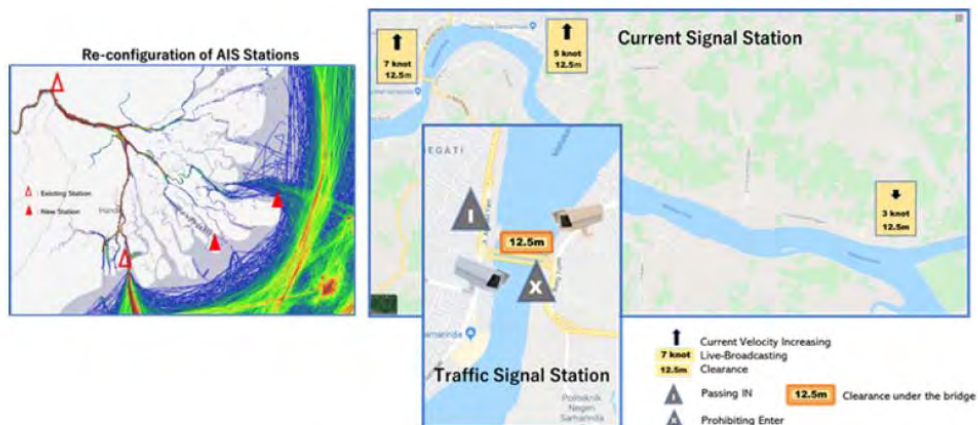


Figure 7.2.4 -8 : Layout of New AIS Station and Signal Station

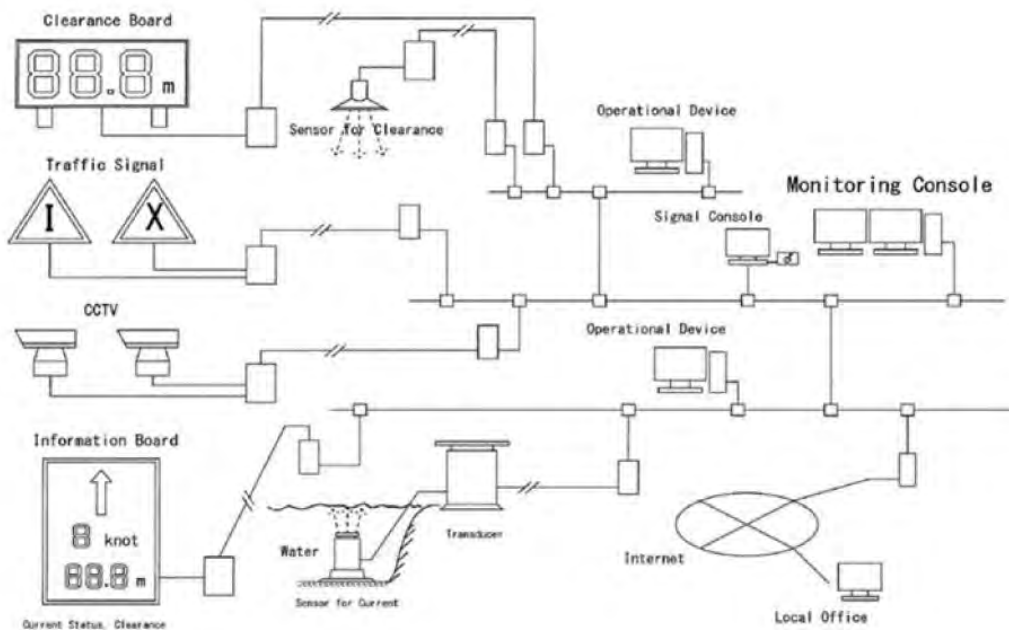


Figure 7.2.4 -9 : System Configuration of New Information System





Figure 7.3.4 -1 : Marine Safety System for Small Craft

● Development of Capacity Building

★ Setting up the Management Group

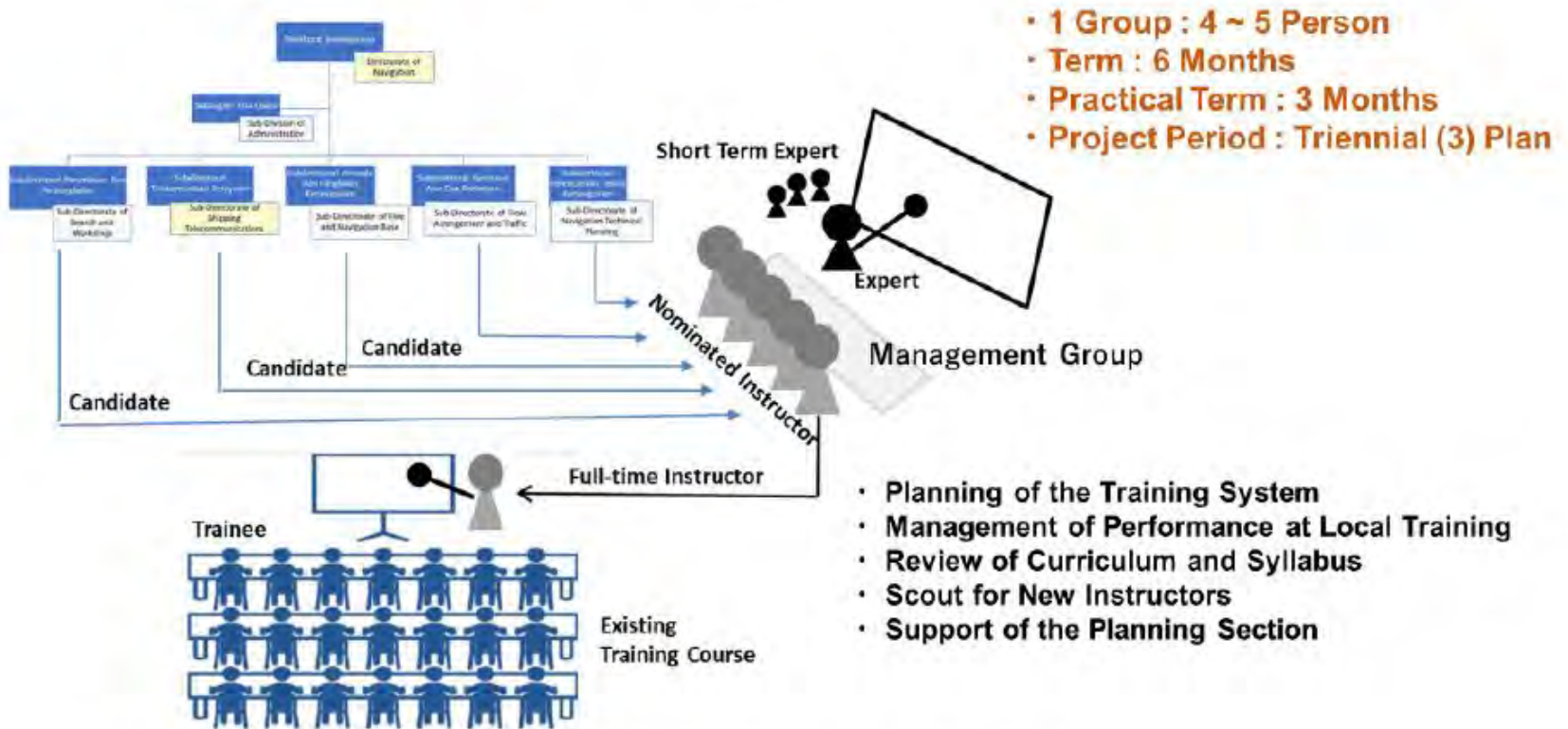
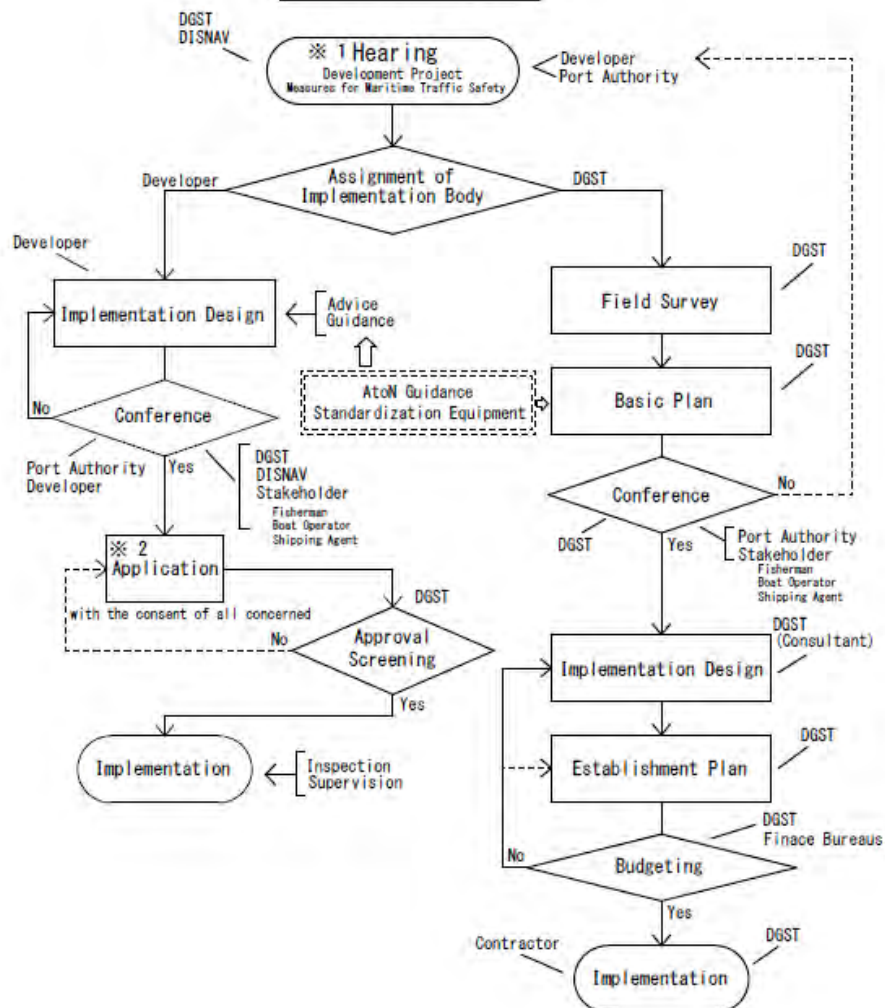


Figure 7.3.1 1) -1 : Image of Training

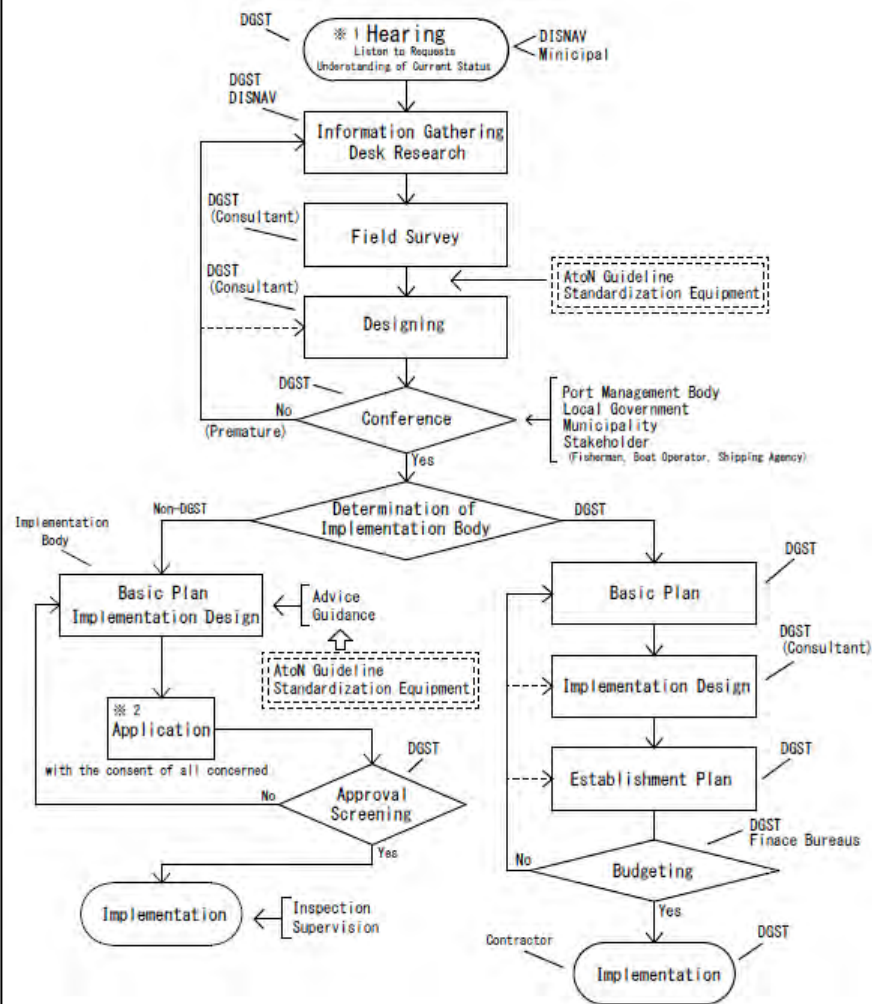
Maritime Traffic Safety Measures - establishing Process

New Port/Harbor

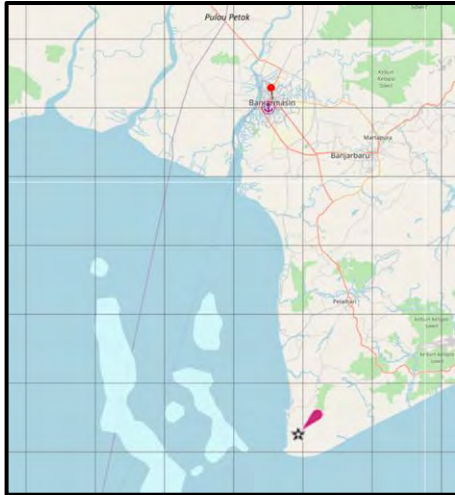


Maritime Traffic Safety Measures - establishing Process

Undeveloped Port/Harbor

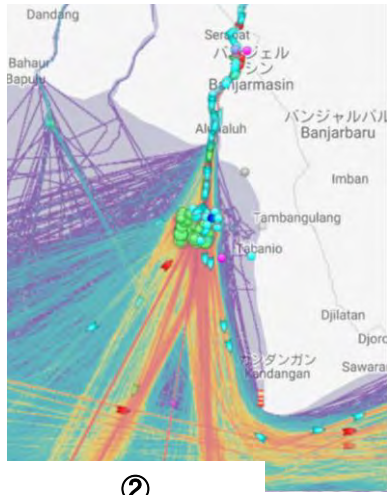


South Kalimantan



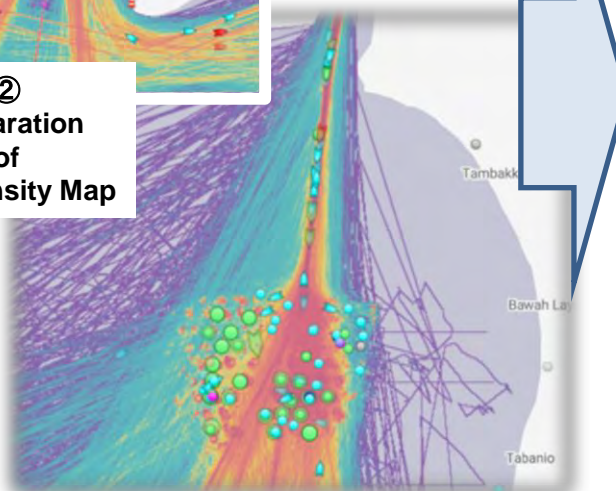
①
Preparation
of
Marine Chart

Banjarmashin

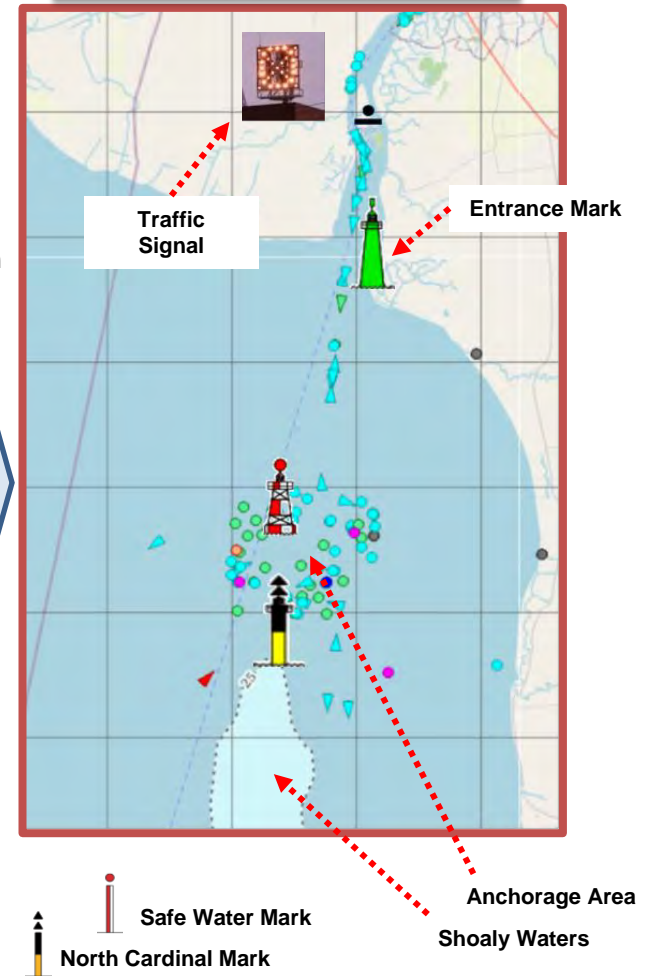


②
Preparation
of
AIS Density Map

③
Arrangement
of
Aids to Navigation



Example of Installation



Selection of Area → Gather of data

Chart → AIS Density Map → Planning

付録 3.9 -3

プレゼン資料（沿岸無線局）



The Project for Review of the Study for Maritime Traffic Safety System Development Plan Report (Phase-2)

Component 2 Coastal Radio Station (CRS)

2nd Mar 2023



Japan Aids to Navigation Association (JANA)

Main policy

- Maintaining CRS services to cover whole Indonesian water is the kind of mandatory measure to provide navigational safety, security and marine environmental protection of all the beneficiaries of stakeholders.
- Public service provider of CRS has to take care of those beneficiaries without any break, without any blind spot and without any downgraded service level.
- Nothing of distress case happened until today does not mean nothing happened on tomorrow. This is the main objectives for navigational safety service to sustain to provide without any break. This is kind of insurance for service provider (DGST) and beneficiary of user (vessel operator).

If efficient traffic control failed



Grounding & oil spill Mauritius 2020



Collision airport access bridge,
Osaka, Japan 2018

Methodology of analysis data to output

1. Logbook analysis (extracted 38 CRS)
2. Basic information of all station in each DISNAV
3. Human relation (SDM) in each DISNAV
4. Budget analysis
5. Internet connectivity in each station
6. Radio equipment installed all incoming vessels



Reality of current operation (HR & others against facilities)



Realistic & ideal solution for next decades

Logbook analysis (extracted 38 CRS only)

| CQ/To all ships only | | | | | | | |
|-------------------------------|-------|--------|--------|---------------|------|------|-------|
| VHF | MF | HF | Total | VHF | MF | HF | Total |
| Monthly total count (average) | | | | Daily average | | | |
| 46.32 | 50.62 | 129.00 | 225.93 | 1.49 | 1.63 | 4.16 | 7.29 |

Times/day

| QSO with ship | | | | | |
|-------------------------------|-------|-------|---------------|------|-------|
| VHF | HF | Total | VHF | HF | Total |
| Monthly total count (average) | | | Daily average | | |
| 58.26 | 10.53 | 68.79 | 1.88 | 0.34 | 2.22 |

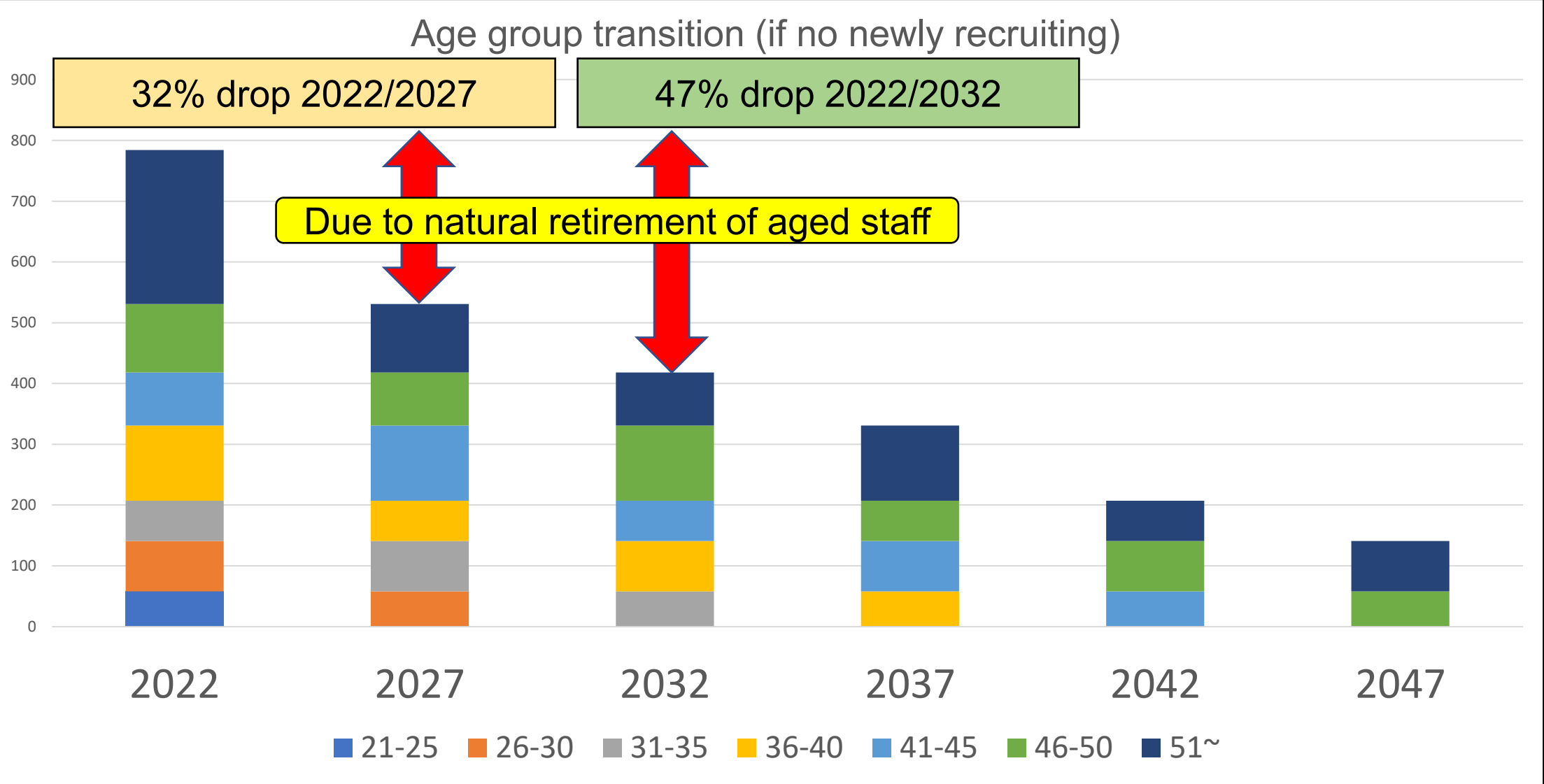
Times/day

(unit=numbers of call/communication)

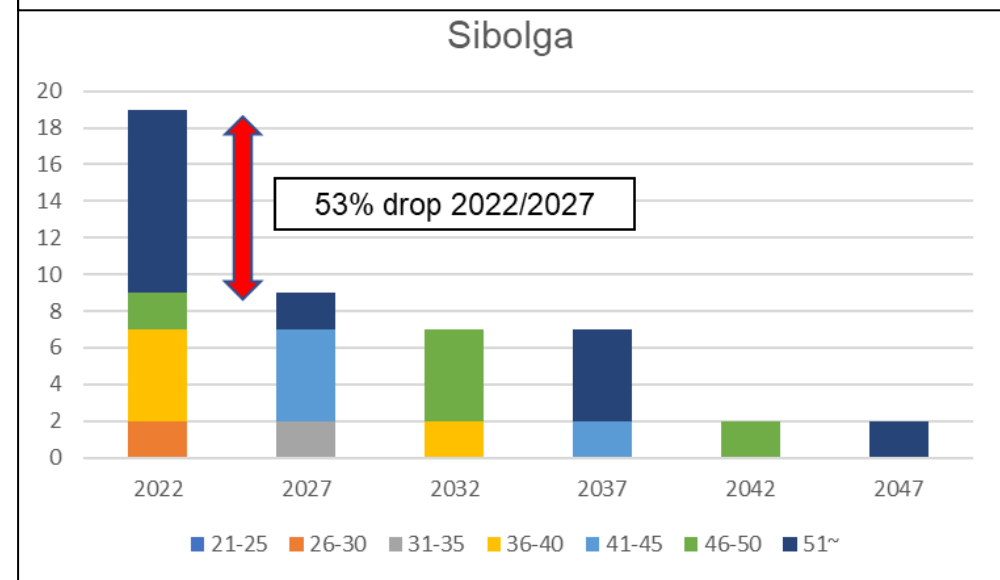
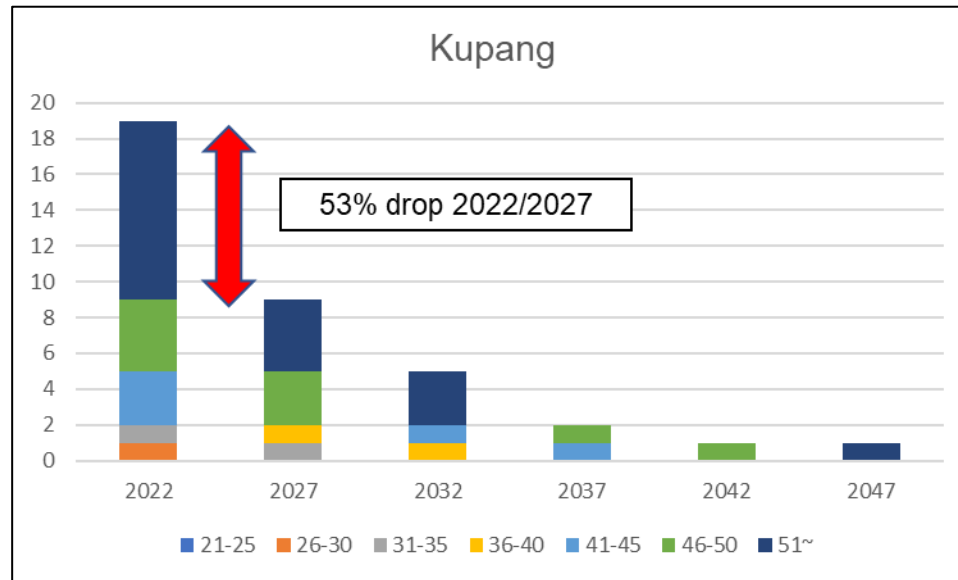
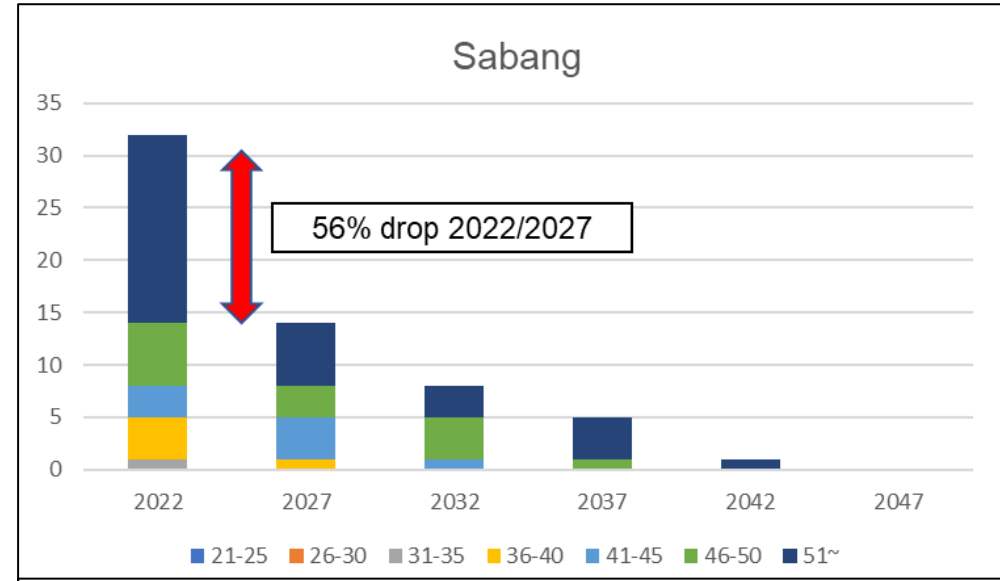
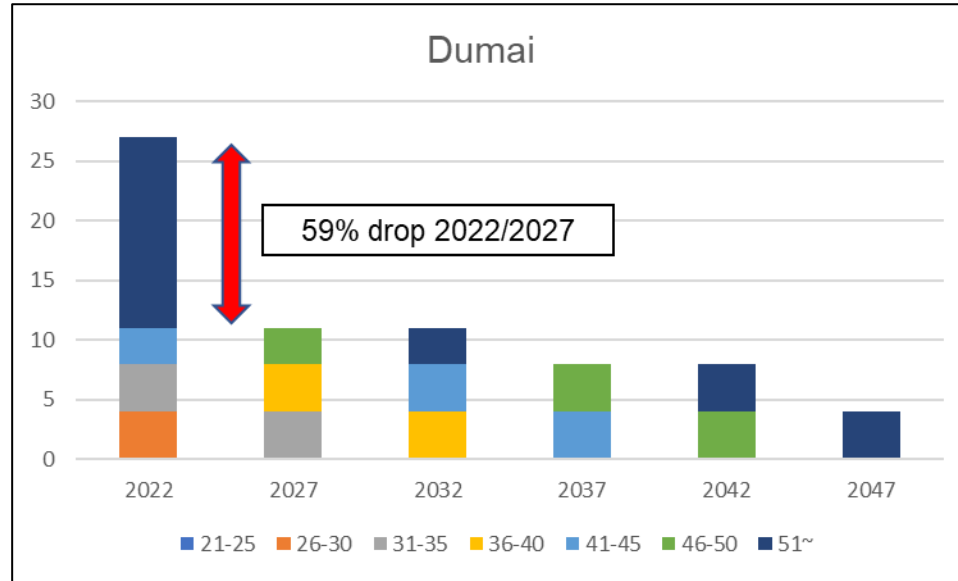
SDM analysis

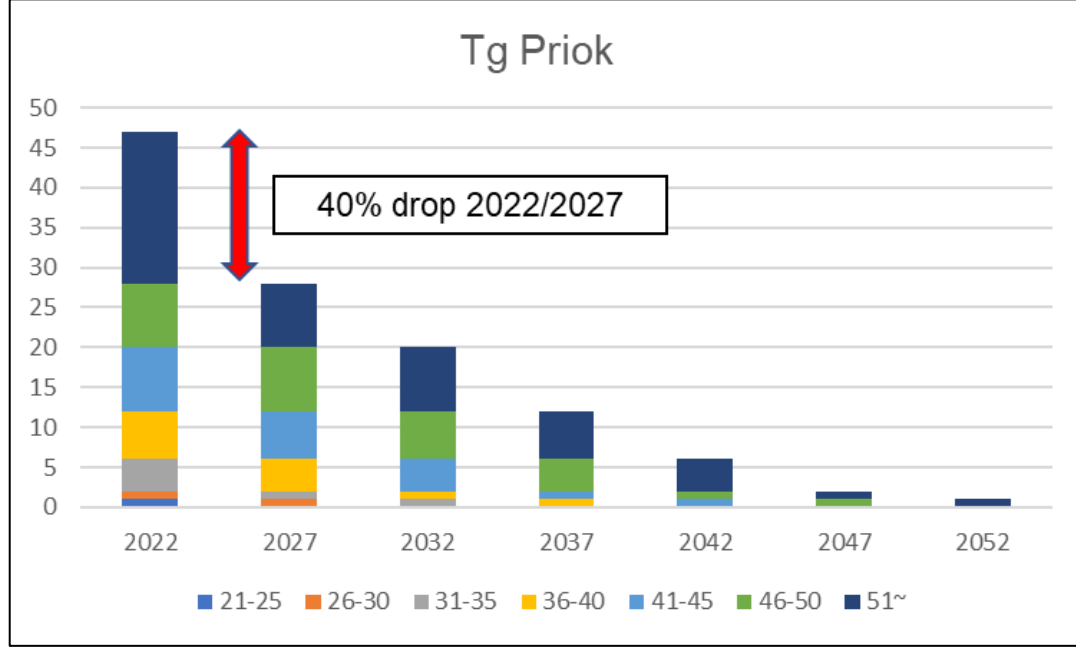
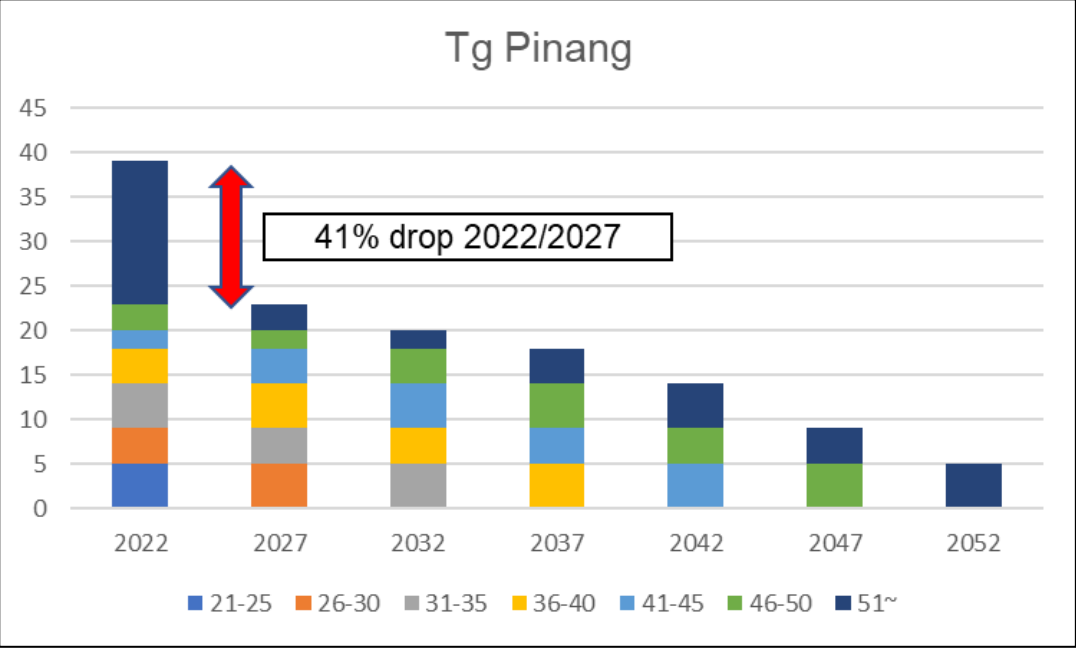
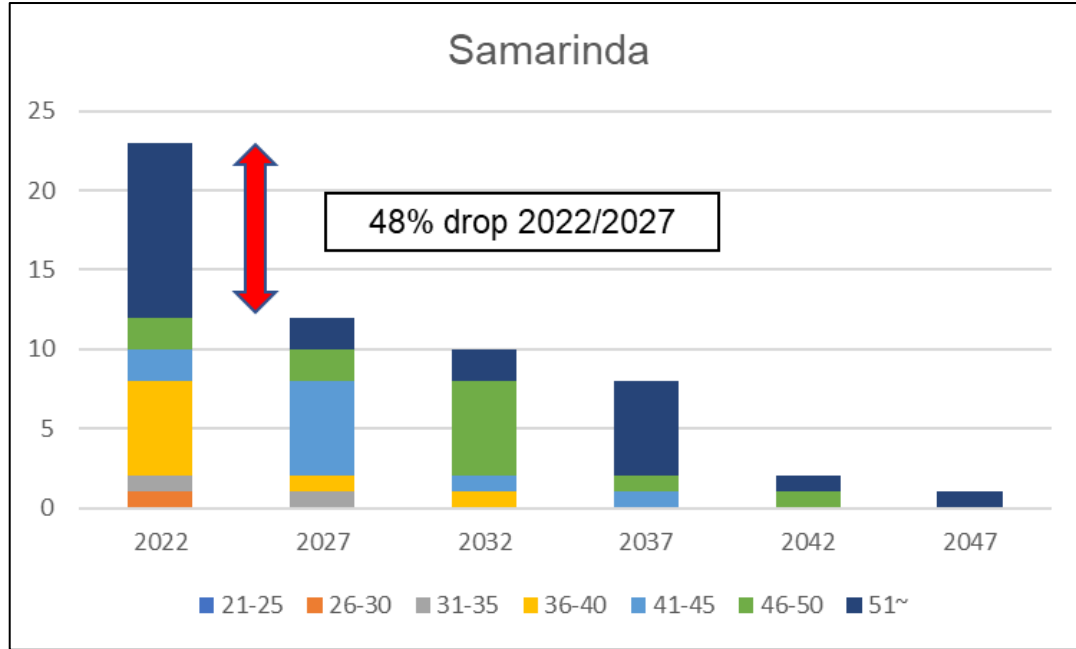
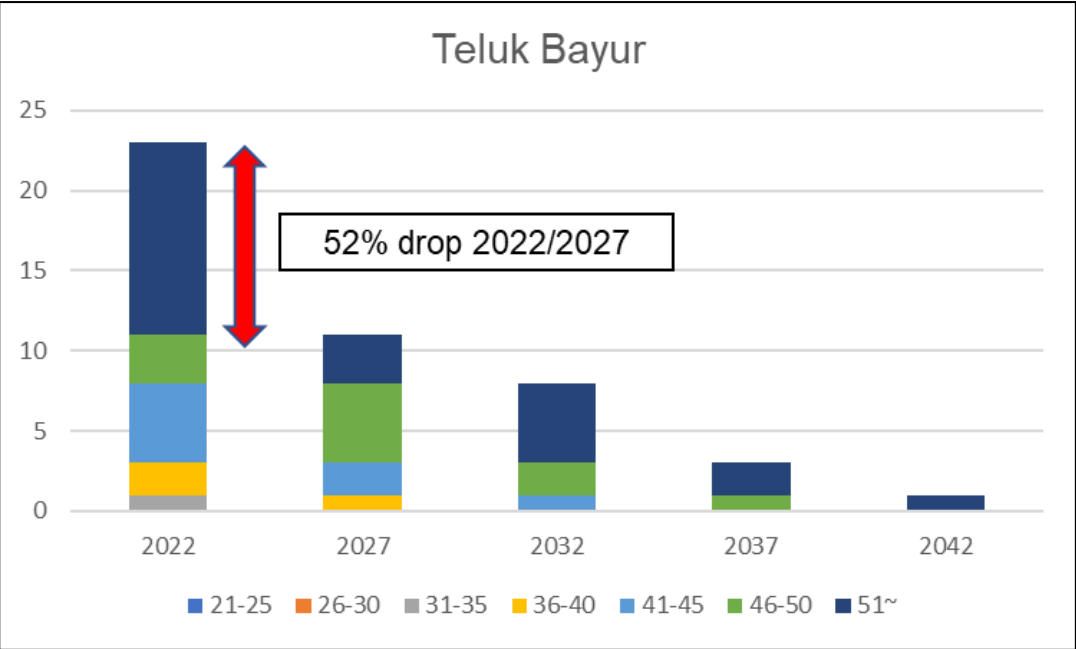
1. All SDM of CRS in 25 DISNAV
2. Age group in each DISNAV
3. Age transition in next few decades
4. Single, Double, Triple operator station
5. Technician in each DISNAV
6. Place of origin for staff

Age group transition in each DISNAV



Worst 8 DISNAV in next 5 years





Technician allocation in each DISNAV

| DISNAV | Technician | Ave age | Both Operator/Technician |
|-------------|------------|---------|--------------------------|
| Sabang | 8 | 46.8 | 5 |
| Belawan | 4 | 44.0 | 4 |
| Sibolga | 1 | 55.0 | 0 |
| Dumai | 7 | 45.6 | 7 |
| Tg Pinang | 1 | 53.0 | 1 |
| Teluk Bayur | 7 | 50.4 | 0 |
| Palembang | 1 | 55.0 | 0 |
| Tg priok | 6 | 39.5 | 0 |
| Semarang | 6 | 47.9 | 1 |
| Cilacap | 4 | 48.5 | 3 |
| Surabaya | 3 | 50.5 | 3 |
| Benoa | 4 | 48.5 | 1 |
| Kupang | 3 | 46.0 | 2 |
| Pontianak | 1 | 50.0 | 0 |
| Banjarmasin | 3 | 51.0 | 2 |
| Samarinda | 2 | 46.0 | 0 |
| Tarakan | 3 | 45.8 | 3 |
| Makassar | 5 | 53.1 | 0 |
| Kendari | 2 | 54.0 | 2 |
| Bitung | 2 | 43.0 | 1 |
| Ambon | 5 | 45.5 | 0 |
| Tual | 1 | 43.0 | 0 |
| Sorong | 6 | 37.0 | 4 |
| Jayapura | 4 | 49.3 | 0 |
| Merauke | 4 | 37.5 | 4 |
| Total | 93 | 46.0 | 43 |

Place of origin (same province) in each DISNAV (answered only)

| DISNAV | Total SDM | Same origin (province) | Portion |
|-------------|-----------|------------------------|---------|
| Cilacap | 24 | 19 | 79% |
| Jayapura | 21 | 14 | 67% |
| Tarakan | 18 | 18 | 100% |
| Bitung | 49 | 45 | 92% |
| Tg Pinang | 11 | 6 | 55% |
| Sorong | 32 | 31 | 97% |
| Surabaya | 20 | 20 | 100% |
| Ambon | 36 | 28 | 78% |
| Pontianak | 20 | 19 | 95% |
| Semarang | 42 | 41 | 98% |
| Palembang | 13 | 11 | 85% |
| Merauke | 17 | 17 | 100% |
| Banjarmasin | 25 | 24 | 96% |
| Total | 328 | 293 | 89% |

Employment in each DISNAV

| DISNAV | Fulltime | | Honoror | |
|-------------|----------|------|---------|-----|
| Sabang | 32 | 100% | 0 | 0% |
| Belawan | 35 | 100% | 0 | 0% |
| Sibolga | 17 | 74% | 6 | 26% |
| Dumai | 30 | 73% | 11 | 27% |
| Tg Pinang | 38 | 72% | 15 | 28% |
| Teluk Bayur | 37 | 88% | 5 | 12% |
| Palembang | 13 | 100% | 0 | 0% |
| Tg Priok | 47 | 46% | 55 | 54% |
| Semarang | 36 | 60% | 24 | 40% |
| Cilacap | 19 | 79% | 5 | 21% |
| Surabaya | 29 | 78% | 8 | 22% |
| Benoa | 28 | 61% | 18 | 39% |
| Kupang | 19 | 100% | 0 | 0% |
| Pontianak | 12 | 60% | 8 | 40% |
| Banjarmasin | 25 | 100% | 0 | 0% |
| Samarinda | 23 | 66% | 12 | 34% |
| Tarakan | 18 | 69% | 8 | 31% |
| Makassar | 29 | 100% | 0 | 0% |
| Kendari | 17 | 37% | 29 | 63% |
| Bitung | 35 | 56% | 28 | 44% |
| Ambon | 36 | 72% | 14 | 28% |
| Tual | 12 | 100% | 0 | 0% |
| Sorong | 15 | 44% | 19 | 56% |
| Jayapura | 21 | 68% | 10 | 32% |
| Merauke | 17 | 100% | 0 | 0% |
| G.total | 640 | 70% | 275 | 30% |

Summarized SDM against operation

Very limited numbers of communication in each CRS

No communication means no distress case?

Not enough SDM in all DISNAV

Depends on senior operator critically

Depends on single/two/three operator only to manage half of CRS

Depends on aged and very limited numbers of technician for maintenance

Depends on majority of local employment /no flexibility to relocate

Option 1

No further action

No more function at least half station in next 10 years

Option 2

Closed majority of station

Against national maritime safety & security policy?

Option 3

Consolidation

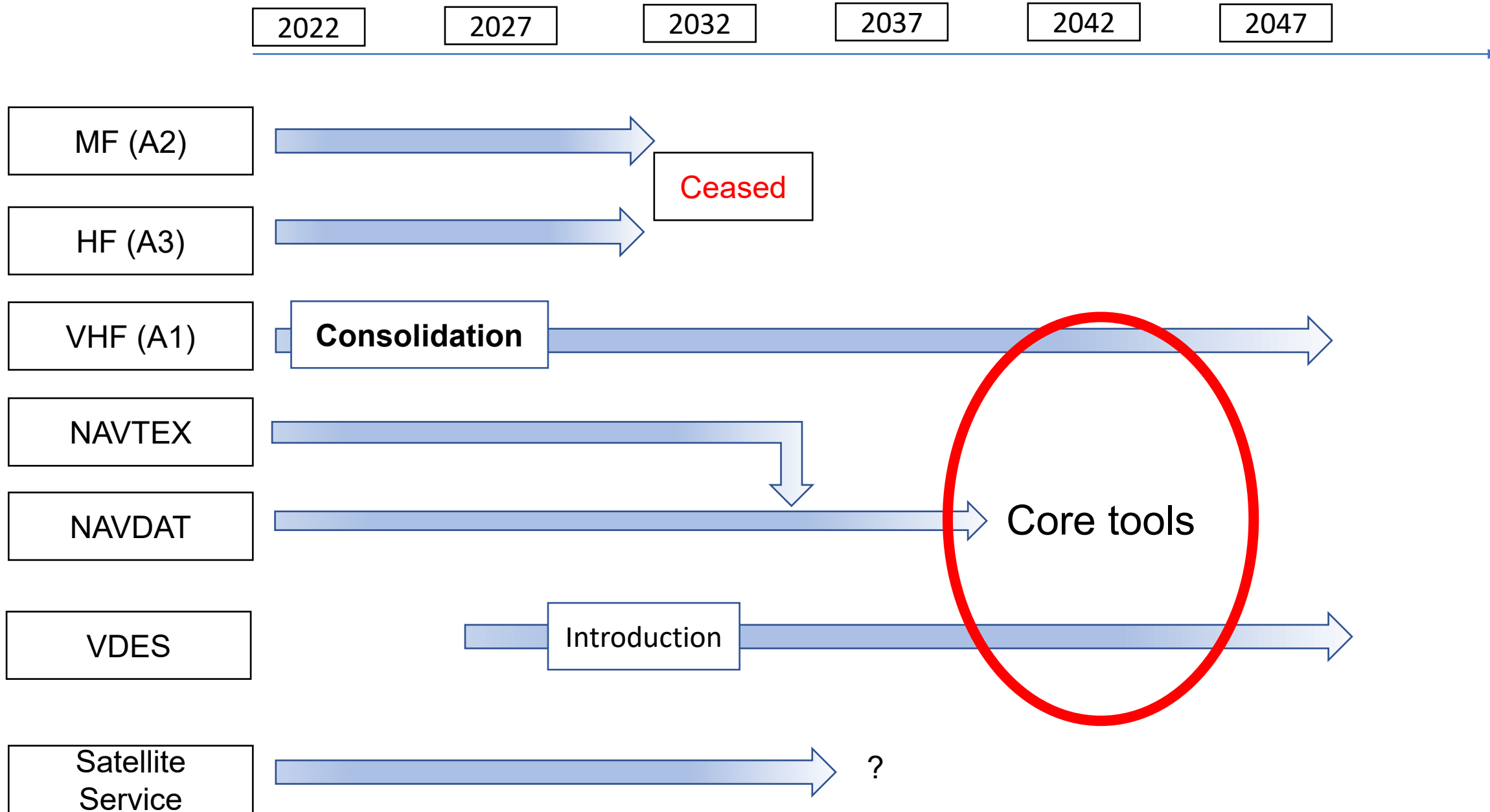
Reduce total SDM

Efficient & economical operation remotely

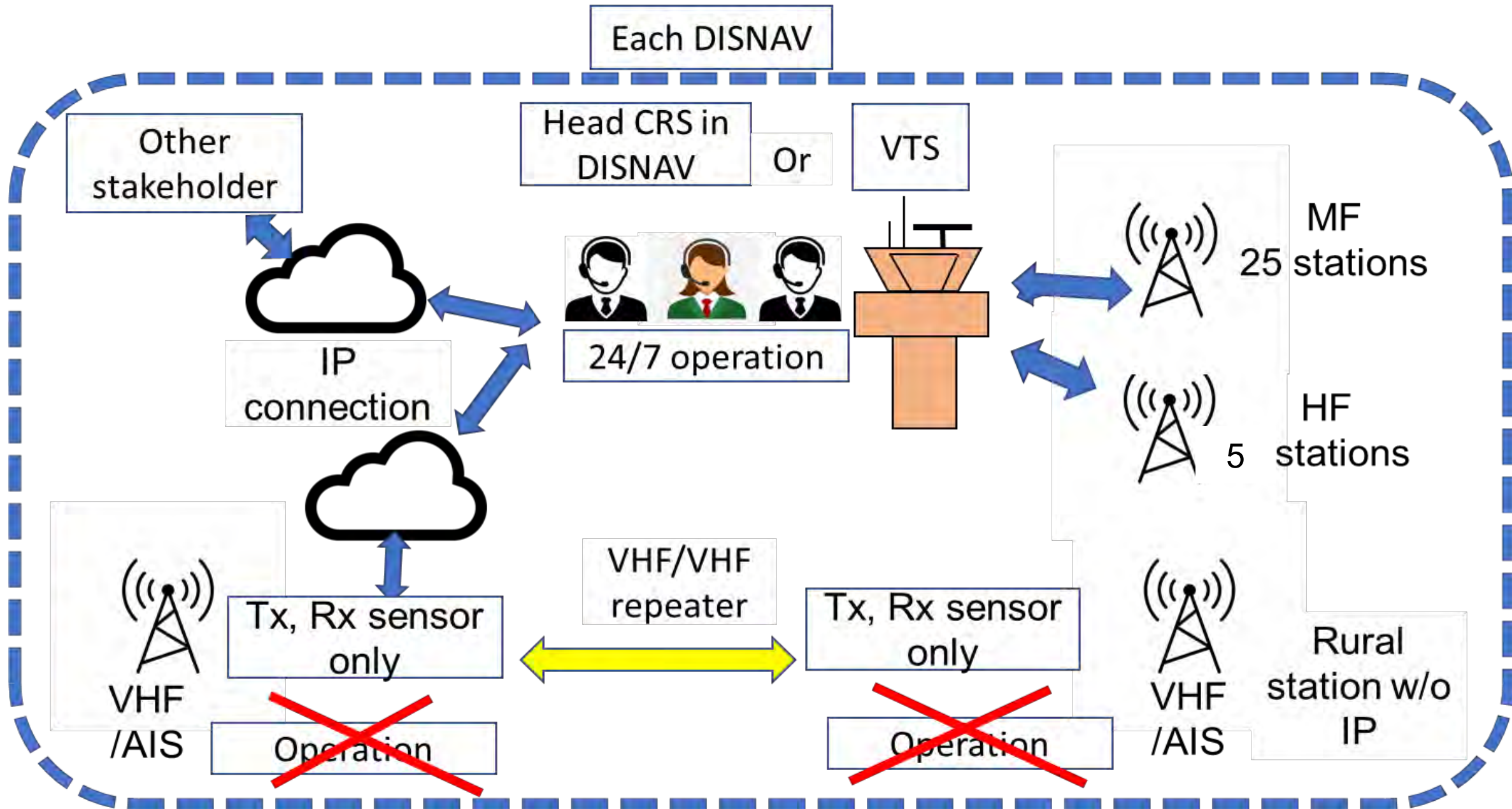
Internet availability

| DISNAV | Total CRS | Fibber optic | ADSL | 4G | LTE | N.A. | |
|-------------|-----------|--------------|------|----|-----|------|---------|
| Sabang | 9 | 5 | | 4 | | | |
| Belawan | 7 | 6 | | 1 | | | |
| Sibolga | 7 | 3 | 1 | 2 | | 1 | P Tello |
| Dumai | 8 | 8 | | | | | |
| Tg Pinang | 10 | 10 | | | | | |
| Teluk Bayur | 4 | 2 | | 1 | | 1 | Sikakap |
| Palembang | 7 | 6 | | 1 | | | |
| Tg Priok | 5 | 5 | | | | | |
| Semarang | 7 | 6 | | | 1 | | |
| Cilacap | 2 | 1 | | | | 1 | Pacitan |
| Surabaya | 11 | 9 | 1 | | 1 | | |
| Benoa | 8 | 8 | | | | | |
| Kupang | 9 | 9 | | | | | |
| Pontianak | 3 | 3 | | | | | |
| Banjarmasin | 4 | 3 | | | | 1 | Kumai |
| Samarinda | 3 | 3 | | | | | |
| Tarakan | 4 | 4 | | | | | |
| Makassar | 5 | 5 | | | | | |
| Kendari | 6 | 5 | | 1 | | | |
| Bitung | 14 | 14 | | | | | |
| Ambon | 7 | 7 | | | | | |
| Tual | 4 | 2 | | 2 | | | |
| Sorong | 6 | 6 | | | | | |
| Jayapura | 5 | 5 | | | | | |
| Merauke | 3 | 1 | | | 2 | | |
| Total | 158 | 136 | 2 | 12 | 4 | 4 | |

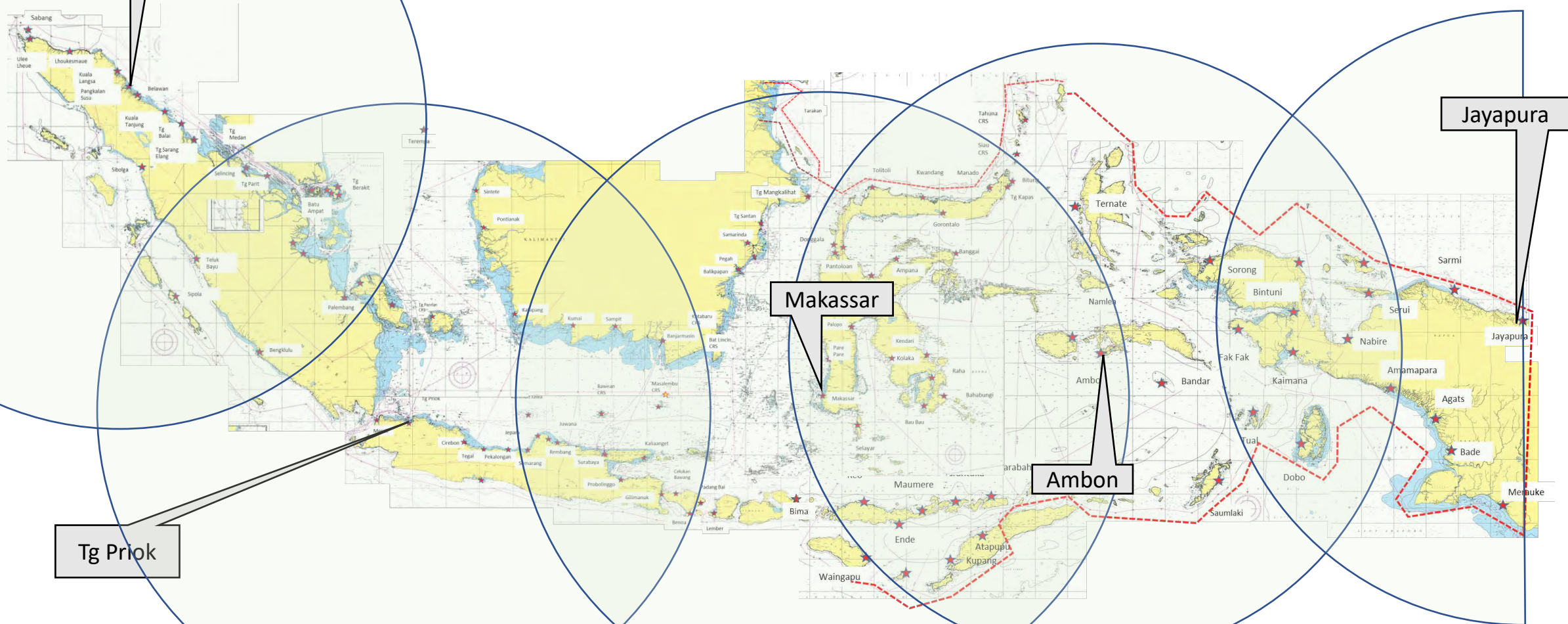
Transition of each mode in estimated time schedule



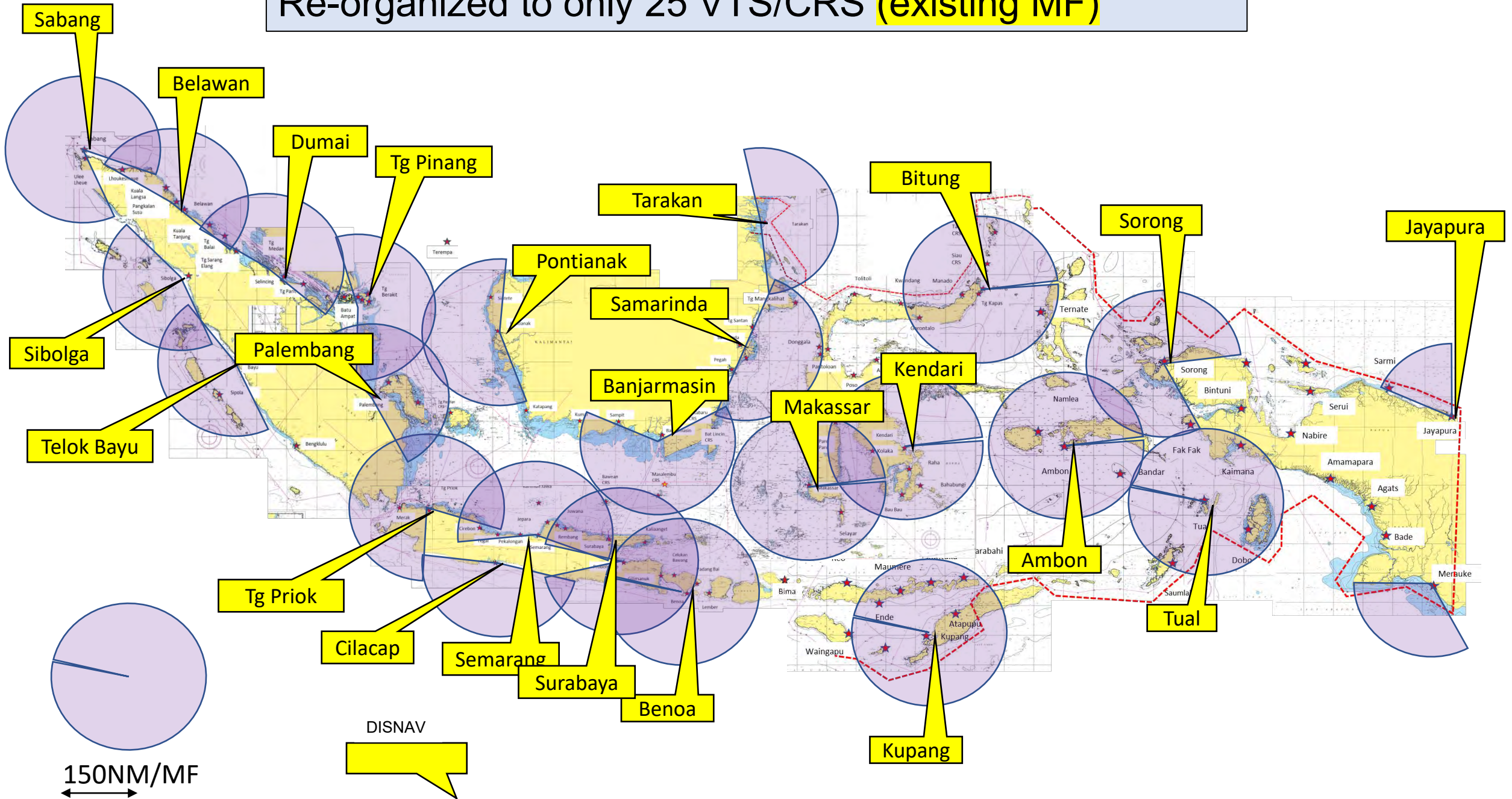
Basic function of consolidation



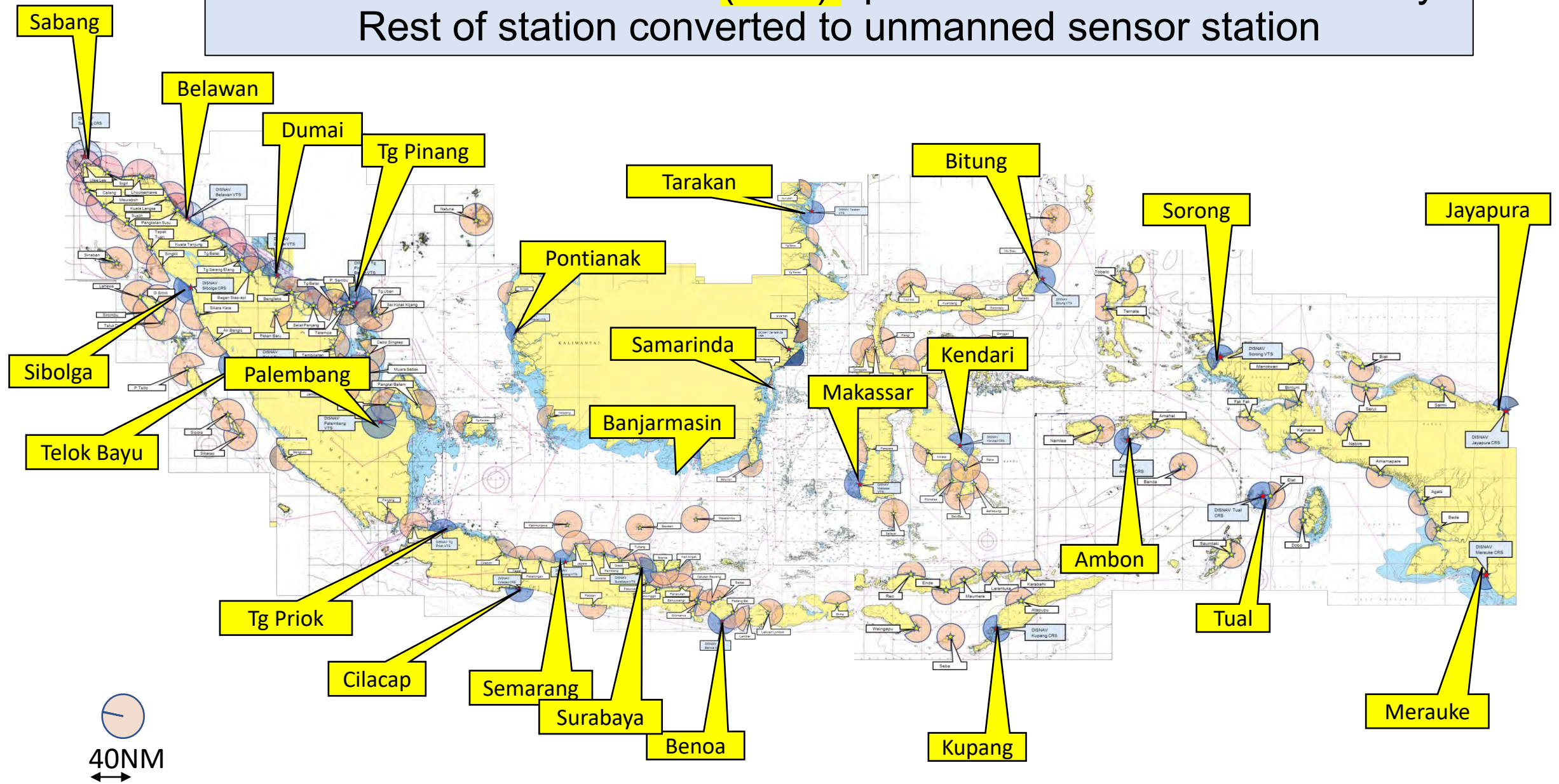
Re-organized to only 5 VTS/CRS (existing HF)



Re-organized to only 25 VTS/CRS (existing MF)

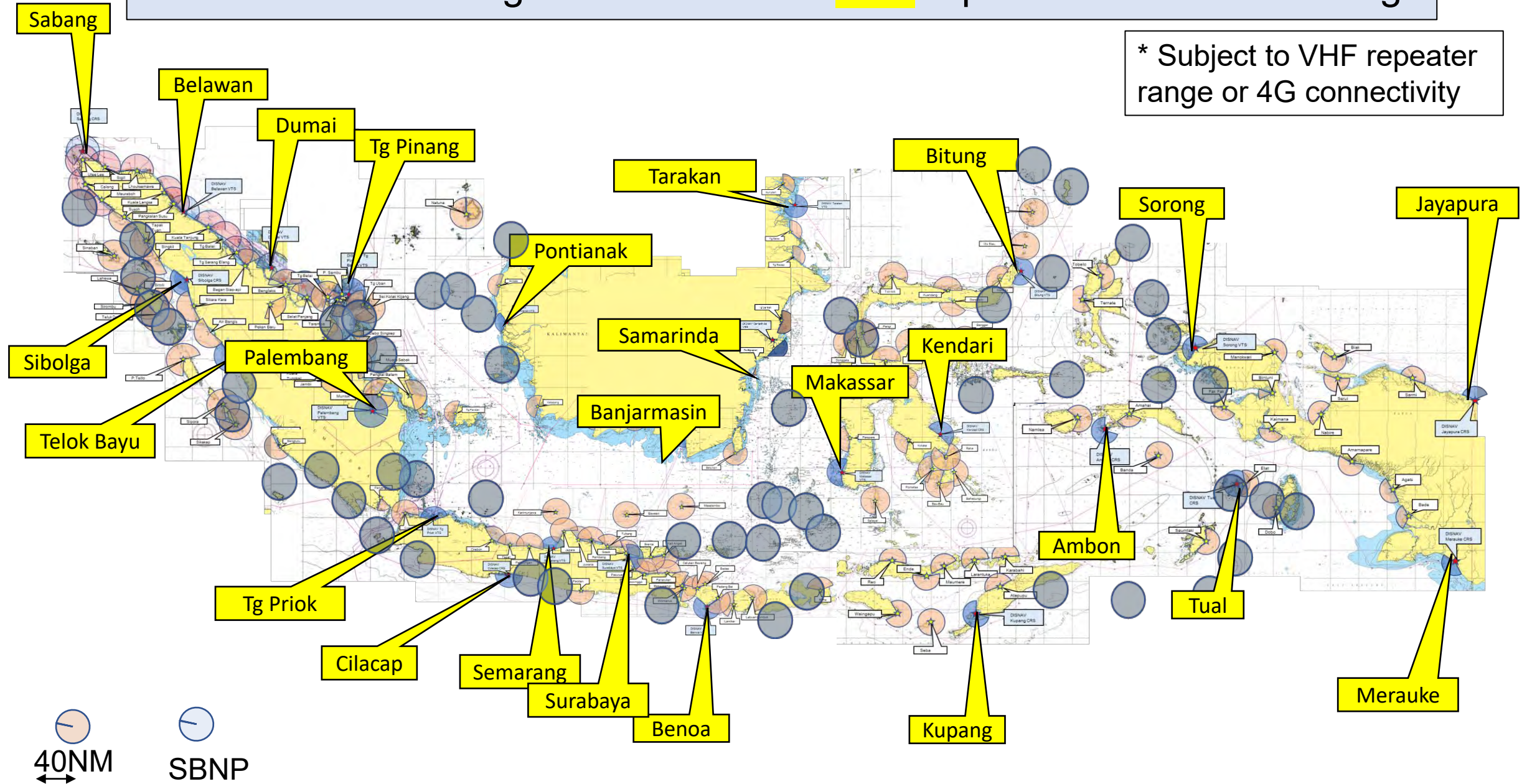


Consolidation of 158 CRS (VHF) operated in 25 DISNAV/VTs only Rest of station converted to unmanned sensor station

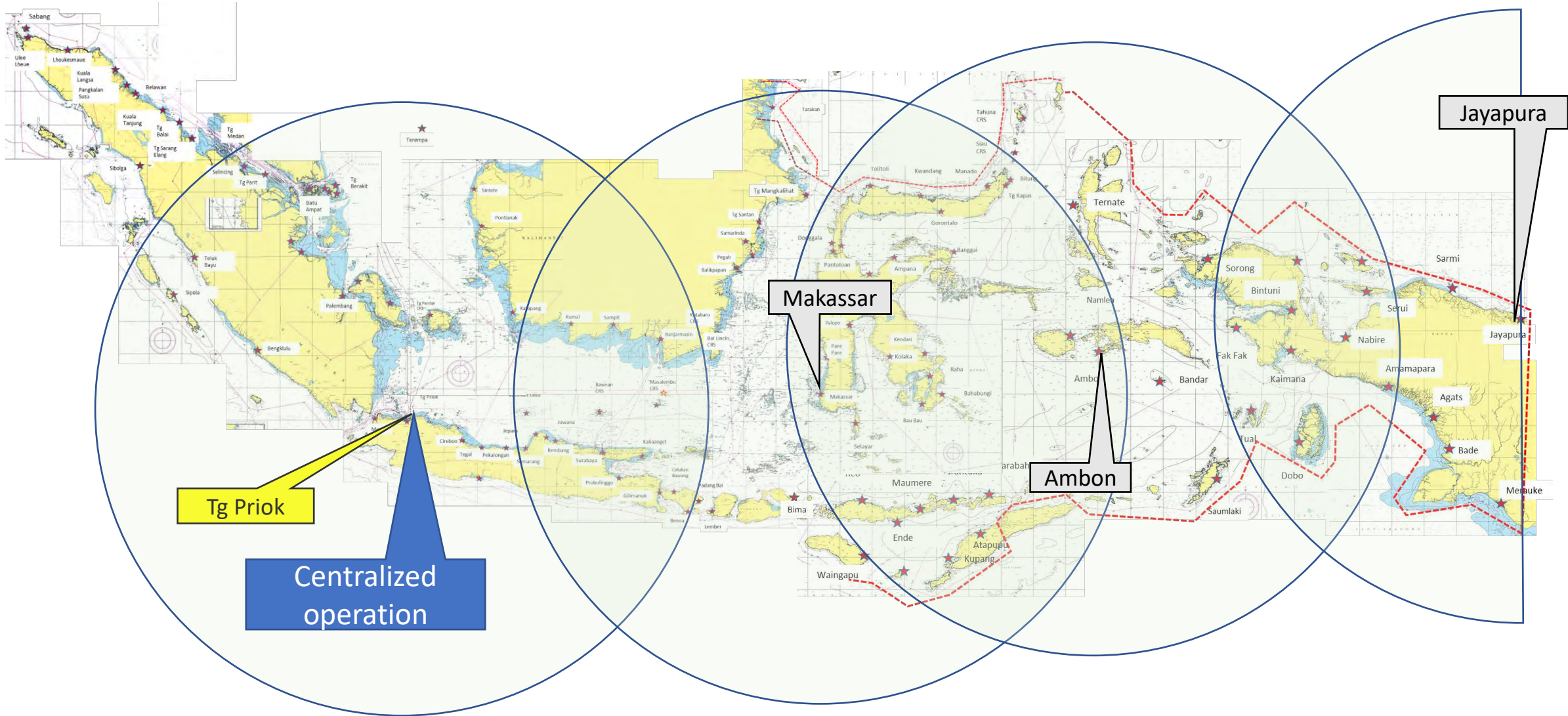


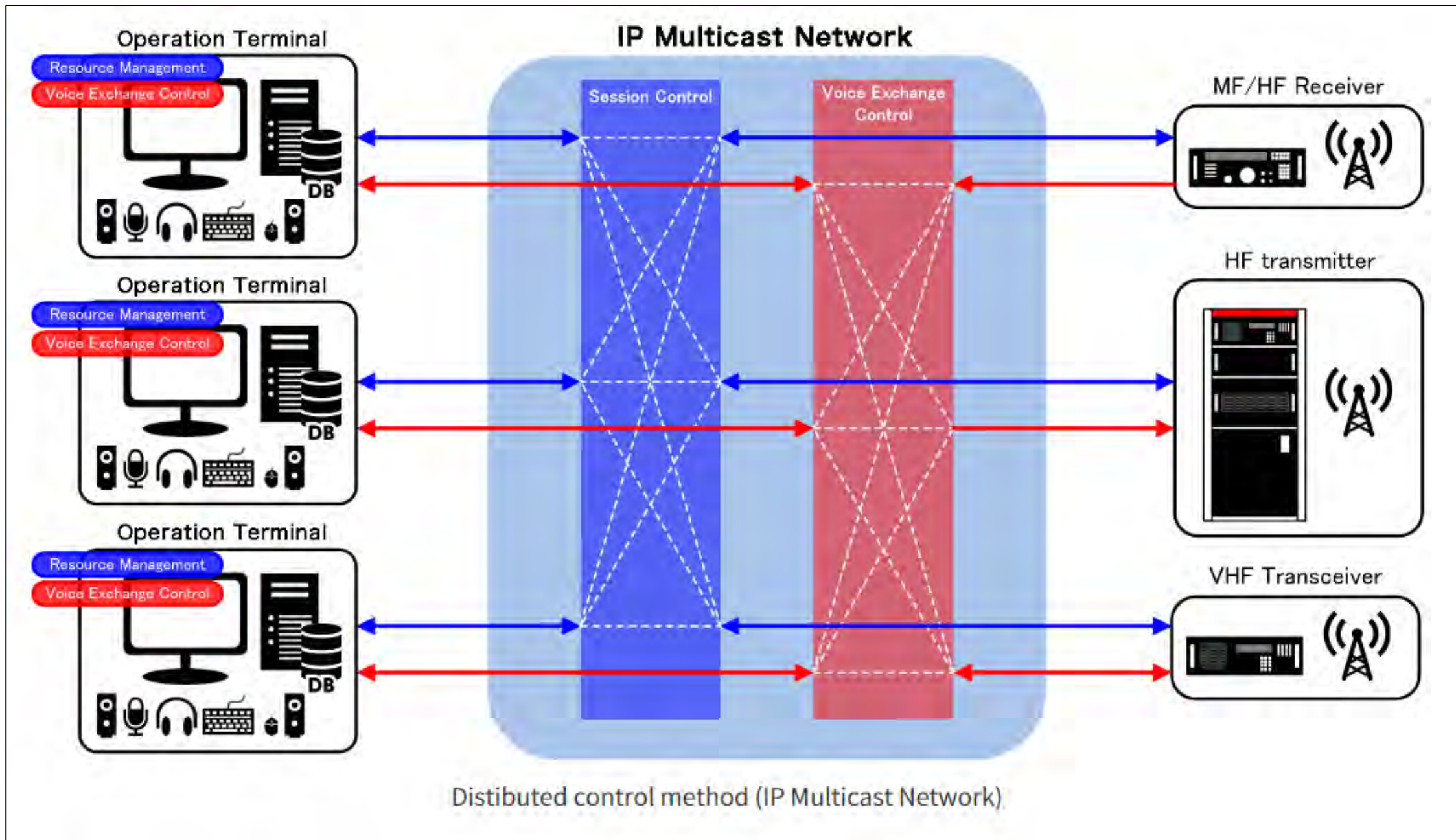
Additional selected lighthouse to install **VHF** repeater to extend coverage

* Subject to VHF repeater range or 4G connectivity



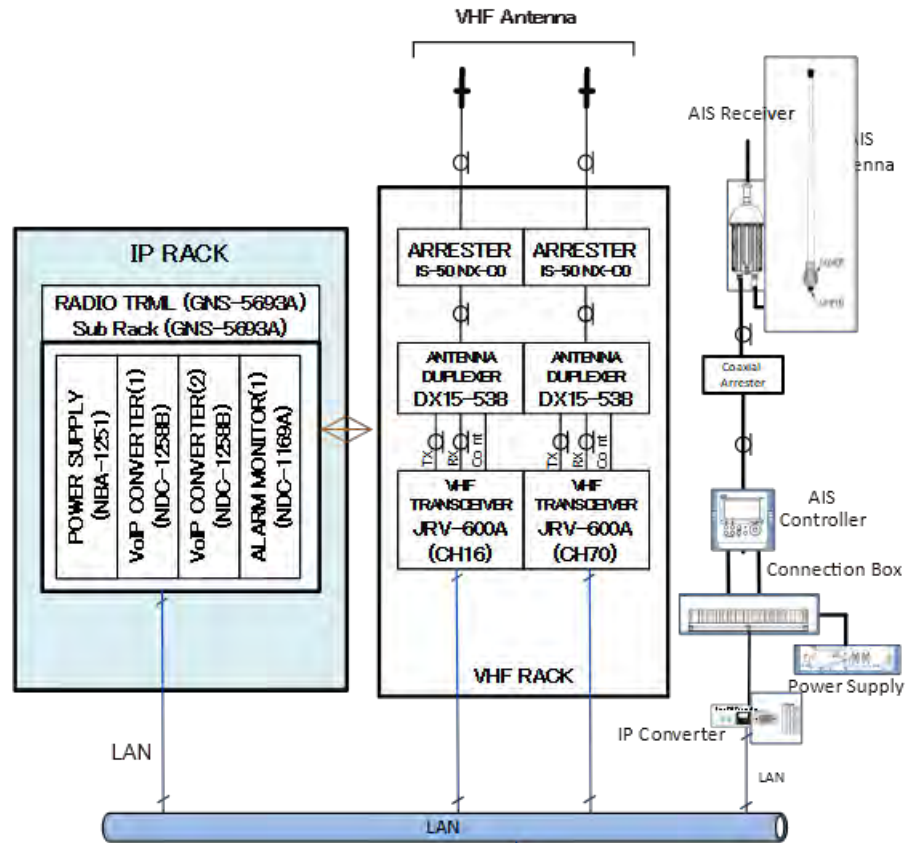
NAVTEX consolidated operation in Jakarta to control remotely others



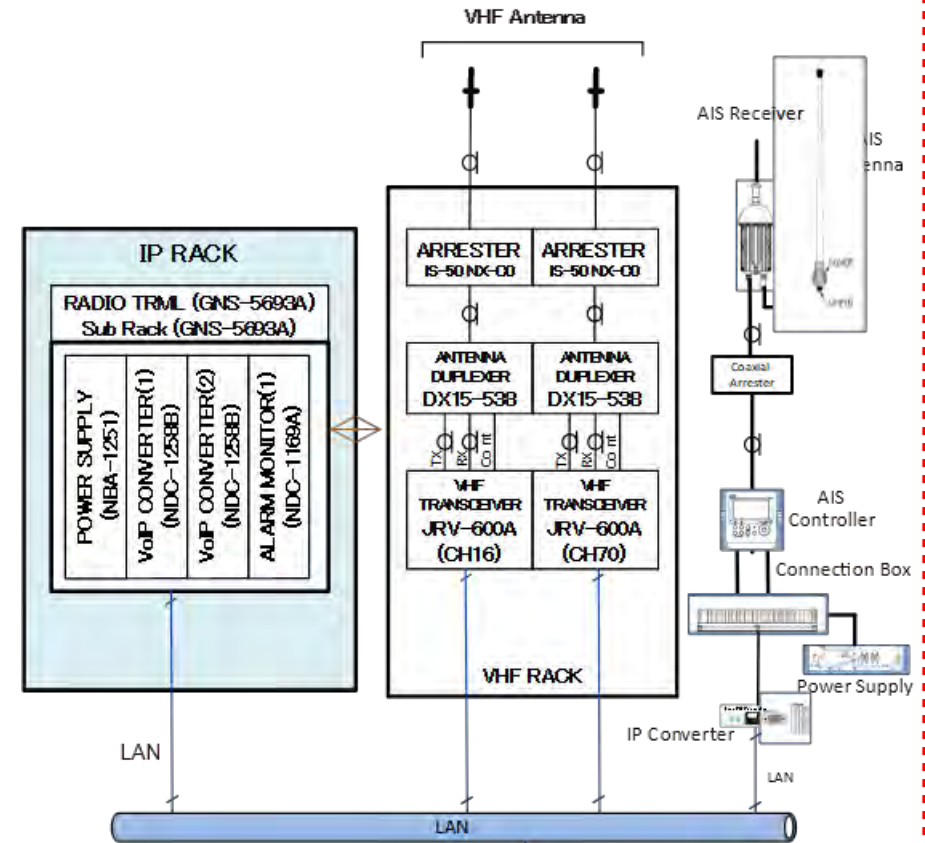


Each sensor station (multiplied)

Station 1

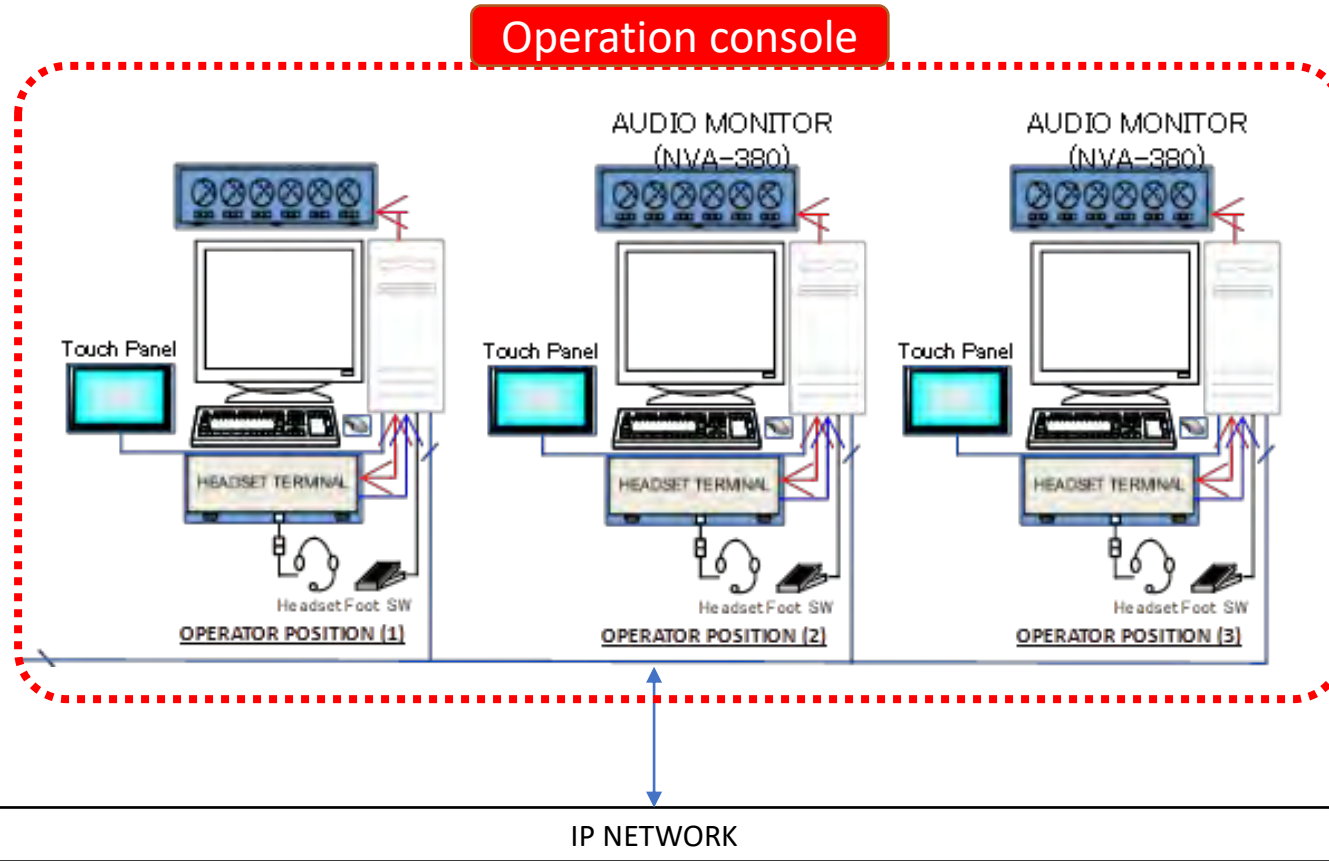


Station 2~



IP NETWORK

Consolidated operation center without TX/RX



Objectives

1. This is the first and last chance for all CRS to consolidate drastically including possibility of merge with VTS. If not take this opportunity, at least half of station would be non functionable within next 10 years.
2. DGST has the only authorized competent agency to own complete coastal navigational facilities including CRS, SBNP, VTS which is able to cover most of national coastal line. Only DGST enables to be a Navigational Public Service Provider to follow any kinds of maritime information to provide to all stake holders.
3. Annual 600,000 ship call consisting 90% domestic and 10% international vessels are the potential demand (beneficiary) of public service provided by CRS, VTS, SBNP. Those service qualities and quantities shall not be downgraded from current level so long DGST as the public service provider.

Action plan (next 5 years)

158 station



No operator at sensor station
All station GMDSS (DSC) available

Operation



Centralized in 25 Disnav CRS/VTs

Reduce total SDM operator



900 to 300 (3 operator x 4 group/24hrs)
x 25 Disnav

Allocate sufficient technician



At least 3 technician in each Disnav
Operator/Technician multi work

Common SOP



Customized SOP following to 25
different conditions

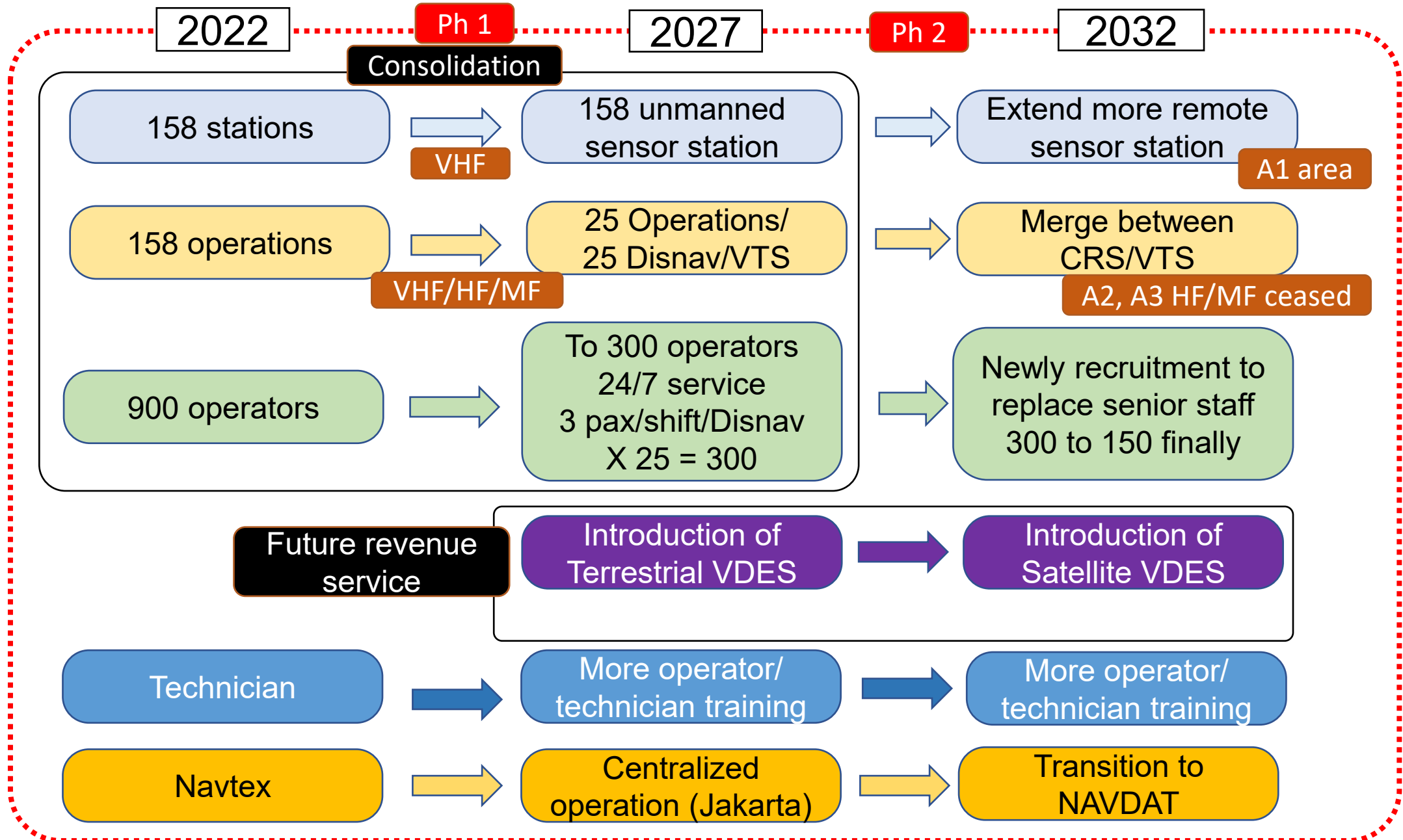
Budget



Half of current expense

Additional VDE revenue

Estimated time schedule (next 10 years)



Cost Estimation -1- (Approx of example)

1) Overall expenses in 25 DISNAV total estimated by extract numbers

| Unit: Million IDR | 2021 | 2020 | 2019 |
|-------------------|--------|--------|--------|
| Wages | 65,893 | 79,267 | 79,936 |
| Maintenance | 8,216 | 5,279 | 8,365 |
| Running expenses | 5,868 | 5,672 | 6,860 |
| Sub total | 79,977 | 90,219 | 95,161 |

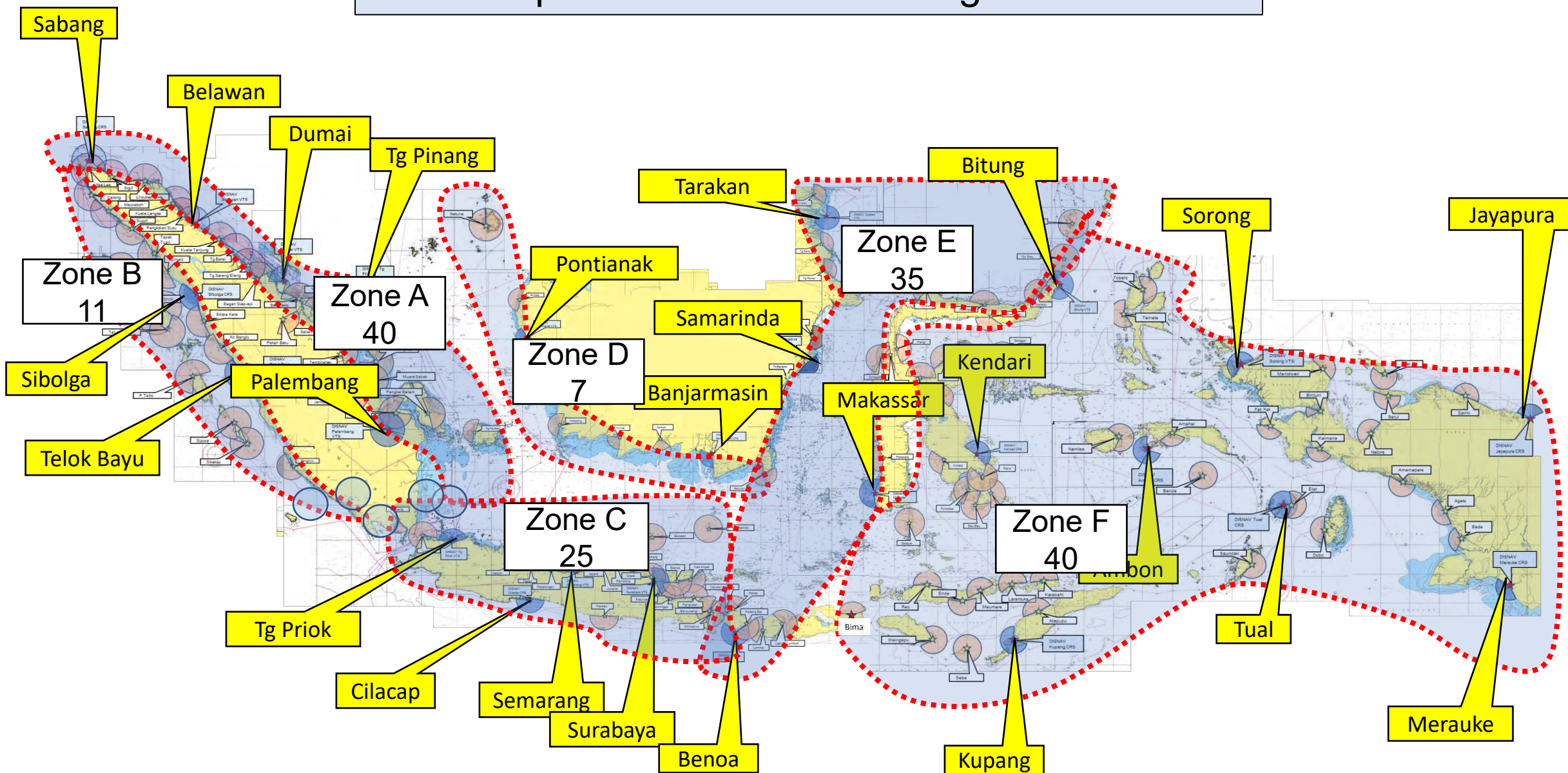
2) Overall estimated cost of consolidation system 158 sensors + 25 operation

| Unit: Million IDR | Unit cost | Qty | Total |
|----------------------------|------------------------------------------------|-----|---------|
| Sensor stations | 2,500 | 158 | 395,000 |
| Operation centre | 5,000 | 25 | 125,000 |
| System maintenance 5 years | Need to evaluate the details just example only | | 52,000 |
| Gross total | | | 572,000 |

| | | | |
|-----------------------------------------------|--|--|--------|
| Annual depreciation of new investment (22yrs) | | | 28,000 |
|-----------------------------------------------|--|--|--------|



Second phase: CRS/VTS zoning consolidation

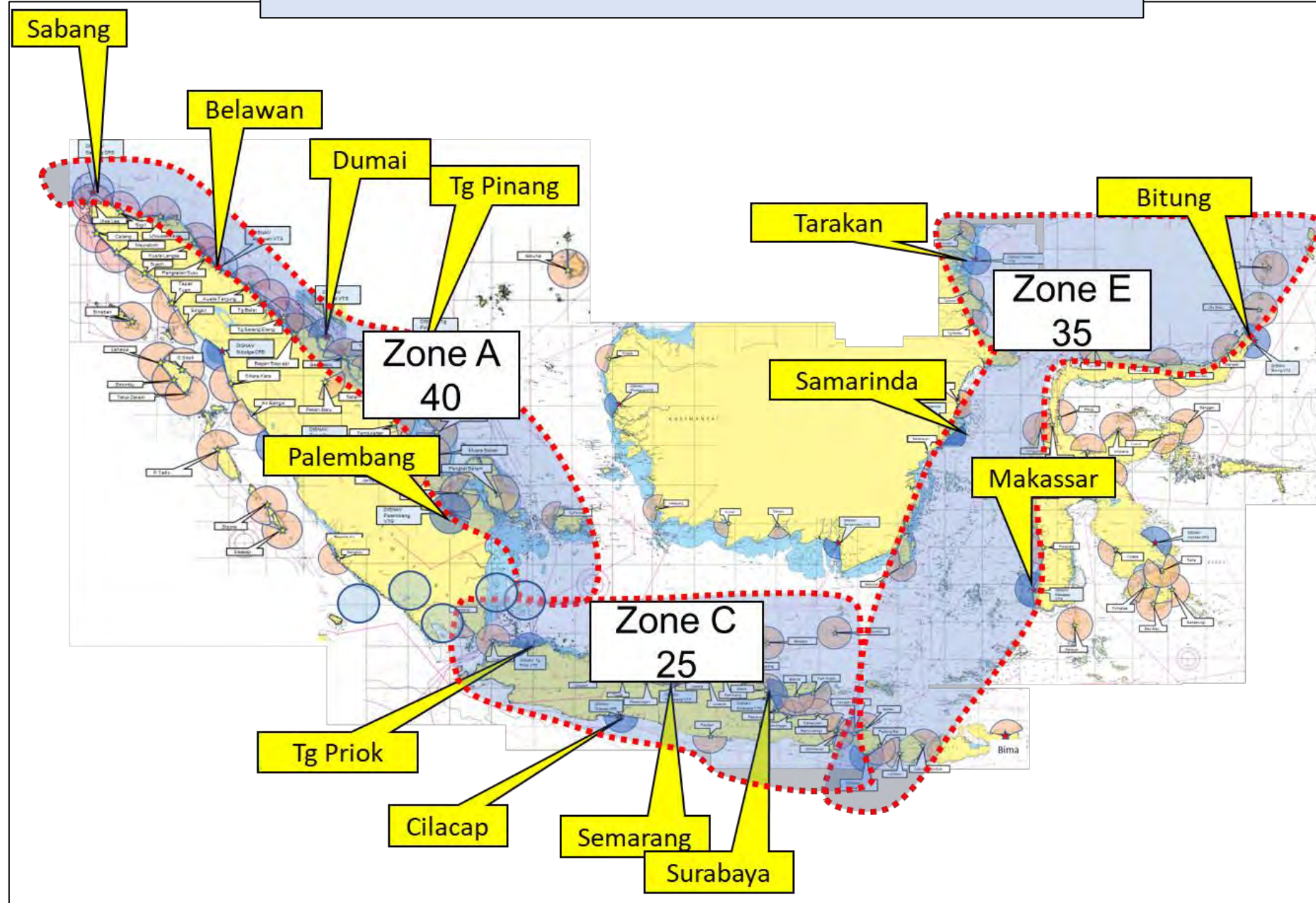


Re-organize VTS/CRS up to 6 key stations

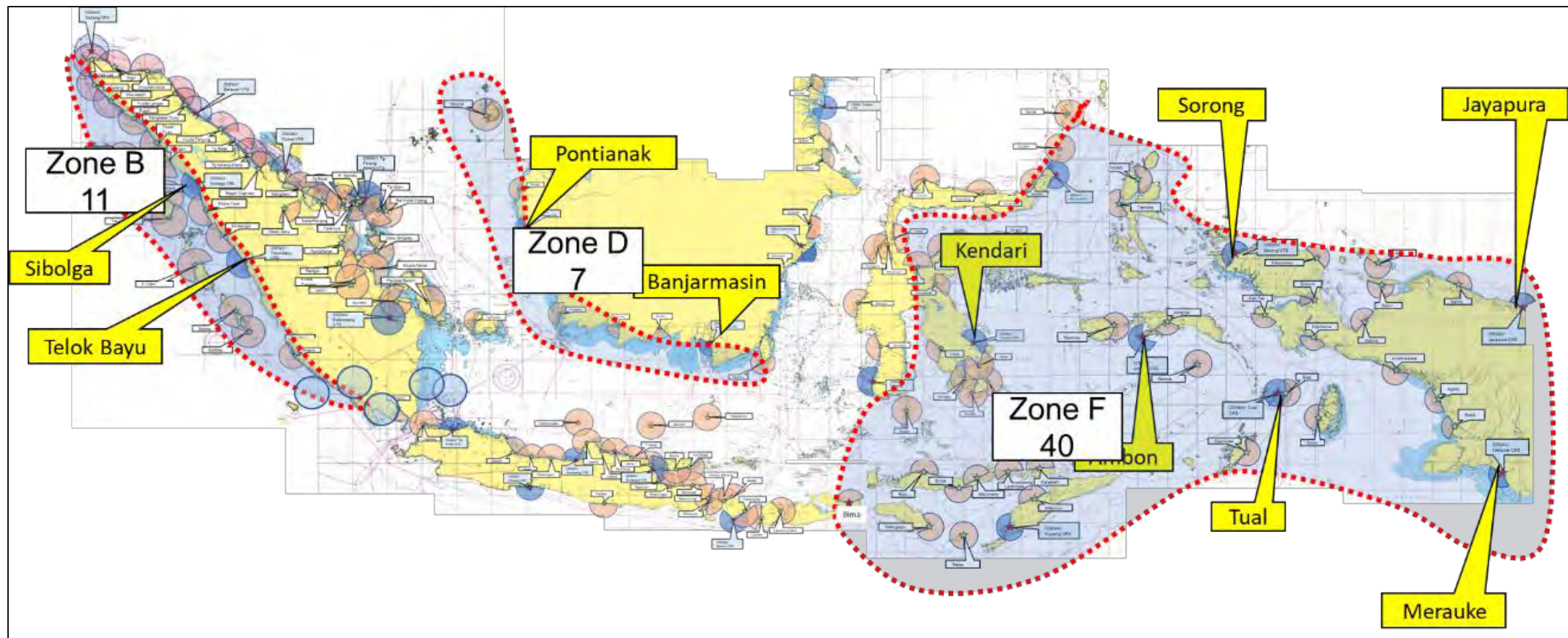
2020 statistic Ship call and handling cargo

| Zone | Area | DISNAV | | 2020 statistics total | | 2020 statistics total | |
|-------------|------------------------------|--------|---------------------------------------------------------|-----------------------|---------|-----------------------|---------|
| | | Nos | name | Ship call | Portion | Cargo GT | Portion |
| A | Sumatra Riau | 5 | Sabang, Belawan, Dumai, Tg Pinang, Palembang | 237,023 | 37.0% | 112,832,487 | 10.1% |
| B | Sumatra West | 2 | Sibolga, Teluk Bayur | 12,247 | 1.9% | 17,545,568 | 1.6% |
| C | Jawa | 4 | Jakarta, Semarang, Surabaya, Cilacap | 73,226 | 11.4% | 289,414,778 | 26.0% |
| D | Kalimantan East | 2 | Pontianak, Banjarmasin | 66,088 | 10.3% | 290,259,910 | 26.1% |
| E | Bali-Sulawesi West | 5 | Benoa, Makassar, Samarinda, Tarakan, Bitung | 124,651 | 19.4% | 337,546,963 | 30.3% |
| F | Sulawesi East-East Indonesia | 7 | Kupang, Ambon, Tual, Kendari, Sorong, Merauke, Jayapura | 127,852 | 19.9% | 66,535,233 | 6.0% |
| G.tot al | | 25 | | 641,087 | 100.0% | 1,114,134,939 | 100.0% |

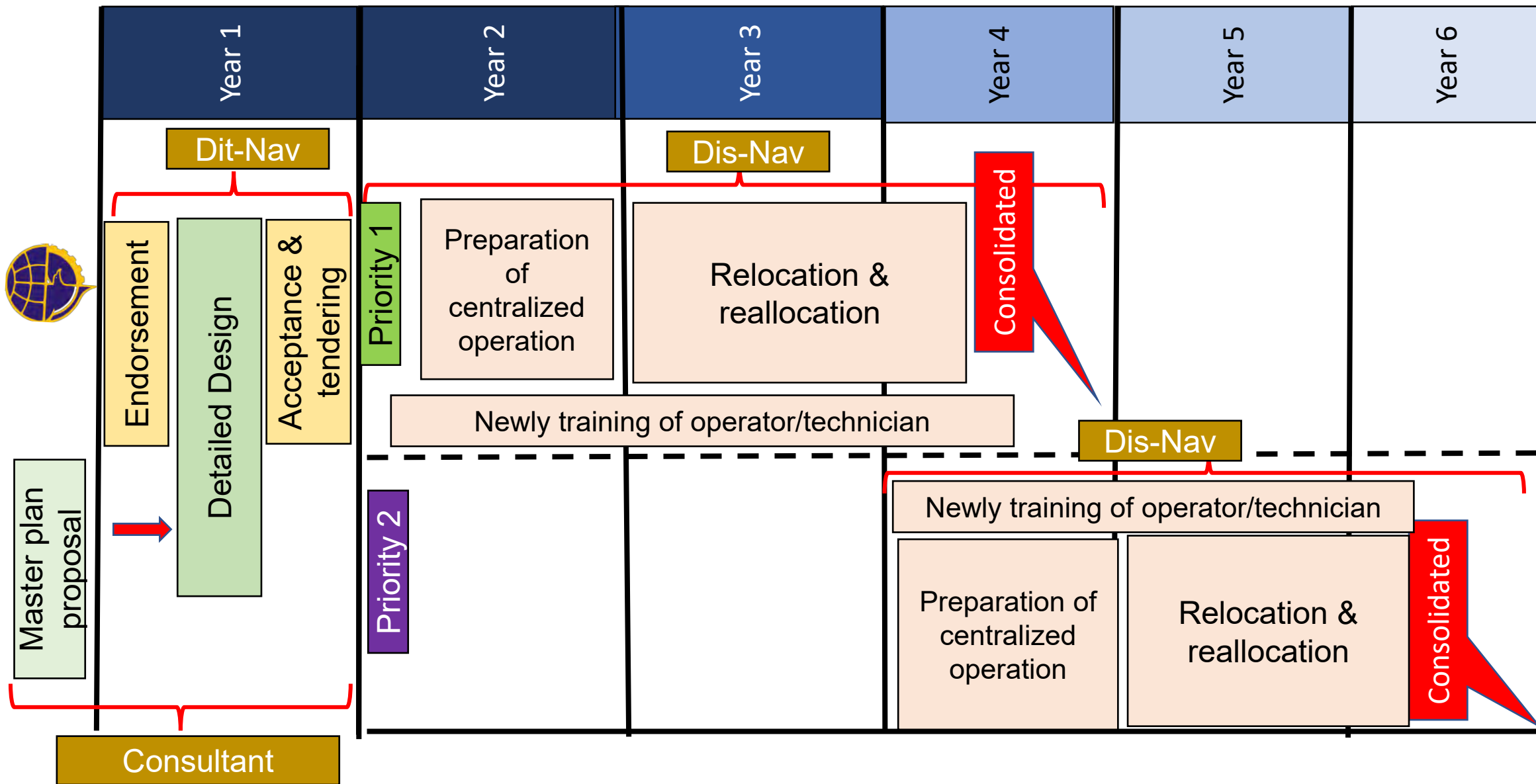
Consolidation priority 1



Consolidation priority 2



| Zone | Area | DISNAV | Target CRS | Approx cost |
|------------------------------------------|---------------------------------|--------|--------------|----------------|
| | | Nos | Consolidated | Million IDR |
| Priority 1 | | | | |
| A | Sumatra- Riau | 5 | 40 | 125,000 |
| C | Jawa | 4 | 25 | 82,500 |
| E | Bali-Sulawesi West | 5 | 35 | 112,500 |
| S.Total | | 14 | 100 | 320,000 |
| Overall cost | | | | |
| Priority 2 | | | | |
| B | Sumatra West | 2 | 11 | 37,500 |
| D | Kalimantan East | 2 | 7 | 27,500 |
| F | Sulawesi East-East Indonesia | 7 | 40 | 135,000 |
| S.Total | | 11 | 58 | 200,000 |
| Overall cost | | | | |
| Nex 5 years maintenance cost (10%) | | | 158 | 52,000 |
| G.Total | | | | 572,000 |



Final conclusion (Repeat and remind)

- This is the first and last chance for all CRS to consolidate drastically.
- CRS is still needed to cover whole nation without blind spot/break.
- Watching/monitor any distress case is kind of Insurance to prepare all-time.
- CRS facilities located in whole nation is very useful resources of DGST as Public Service Provider.
- Future communication mode of VDES is being prepared to introduce in next generation.

Introduction of NAVDAT

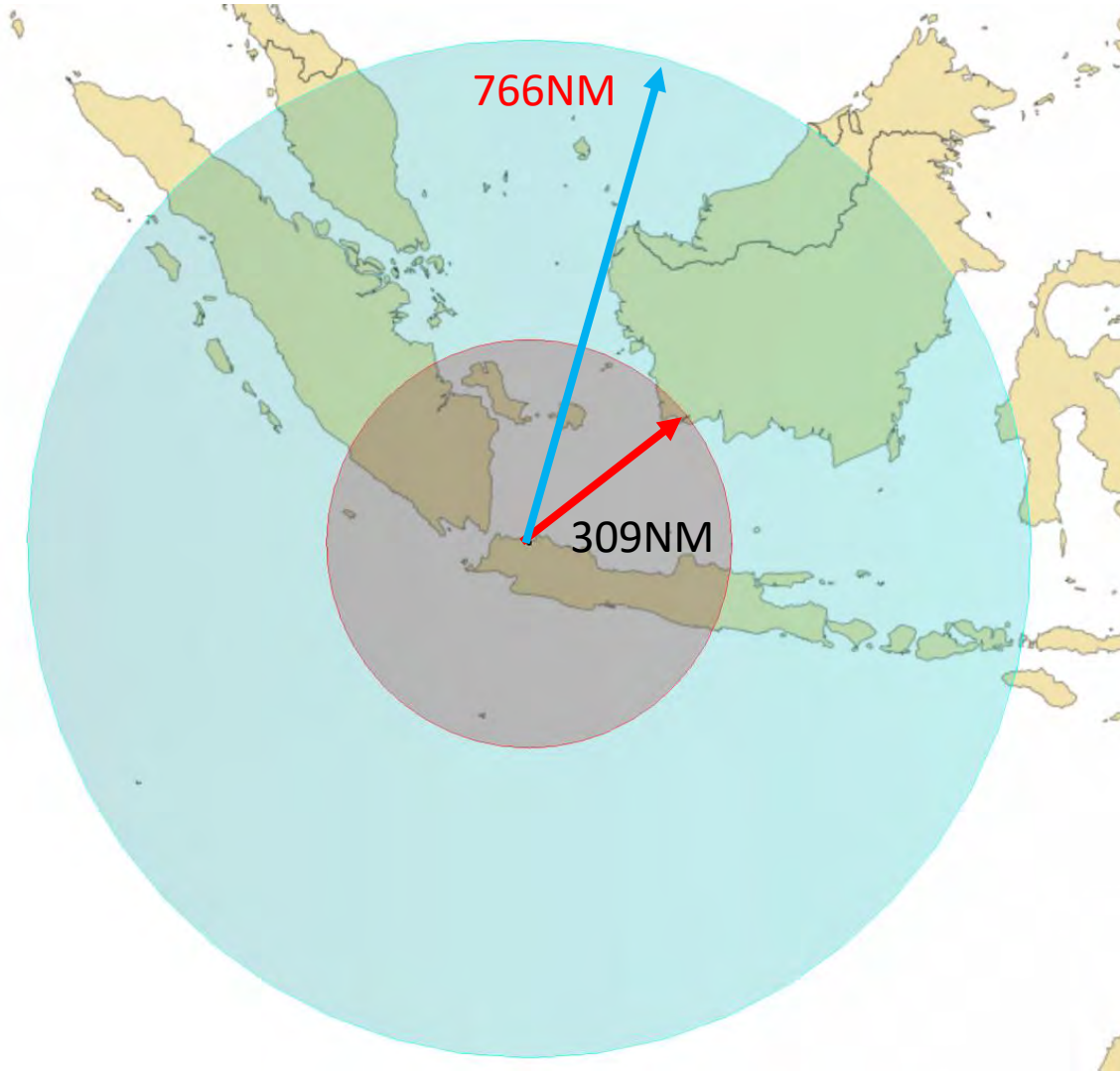
- NAVDAT (NAVigational DATa)
 - ❖ Digital Navigational data system with advanced NAVTEX functionality
 - ❖ Anticipation of adaptation of the GMDSS
- Launch in the market by year 2024 under development of prototype
 - ❖ Current MF 5kw transmitter for NAVTEX is cable to upgrade to NAVDAT transmitter with modifying few part contents



NAVDAT transmitter (prototype)

| NAVTEX receiver | | NAVDAT receiver (Image) | |
|------------------------------------------------------------------------------------------------------|------|--------------------------------------------------------------------------------------------------------------------|---------|
| <p>Throughput 50bps</p> <p>Tx Freq. 424/490/518kHz</p> <p>Text ONLY</p> | | <p>Throughput 26kbps (64-QAM)</p> <p>Tx Freq. 500kHz</p> <p>Graphical Information</p> | |
| | | | |
| | | | |
| Text | | Graphic image | Picture |
| File size | 2kB | 30kB | 100kB |
| Transmission time | 5min | 0.6sec | 32sec |

Service area :NAVDAT vs NAVTEX



Simulation Condition for NAVDAT and NAVTEX

| | NAVDAT | NAVTEX |
|----------------|--------|--------|
| Frequency[kHz] | 500 | 518 |
| Modulation | 64QAM | FSK |

*The communication range may be narrowed depending on the season.

Thank you very much

Terima Kasih

有難うございました (Arigato gozaimashita)



付録 3.9 -4

プレゼン資料

(航路標識業務用船)



The Project for Review of the Study
for
Maritime Traffic Safety System Development Plan
Report (Phase 2)
Component 3 Vessels for Aids to Navigation
Japan

March 2, 2023



Japan International Cooperation Agency (JICA)



Japan Aids to Navigation Association (JANA)

Policy

Vessels for Aids to Navigation are assigned to the District office of Navigation (DISNAV) to install, operate and maintain Aids to Navigation (AtoN).

Challenges to face

- Many old vessels
- Shortage of skilled crew members
- Huge fuel costs, etc.

By investigating and studying the vessels and crew in detail, we will make a plan to assign appropriate vessels to each Disnav in order to properly manage and operate the AtoN managed by each Disnav.

Collection of basic data

- a. Built year (ship age)
- b. Business content
- c. Docking interval, docking days
- d. Type and number of AtoNs accessed by Navigation Vessels
- e. Buoy replacement cycle (complete replacement, partial replacement)
- f. AtoN Patrol Cycle
- g. AtoN maintenance content and time required for maintenance
- h. Details of past repairs and current failures
- i. Crew training content and training period
- j. Technical skills of the crew, etc.

| Navigation Vessels | | | | | | | | | | |
|-------------------------------------------------------------------------|--------------------------------------------------------------|-----------------------|--------------------------------------------------------------------------------------------|-----------------------------|-----------------------------|------------------------|------------------|----------------------------------------------|------------------------------------------|--|
| English: | Bahasa Inggris: | Japanese: | | | | | | | | |
| Jurisdiction | jurisdiksi | 管区 | 13 | | | | | | | |
| DISNAV | DISNAV | DISNAV | Benoa | | | | | | | |
| class | kelas | クラス | I | | | | | | | |
| Ship name | Nama kapal | 船名 | KN Nuzi Perida | | | | | | | |
| Ship type | Jenis kapal | 船種 | KIP | | | | | | | |
| base | basis | 基地 | Benoa | | | | | | | |
| Year of built | Tahun dibangun | 建造年 | 2017 | | | | | | | |
| Ship age | usia kapal | 船齢 (2022) | 5 | | | | | | | |
| Dock interval and duration | Interval dan durasi dock | ドックの間隔及び期間 | Interval: | 1 year | | Period: | 25 day | | | |
| Power supply while the base is moved | Catu daya saat pengalihan distribusi | 基地移動中の電源 | Generator/Engine | | | | | | | |
| How to communicate with the base during the voyage | Bagaimana berkomunikasi dengan pangkalan selama perjalanan | 航海中の基地との通信方法 | Mobile Phone | | | | | | | |
| Work contents | isi pekerjaan | 業務内容 | New installation of buoy | Replacing the buoy | Underway or survey of buoys | Buoy repair | AtoN maintenance | Transportation of supplies required for AtoN | Operation other than the purpose of AtoN | |
| For operations other than the purpose of AtoN. (Specifically described) | Untuk operasi selain tujuan AtoN. (Secara khusus dijelaskan) | AtoN以外の作業の場合 (具体的に記載) | Making of navigation video | | | | | | | |
| Training contents of seafarers | isi pelatihan pelaut | 航海士の訓練内容 | Emergency escape training | Fire extinguishing training | | | | | | |
| Training frequency | frekuensi pelatihan | 訓練頻度 | Once every six months | Once a year | | | | | | |
| Number of AtoN managed using the vessel | Jumlah AtoN yang dikelola menggunakan kapal | 船舶により管理するAtoNの数 | Light House | Light Beacon | Light Buoy | Unlighted Buoy | | | | |
| | | | Mercu Suci | Suci Cahaya | Pelampung Rangan | Pelampung Tanpa Cahaya | | | | |
| | | | 2 | 3 | 10 | 3 | | | | |
| Please fill in the following table. | | | | | | | | | | |
| Past repairs | Perbaikan sebelumnya | 過去の修繕 | | | | | | | | |
| Repair details | Detail perbaikan | 修繕内容 | | | | | | | | |
| Current failure/location | Lokasi kegagalan saat ini | 現時点の障害箇所 | Engine | | | | | | | |
| Failure content | Konten kegagalan | 障害内容 | Vibration occurs when the engine is fully operated. | | | | | | | |
| Crew technical skills | Keterampilan teknis awak | 乗組員の技術力 | Those with qualifications (voyage, engine) are scheduled to retire in the next five years. | | | | | | | |
| Other issues | Masalah lain | その他の問題 | | | | | | | | |
| Opinion | pendapat | 意見 | | | | | | | | |

| Buoy Tender | | | | | | |
|----------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|--------------------------------|--------------------------------------------------------------------|-------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------|-----------------------------------------------|
| Number of AtoN managed using the vessel | Jumlah AtoN yang dikelola menggunakan kapal | 船舶により管理するAtoNの数 | Light House Merca Suci | Light Beacon Suci Cahaya | Light Buoy Pelampung Ringan | Unlighted Buoy Pelampung Tanpa Cahaya |
| | | | 0 | 0 | 10 | 3 |
| Regular replacement of buoys | Penggantian pelampung secara teratur | ブイの定期交換 | Nothing | | Yes | |
| Buoy replacement cycle | Status penggantian pelampung | ブイの交換サイクル | | | 4 years | |
| Criteria for exchange | Kriteria pertukaran | 交換の判断基準 | Check by pulling it up on the ship once a year. | | | |
| process | proses | 手順 | If there is a problem, replace it. Paint the buoy and put it back. | | Replace one set of buoys (including iron chains, sinkers, etc.) Maintain and store the salvaged items. | |
| Number of Buoys that can be loaded on the Vessel (including Mooring chain and Sinkers, etc.) | Jumlah Pelampung yang dapat dimuat di Kapal (termasuk rantai Mooring dan Sinkers, dll.) | Vesselに積載できるBuoysの数 (鉄釘、沈み金など) | Light Buoy - 1 unit | | Light Buoy - 1 unit | |
| Number of buoys to be exchanged in one voyage | Jumlah pelampung yang akan ditukar dalam satu perjalanan | 1回の航海で交換するブイの数 | 1 unit | | 1 unit | |
| Buoy maintenance location | Lokasi perawatan pelampung | ブイの整備場所 | On board the Vessels | | Buoy base | |
| Aids tender | | | | | | |
| Number of AtoN managed using the vessel | Jumlah AtoN yang dikelola menggunakan kapal | 船舶により管理するAtoNの数 | Light House Merca Suci | Light Beacon Suci Cahaya | Light Buoy Pelampung Ringan | Unlighted Buoy Pelampung Tanpa Cahaya |
| | | | 3 | 1 | 10 | 3 |
| AtoN patrol cycle | Status patroli AtoN | AtoNの巡回周期 | 3 months | 3 months | 3 months | 3 months |
| Maintenance details | Detail perawatan | メンテナンス内容 | Voltage, current, connection status, device operation, etc. | Voltage, current, connection status, device operation, etc. | Check voltage, current, connection status, device operation, installation location, etc. | Appearance check, installation location, etc. |
| Average time required for maintenance | Rata-rata waktu yang dibutuhkan untuk pemeliharaan | メンテナンスに必要な平均時間 | 1 hour | 1 hour | 30 minutes | 20 minutes |

Annual operation performance

Aggregation of annual operation performance

- a. Annual activity days (including activity content)
- b. Maintenance days per year (docking)

※Initially, it was planned to aggregate and average data for the three years from 2019 to 2021, but in 2020 and 2021, due to fuel cost budget cuts, actions were restricted and planned actions were not possible.

In a meeting with NAVIGASI, it was necessary to consider geographical conditions, and was advised to use the vessel route pattern of each DISNAV.

When we requested the vessel route pattern for each DISNAV, we were presented with the vessel route pattern for 3 DISNAVs.

When I asked for the number of days of behavior in these patterns, only DISNAV Semarang could be confirmed.

Therefore, we aggregated the number of action days from the 2019 “Vessel Voyage Monthly”, which was not affected by the fuel cost reduction.

Navigation vessels operating rate

Operating rate(%)=operation days ÷ (365- docking days) × 100

- Occupancy rate is the number of active days divided by the annual number of active days
- Action days are the number of days that Navigation Vessels operated for business purposes.

When summarizing from execution actions, actions such as temporary standby and search & rescue due to bad weather that cannot be predicted at the time of planning are included.

When summarizing from the action plan, it is necessary to consider that unforeseen actions are not included at the planning stage.

| DISNAV | Class | Navigation Vessel | | | | | Annual operat- ing rate | Opera- ting rate total |
|-------------|-------|-------------------|-------|--------------------|---------------------|----------------------|----------------------------------|---------------------------------|
| | | Type of Vessel | Class | Name of Vessel | Year of Built | Age as of 2023 | | |
| Pontianak | III | KBP | I | KN ALNILAM | 2008 | 15 | 14 | 26 |
| | | KPP | III | KN PENGIKI | 2016 | 7 | 12 | |
| Cilacap | III | KIP | I | KN PRAJAPATI | 1971 | 52 | 11 | 11 |
| Semarang | II | KIP | I | KN KUMBA | 1972 | 51 | 27 | 95 |
| | | KBP | III | KN SUAR-011 | 1980 | 43 | 34 | |
| | | KBP | III | KN B-126 | 1961 | 62 | 39 | |
| | | KPP | III | KN KARIMUN JAWA | 2016 | 7 | 22 | |
| Surabaya | I | KIP | I | KN BIMASAKTI UTAMA | 2008 | 15 | 16 | 34 |
| | | | I | KN MASALEMBO | 2017 | 6 | 18 | |
| | | KBP | III | KN SUAR-003 | 1971 | 52 | 16 | 37 |
| | | KPP | III | KN AE-029 | 1971 | 52 | 21 | |
| Benoa | II | KIP | I | KN NUSA PENIDA | 2017 | 6 | 21 | 21 |
| | | KBP | I | KN MIZAN | 1996 | 27 | 12 | 12 |
| Banjarmasin | II | KIP | I | KN KUNYIT | 2017 | 6 | 11 | 9 |
| | | KBP | I | KN ALTAIR | 1999 | 24 | 7 | |
| | | KBP | I | KN SUAR-003 | 1971 | 52 | 2 | |
| | | KBP | I | KN AE-032 | 1971 | 52 | 0 | |
| Tarakan | III | KIP | I | KN MARATUA | 2017 | 6 | 23 | 23 |
| | | KPP | III | KN SARANG ALOE | 2010 | 13 | 11 | 11 |
| Samarinda | I | KIP | I | KN MITHUNA | 1975 | 48 | 23 | 47 |
| | | | I | KN MIANG BESAR | 2017 | 6 | 24 | |
| | | KBP | III | KN SUAR-010 | 1975 | 48 | 32 | 52 |
| | | KPP | III | KN MARAPAS | 1999 | 24 | 20 | |
| Merauke | III | KBP | I | KN MERPATI | 1997 | 26 | 12 | 12 |
| | | | | | | | | |
| | | | | | | | | |

From the operating rate of the actual action.

- Since DISNAV Pontianak has an operating rate of 26%, it is believed that one KN ALNILAM will be able to carry out the work.
- DISNAV Semarang has 3 vessels, 2 KBPs and 1 KIP, with a utilization rate of 95%, so KN SUAR11 is scheduled to be scrapped, resulting in a 2-vessel system. However, since KN B-126 has been built for 62 years, it seems that a replacement ship is urgently needed from a safety point of view.
- DISNAV Surabaya's KIP Buoy Tender has a two-vessel system, but if we look only at the utilization rate, two ships are 34%, so it seems possible to carry out the work with one.
- DISNAV Samarinda has two vessels for both Buoy Tender and Aids Tender, but since the two vessels have an operating rate of 47% and 52%, respectively, it seems possible to carry out the work with one vessel.

| Tipe of Vessel | Class | Name of Vessel | Docking days | Operation days per years | Day of Operation | Annual operating rate | Operating rate total |
|----------------|-------|----------------|--------------|--------------------------|------------------|-----------------------|----------------------|
| KIP | I | KN KUMBA | 49 | 365 | 194 | 62 | 62 |
| KBP | III | KN SUAR11 | 30 | 365 | 88 | 27 | 90 |
| KBP | III | KN B126 | 30 | 365 | 89 | 27 | |
| KPP | III | KN KARIMUN JAW | 30 | 365 | 118 | 36 | |

From the operating rate of the action plan

The operating rate will be 62% for Buoy Tender KN KUMBA and 90% for the remaining three Vessel.

KN SUAR11 is scheduled to be scrapped and will be a two-vessel system, but it seems that the remaining two vessels will be able to carry out the work.

However, KN B-126 is 62 years old, so a replacement vessel is urgently needed from a safety standpoint.

In addition, although the operating rate was calculated from the annual action plan, it is necessary to consider that the number of annual operating days does not include actions that cannot be predicted at the planning stage.

Example: Temporary standby due to bad weather during patrol
Action by Search & Rescue

Points to consider when creating an establishment plan

1) Annual operating rate

If there are vessels of the same type among Vessels for Aids to Navigation belonging to DISNAV, consider the sum of the operating rates of the same vessels type.

2) Vessel age

The service life of a vessel is generally said to be 20 years for steel vessels.

3) Status of installed equipment

Condition of cranes and other equipment necessary for operations, as well as engines, radar, and other equipment necessary for navigation.

4) Technical skills of the crew

The following technical capabilities are required.

- a. Engine-related technical capabilities that can respond in the event of an engine failure
- b. Ability to navigate safely to the nearest port without navigational instruments if navigational instruments become unavailable.
- c. Effective and efficient maintenance capability

In order to acquire these skills, education at a specialized training institution is necessary.

5) Special characteristics of sea areas

Selection of Vessel considering the peculiarities of the sea area

Promotion of the Vessels for Aids to Navigation Establishment Plan

1) Early scrapping of aging Vessels

Vessels over 40 years old are scrapped for safety reasons.

At that time, DISNAV, which owns multiple vessels, will consider whether the remaining vessels can carry out the work and determine the necessity of alternative vessels.

The fact that there are many affiliated ships means that the maintenance cost that can be used for one ship is small, and only half-finished maintenance can be performed.

2) Improving technical skills of crew members

According to a report from DISNAV, training of young crew members is necessary as most ships will retire within five years (some within a year).

Acquisition of qualifications is of the utmost importance, and it is necessary to have the crew obtain nautical, engineering or communications qualifications.

In addition to qualifications, reliable maintenance of each facility and equipment by the person in charge of navigation, organization or communication will maintain the function of the ship appropriately.

In order to improve such skills, it is necessary to educate at a specialized institution, and it seems possible by taking turns educating the crew members who will be scrapped.

3) Hybrid Navigation Vessels

When building new Navigation Vessels, it is possible to bring the crew of a scrapped ship onboard by making a large Navigation Vessels that is a hybrid of a buoy tender and an AIDS tender.

4) Early acquisition of route patterns and action plans for Navigation Vessels

Obtain the route pattern and action plan of the current Navigation Vessels to understand the number of action days per year.

In the future, it will be important to obtain early plans for changes to Navigation Vessels' operations, such as the establishment of AtoN.

If you get it early, it will be possible to deal with large-scale changes.

付録 3.9 -5

セミナー資料

Maritime Communication Platform for VDES and New-Generation AIS

For the 6th Joint Coordination Committee, DGST

March 2, 2023



TOMMY TAKIMOTO
CEO, Future Quest Inc.

Transforming the Maritime Landscape: The Impact of VDES

- Streamlining of administrative services for ports, routes, and sea areas by VDES
- Enablement of port and route adaptation for future MASS (autonomous ships) integration through VDES

To achieve this:

Executive Summary

1. Transition from hardware ownership (radio equipment) to centralized-service (SaaS) usage
2. Digitization of operations and data by leveraging the knowledge and manuals held by human staff, specifically:
 - Adaptation to VDES by port stations
 - Adaptation of current maritime administrative services to new information systems
 - Development of IT professionals with maritime expertise

What is Maritime SaaS?

“A communication service that can be used through the web without owning a radio.”

Tommy TAKIMOTO

2021 Founded Future Quest Inc.

2018 Withdrawal from Ph. D Program (Maritime Sciences),
after completing the required credits, Kobe University

2017 Assistant Professor, Kagawa University

2014 Research Fellow (Ocean Policy), The Sasakawa Peace Foundation

2012 MS (Sociology), Kyushu University

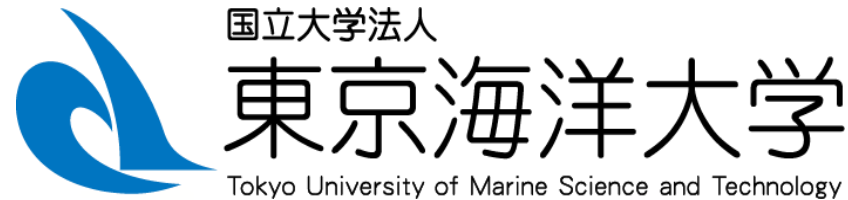
2010 BA (Maritime Science), Kobe University



Company Profile

| | |
|------------------|---------------------------------------------------------------------|
| Company Name | Future Quest Inc. |
| CEO | Tomoki TAKIMOTO |
| Foundation: | January 2021 |
| Location | Fukuoka, Japan |
| Business: | Maritime Communication Platform |
| Web | https://futurequest.jp/en/ |
| Contact (email): | office@futurequest.jp |

Our respected supporters, cooperators, and partners



“One Ocean” – Bringing All Maritime Communications Together



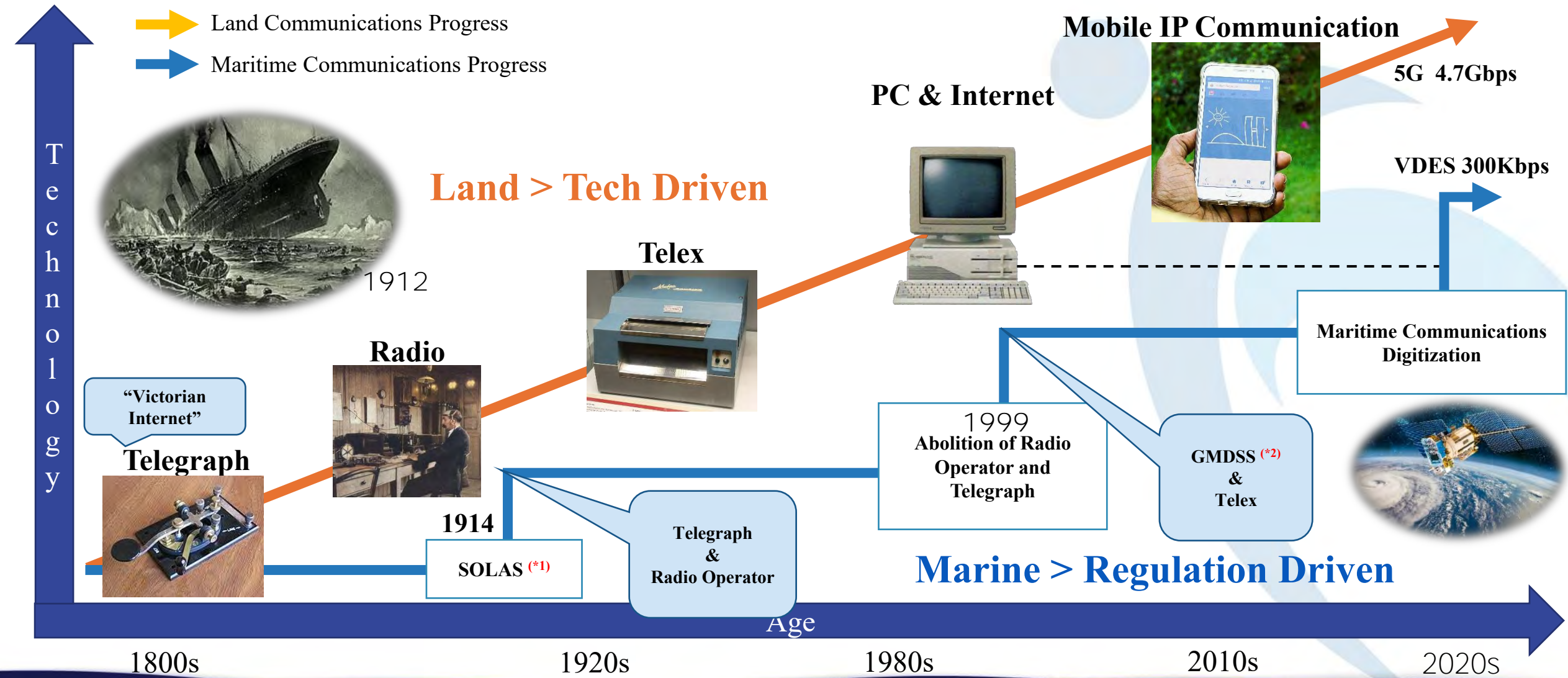
VDES \rightleftharpoons IP Interconnection A "Maritime Communications Provider" Between Ports and Vessels





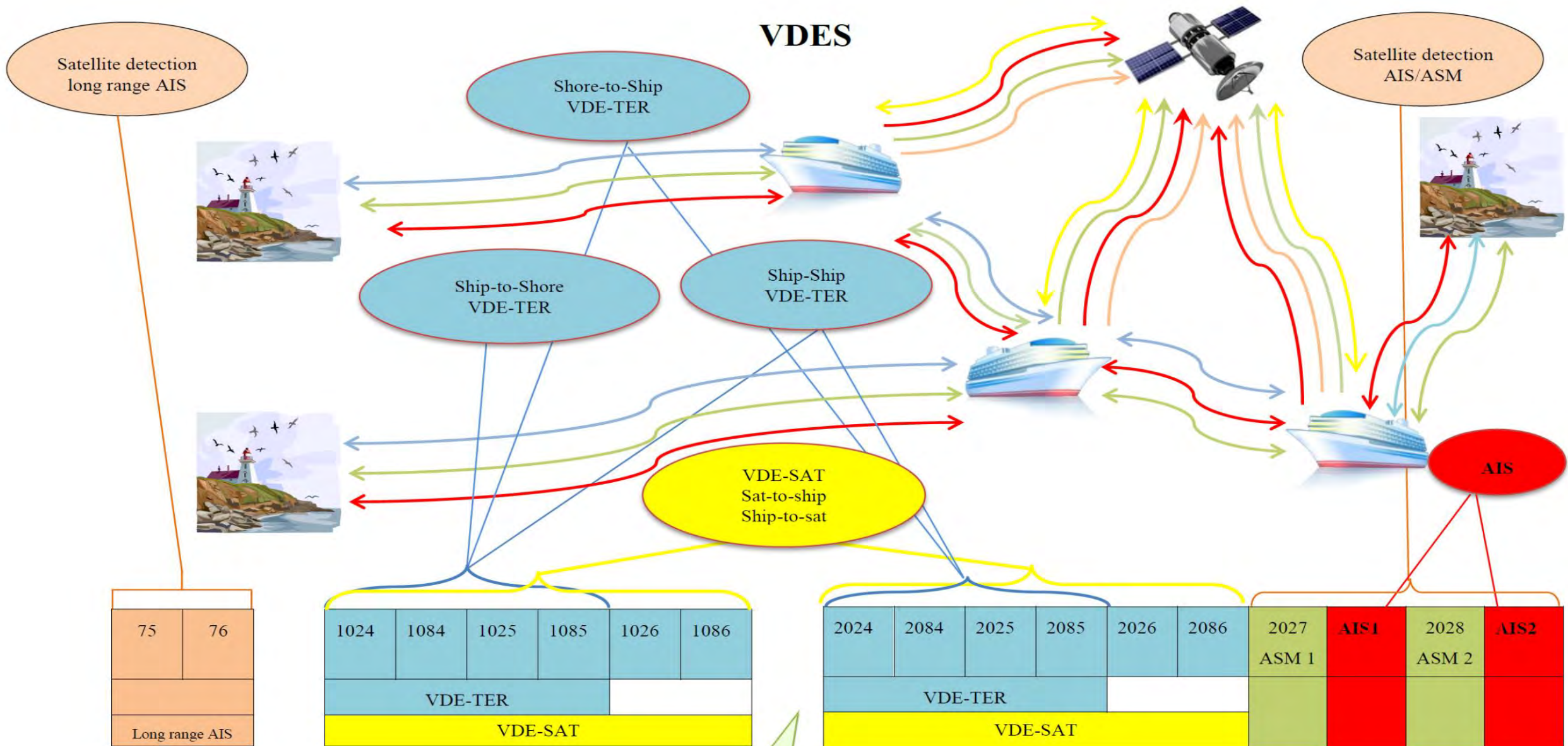
History of Maritime Communication

Linear vs. Staged in Communication Evolution

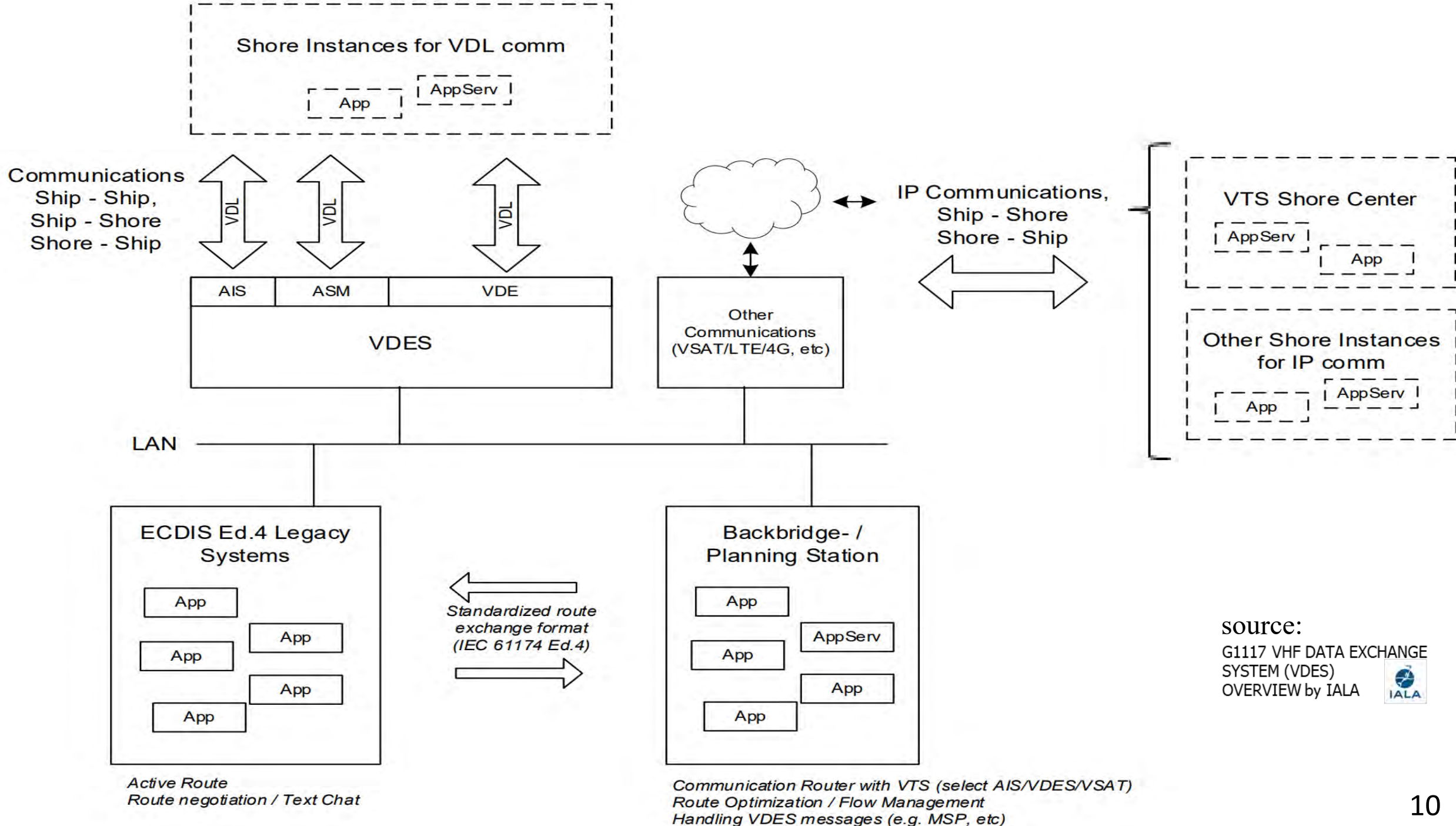


(*1) International Convention for the Safety of Life at Sea

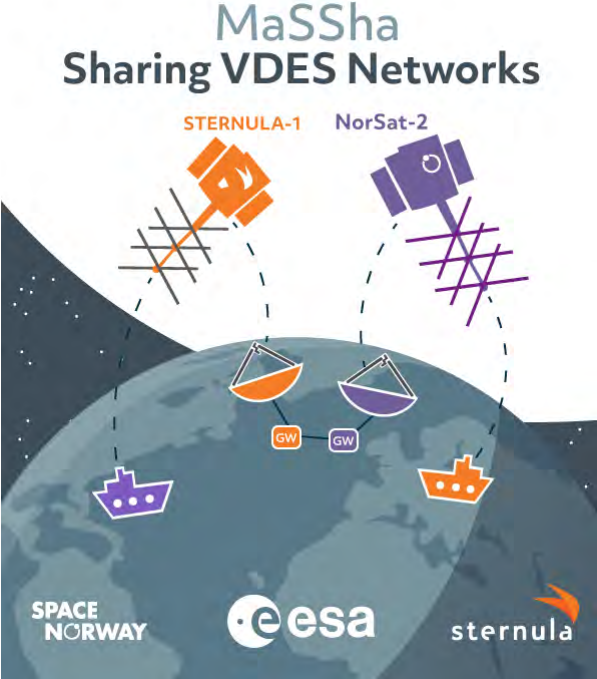
(*2) Global Maritime Distress & Safety System



4.6 MHz
separation
















VDES Business Entities



Source: Sternula, AOHAI Technology, USCG

VDES Business Entities

| | Surface (Land & Maritime) | Space |
|----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Service |     |  |
| Infrastructure | |  |
| Hardware |      |   |

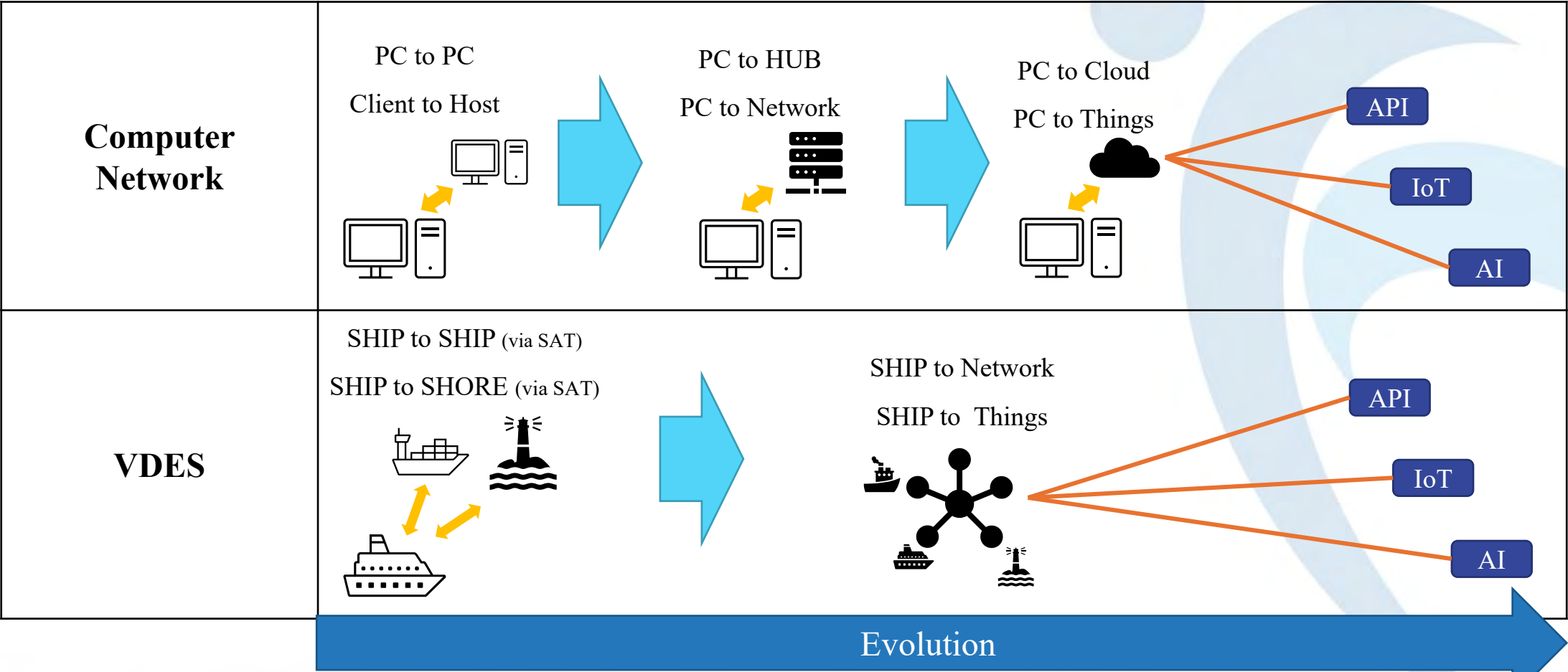


IT Perspective

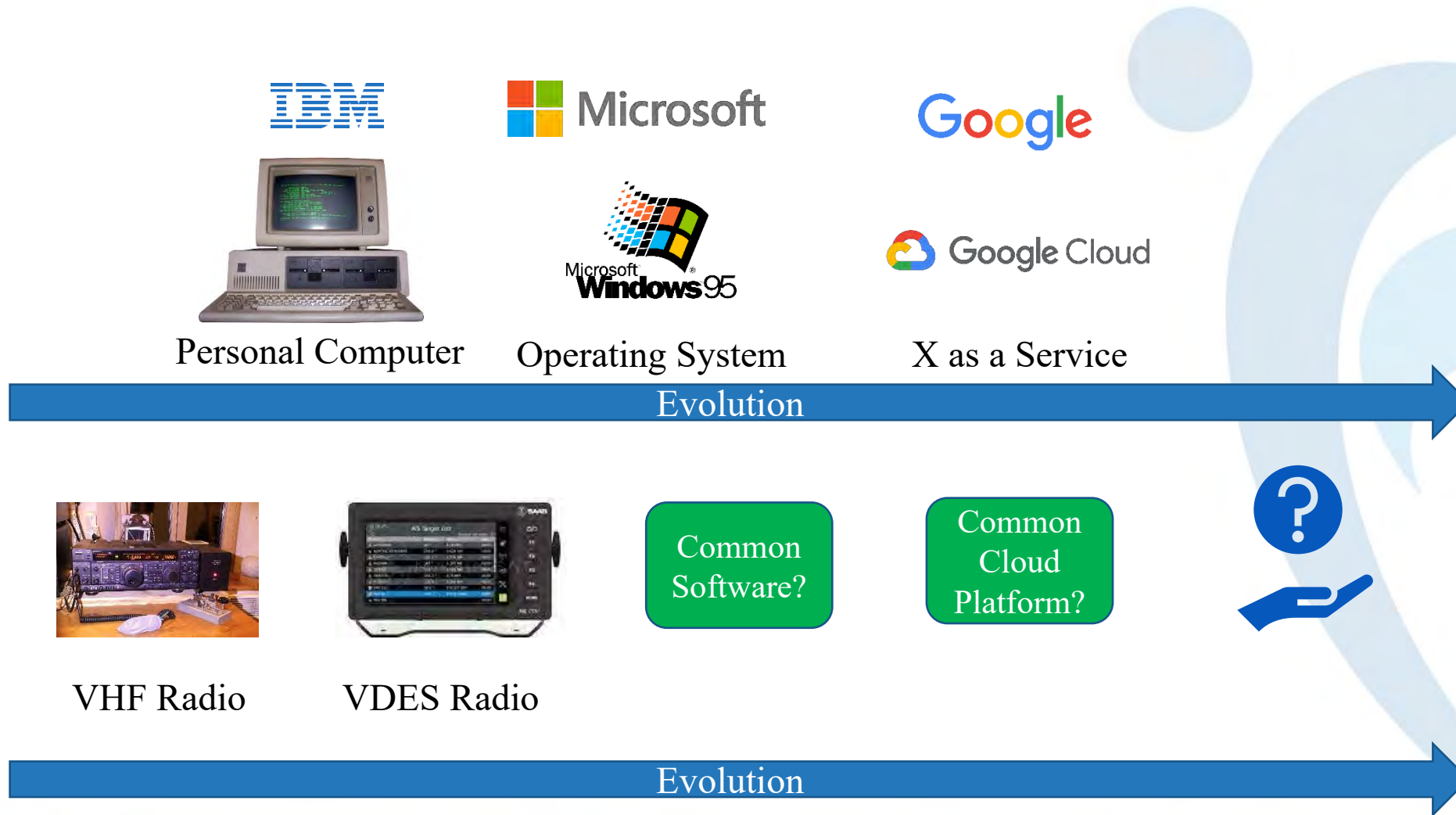
VDES evolves in pace with IT technologies or even faster.

WHY? and HOW?

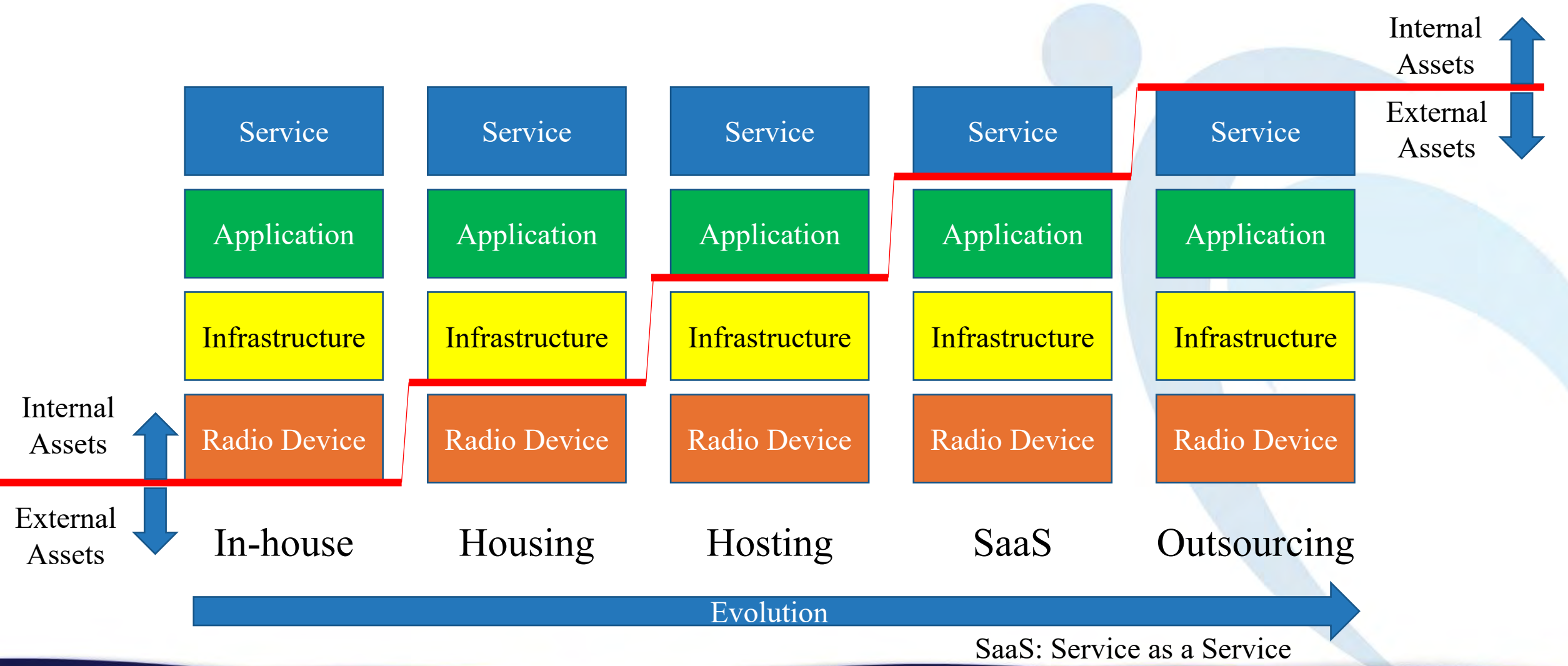
Evolutions: VDES vs PC



Radio to IP Network



Outsourcing and SaaS



Integration with New Technologies



AI



Terminal Devices



Sensing Devices



MASS (*1), USV (*2), Robot



Benefits and Requirements

Benefits

- Accommodation of diverse work styles
- Improvement of work efficiency
- Leading to cost reduction
- Being a measure for business continuity planning (BCP)
- Storage and utilization of data

Costs and Requirements

- Incurrence of implementation and running costs
- Necessity of security measures
- Obtaining understanding from government and industry required
- Securing IT experts/personnel required
- Ensuring international quality required



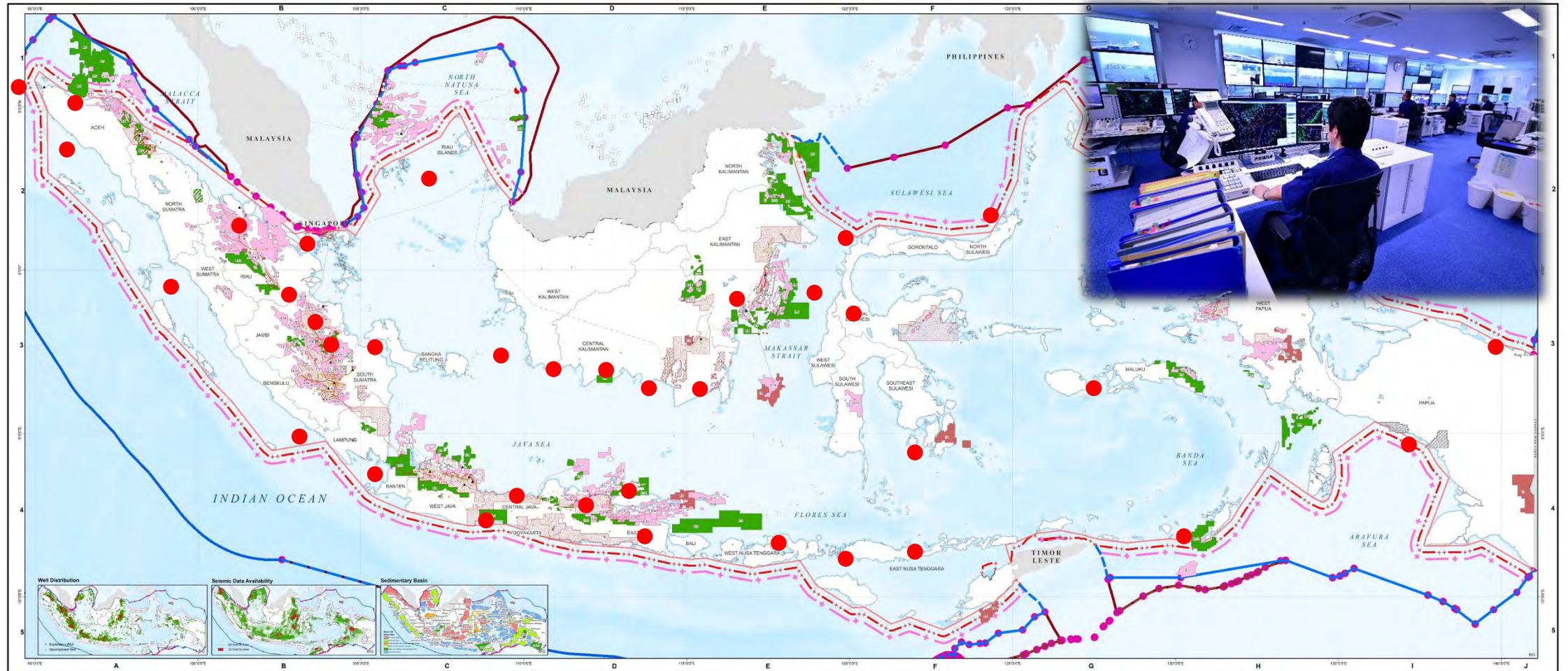
The Future is Now

Opportunities



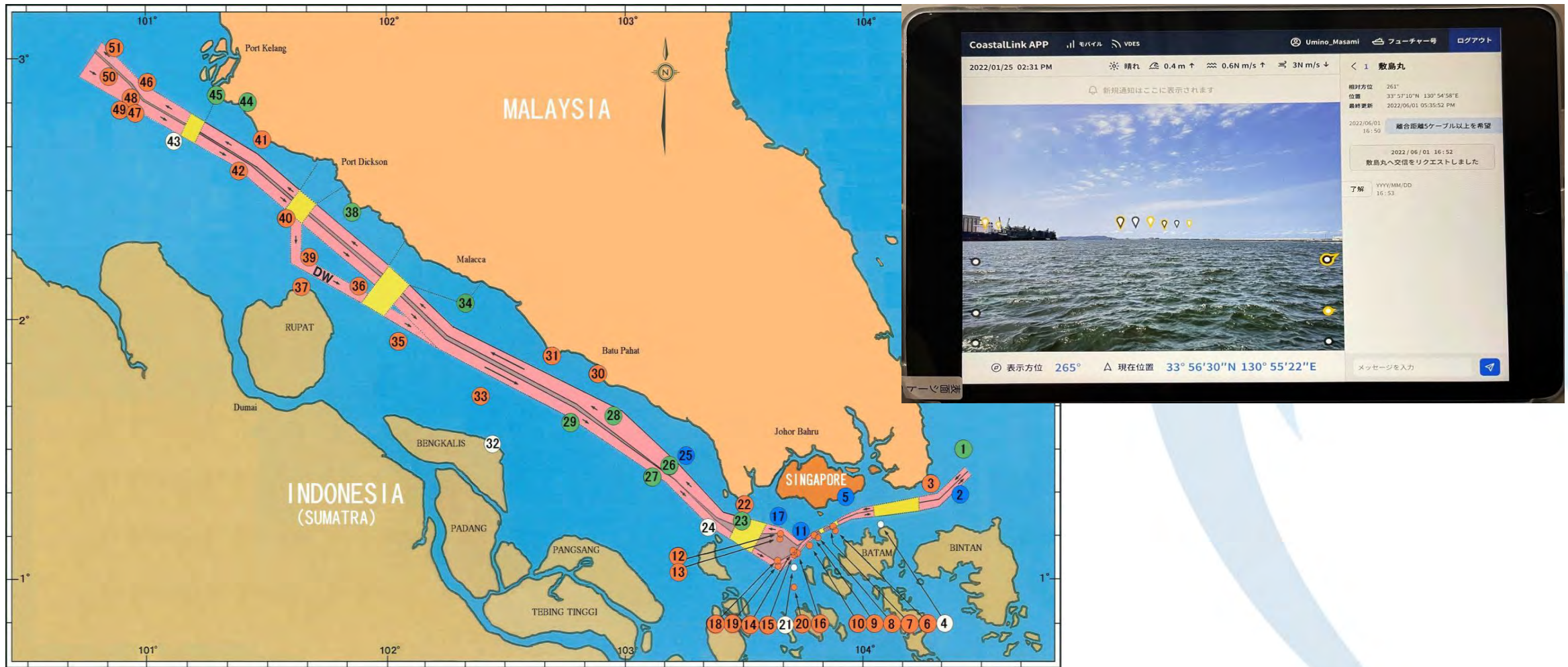
Cloud Radio System: The Smart Ocean Governance

Central Management Center



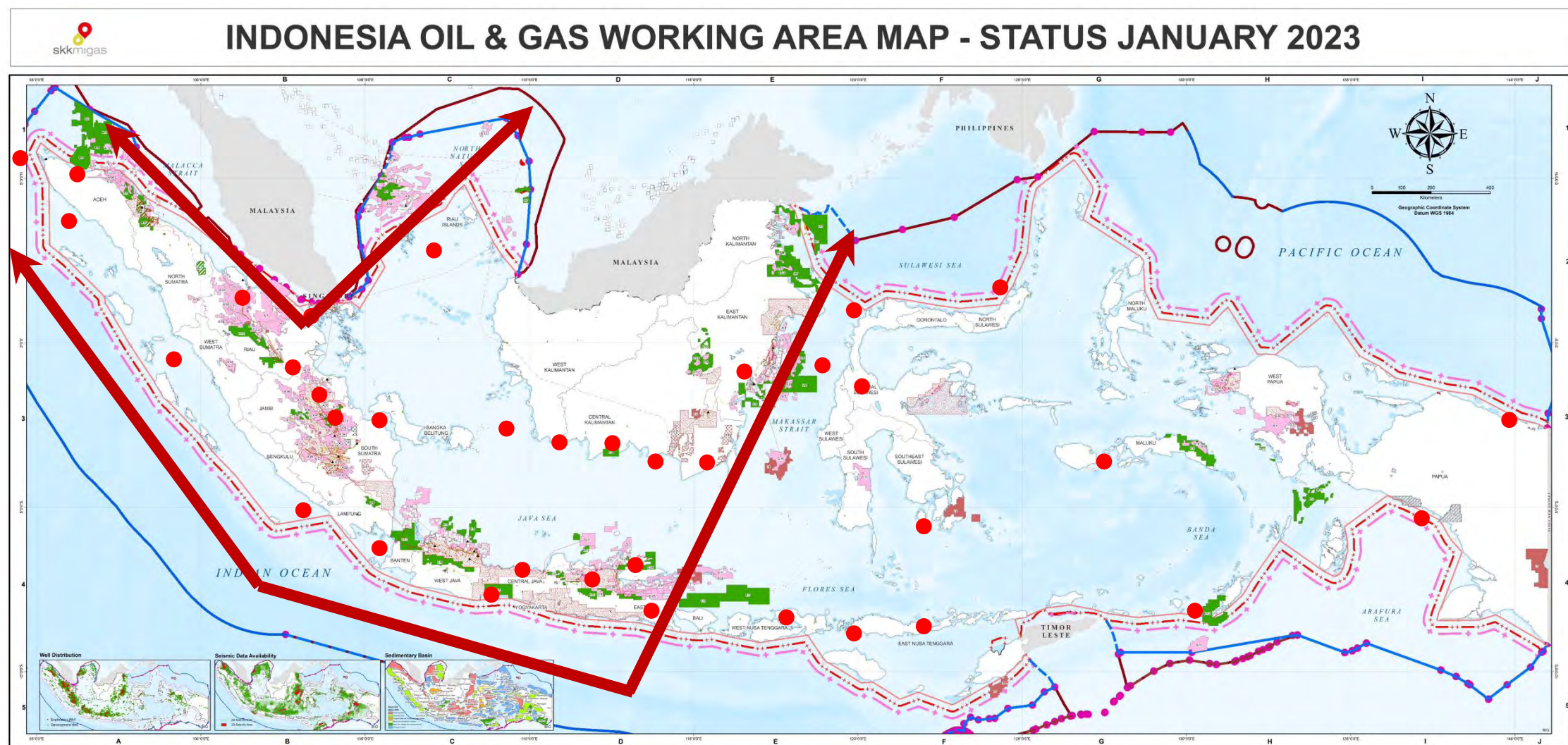
Source: skkmigas website, JRC website

Augmented Reality in Navigation: The Smart Lighthouse



Source: Malacca Strait Council

Automation in Transportation: The Smart Sea Lane





Conclusion

VDES and the Role of IT and Maritime Administrative Experts

- Port stations (operated by DGST) required to respond to VDES as part of the international trend
- VDES expected to undergo similar evolution and usage to IT

<RECOMMENDATION>

- Installing VDES Equipment for International Compliance at Port Stations
- Optimizing VDES Benefits in Maritime Services through Software and Automation
- Necessity of IT/Maritime Adm. Experts for Efficient System Design and Development



Terima kasih banyak

