

JAPAN INTERNATIONAL COOPERATION AGENCY( JICA )

DIRECTORATE GENERAL OF SEA COMMUNICATION, MINISTRY OF COMMUNICATIONS  
( DGSC ), THE REPUBLIC OF INDONESIA

# THE STUDY FOR THE MARITIME TRAFFIC SAFETY SYSTEM DEVELOPMENT PLAN IN THE REPUBLIC OF INDONESIA

## FINAL REPORT

### FEASIBILITY STUDY REPORT VOLUME

#### PART 5. : INDONESIA SHIP REPORTING SYSTEM

June 2002

THE JAPAN ASSOCIATION OF MARINE SAFETY( JAMS )

JAPAN AIDS TO NAVIGATION ASSOCIATION( JANA )

S S F

J R

02-77

JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)

DIRECTORATE GENERAL OF SEA COMMUNICATION, MINISTRY OF COMMUNICATIONS  
(DGSC), THE REPUBLIC OF INDONESIA

**THE STUDY FOR  
THE MARITIME TRAFFIC SAFETY SYSTEM  
DEVELOPMENT PLAN  
IN THE REPUBLIC OF INDONESIA**

**FINAL REPORT**

**FEASIBILITY STUDY REPORT: VOLUME**

**PART 5 : INDONESIA SHIP REPORTING SYSTEM**

**May 2002**

**THE JAPAN ASSOCIATION OF MARINE SAFETY (JAMS)  
JAPAN AIDS TO NAVIGATION ASSOCIATION (JANA)**

Exchange Rate in the Study:

1 US\$ = Rp. 10,000 = 130 Japanese Yen

**(based on the approximate rates of February 2002 )**

## PREFACE

In response to a request from the Government of the Republic of Indonesia, the Government of Japan decided to conduct a study on Maritime Traffic Safety System Development Plan in the Republic of Indonesia and entrusted the study to Japan International Cooperation Agency.

JICA selected and dispatched a study team headed by Mr. Kunio Tashima (until September 4<sup>th</sup> 2001) of The Japan Association of Marine Safety (JAMS) and Mr. Shingo Tsuda (from September 5<sup>th</sup> 2001) of JAMS, to Indonesia, three times between April 2001 and March 2002. In addition, JICA set up an advisory committee headed by Mr. Tamotsu Ikeda (Director, Radio Aids Division, Aids to Navigation Department, Japan Coast Guard) between March 2001 and March 2002, which examined the study from specialist and technical points of view.

The team held discussions with the officials concerned of the Government of the Republic of Indonesia and conducted field surveys at study areas. Upon returning to Japan, the team conducted further studies and prepared this Final Report.

I hope that this report will contribute to the promotion of the projects and to the enhancement of friendly relationship between the two countries.

Finally, I wish to express my sincere appreciation to the officials concerned with the Government of the Republic of Indonesia for their close cooperation extended to the study.

June 2002

A handwritten signature in black ink, consisting of stylized Japanese characters, positioned above a horizontal line.

---

Takao Kawakami

President,

Japan International Cooperation Agency

## LETTER OF TRANSMITTAL

June 2002

Mr. Takao Kawakami

President

Japan International Cooperation Agency

Dear Mr. Kawakami

It is my great pleasure to submit herewith the Final Report of the Study for the Maritime Traffic Safety System Development Plan in the Republic of Indonesia.

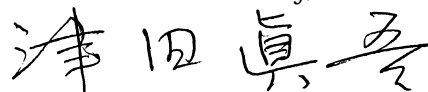
The study team of the Japan Association of Maritime Safety (JAMS) and Japan Aids to Navigation Association (JANA) conducted surveys in the Republic of Indonesia over the period between April 2001 and March 2002 as per the contract with Japan International Cooperation Agency.

The findings of this study, which are compiled in this report, were fully discussed with the officials of the Ministry of Communications of the Indonesian Government and other authorities concerned to formulate the Maritime Traffic Safety System Development Plan in the Republic of Indonesia for the period up to the year 2020.

On behalf of the study team, I would like to express my heartfelt appreciation to the Government of the Republic of Indonesia, the Ministry of Communications and other authorities concerned for their diligent cooperation and assistance and for the heartfelt hospitality which they extended to the study team during our stay in the Republic of Indonesia.

I am also deeply indebted to "Japan International Cooperation Agency", "The Ministry of Foreign Affairs of Japan", "The Ministry of Land, Infrastructure and Transport of Japan" and "Embassy of Japan in Indonesia" for giving us valuable suggestions and assistance during the preparation of this report.

Yours faithfully,

A handwritten signature in black ink, consisting of stylized Japanese characters, likely reading 'Tsuda Shingo'.

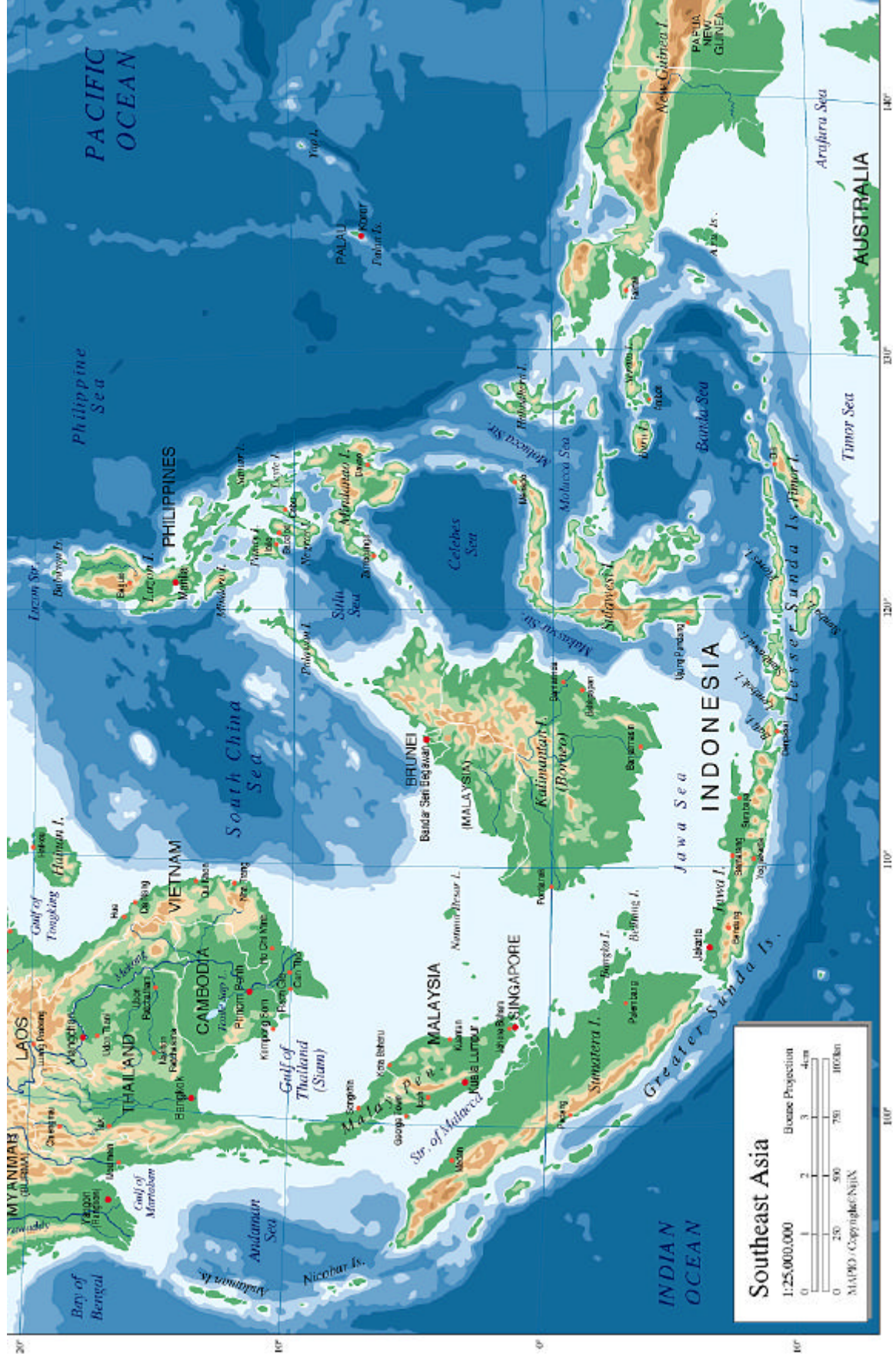
---

Shingo Tsuda

Team Leader,

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

# INDONESIA



Legend: 1st Class Coast Station 2nd Class Coast Station

## Ship Reporting System



Planned Site of Ship Reporting Center (Tg.Priok, Jakarta)



A corner of JASREP Center

Source: JCG

## ABBREVIATIONS

A	ADPEL	Administrator Pelabuhan (Port Administrator)
	AIS	Automatic Identification System
	AMVER	Automated Mutual-assistance Vessel Rescue System
	ARMADA PLP	Guard and Rescue Fleet
B	BAPPENAS	Badan Perencanaan Pembangunan Nasional (National Development Planning Agency)
C	C/S	Coast Station
D	DG	Dangerous Goods Report
	DGSC	Directorate General of Sea Communication
	DR	Deviation Report
	DSC	Digital Selective Calling
E	EGC	Enhanced Group Call
F	FIRR	Financial Internal Rate of Return
	FR	Final Report
G	GDP	Gross Domestic Product
	GMDSS	Global Maritime Distress and Safety System
	GOI	Government of the Republic of Indonesia
H	HF	High Frequency
	HS	Harmful Substances Report
I	IMO	International Maritime Organization
	INDOSREP	Indonesia Ship Reporting System (Tentative name)
	INMARSAT	International Mobile Satellite Organization
	ITU	International Telecommunication Union
J	JASREP	Japanese Ship Reporting System
	JBIC	Japan Bank for International Cooperation
	JCG	Japan Coast Guard
	JICA	Japan International Cooperation Agency

M	MF	Medium Frequency
	MLIT	Ministry of Land, Infrastructure and Transport (of Japan)
	MP	Marine Pollutants Report
N	NBDP	Narrow Band Direct Printing
O	ODA	Official Development Assistance
P	PC	Personal Computer
	PR	Position Report
R	RCC	Rescue Coordination Center
S	SAR	Search and Rescue
	SAR Convention	International Convention on Maritime Search and Rescue, 1979
	SP	Sailing Plan
	SRR	Search and Rescue Region
U	USCG	United States Coast Guard
	USD	US Dollar
V	VHF	Very High Frequency

# Feasibility Study Report for Indonesia Ship Reporting System

## CONTENTS

Preface

Map

Photos

Abbreviations

1. Introduction .....	5- 1
2. Necessity of Ship Reporting System in Indonesia .....	5- 7
3. Concept of Indonesia Ship Reporting System .....	5- 9
4. Contents of the Project .....	5-12
5. Preparation for the Project .....	5-18
6. Setting up of Executing Organization .....	5-18
7. Implementation Schedule .....	5-18
8. Project Cost Estimate .....	5-19
9. Operation and Maintenance Cost .....	5-21
10. Economic Analysis .....	5-24
11. Finance Analysis .....	5-27

Reference 5.1. Japanese Ship Reporting System (JASREP)

Reference 5.2. IMO Resolution A.851 (20):

General Principles for Ship Reporting Systems and Ship  
Reporting Requirements, including Guidelines for Reporting  
Incidents involving Dangerous Goods, Harmful Substances  
and/or Marine Pollutants

Reference 5.3. IMO Resolution MSC.74 (69) Annex 3:

Recommendation on Performance Standards for an Universal  
Shipborne Automatic Identification System (AIS)

## TABLE

Table 5.1.	Outline of Ship Reporting System of Each Country	5- 6
Table 5.2.	Establishment Plan for Ship Reporting System	5-17
Table 5.3.	Implementation Time Schedule for Ship Reporting System	5-20
Table 5.4.	Estimated Cost for Establishment of Ship Reporting System	5-22
Table 5.5.	Initial and Running Cost for INDOSREP	5-23
Table 5.6.	Benefits and Costs for Ship Reporting System	5-25
Table 5.7.	“With” Case and “Without” Case for Ship Reporting System	5-26
Table 5.8.	Total Amount of Investment for Ship Reporting System	5-27
Table 5.9.	Forecast of Total Amount of Light Dues	5-28
Table 5.10.	Financial Analysis for Ship Reporting System	5-29
Table 5.11.	Necessary Funds and Light Dues	5-30
Table 5.12.	Necessary Light Dues by Market Interest Rate	5-30
Table 5.13.	Sensitive Analysis	5-30

## FIGURE

Figure 5.1.	Concept of Ship Reporting System	5- 2
Figure 5.2.	Ship Reporting Manners (Example in JASREP)	5- 3
Figure 5.3.	Typical Rescue Flow in Distress at Sea	5- 4
Figure 5.4.	Ship Reporting Systems in Asia-Pacific Region	5- 5
Figure 5.5.	Area of Ship Reporting System in Indonesia (for Example, by SRR)	5-10
Figure 5.6.	System Configuration of INDOSREP	5-13
Figure 5.7.	Flow Chart of Report and Data	5-14
Figure 5.8.	VHF AIS Signal Transfer Concept and Display Images	5-15
Figure 5.9.	Project Sites of Ship Reporting System	5-16
Figure 5.10.	Indonesia Ship Reporting Center (Proposed Plan)	5-19

## APPENDIX

Appendix 5.1.	An Example of Successful Rescue under JASREP
Appendix 5.2.	Encouragement for Reporting by Japanese Government

# Feasibility Study Report for Indonesia Ship Reporting System

## 1. Introduction

### (1) Requirements of SAR Convention

“International Convention on Maritime Search and Rescue (SAR Convention) 1979” which has become effective since 1985, stipulates in Chapter 6 (Ship Reporting Systems);

“6.1.1 Parties should establish a ship reporting system for application within any search and rescue region for which they are responsible, where this is considered necessary to facilitate search and rescue operations and is deemed practicable.” and

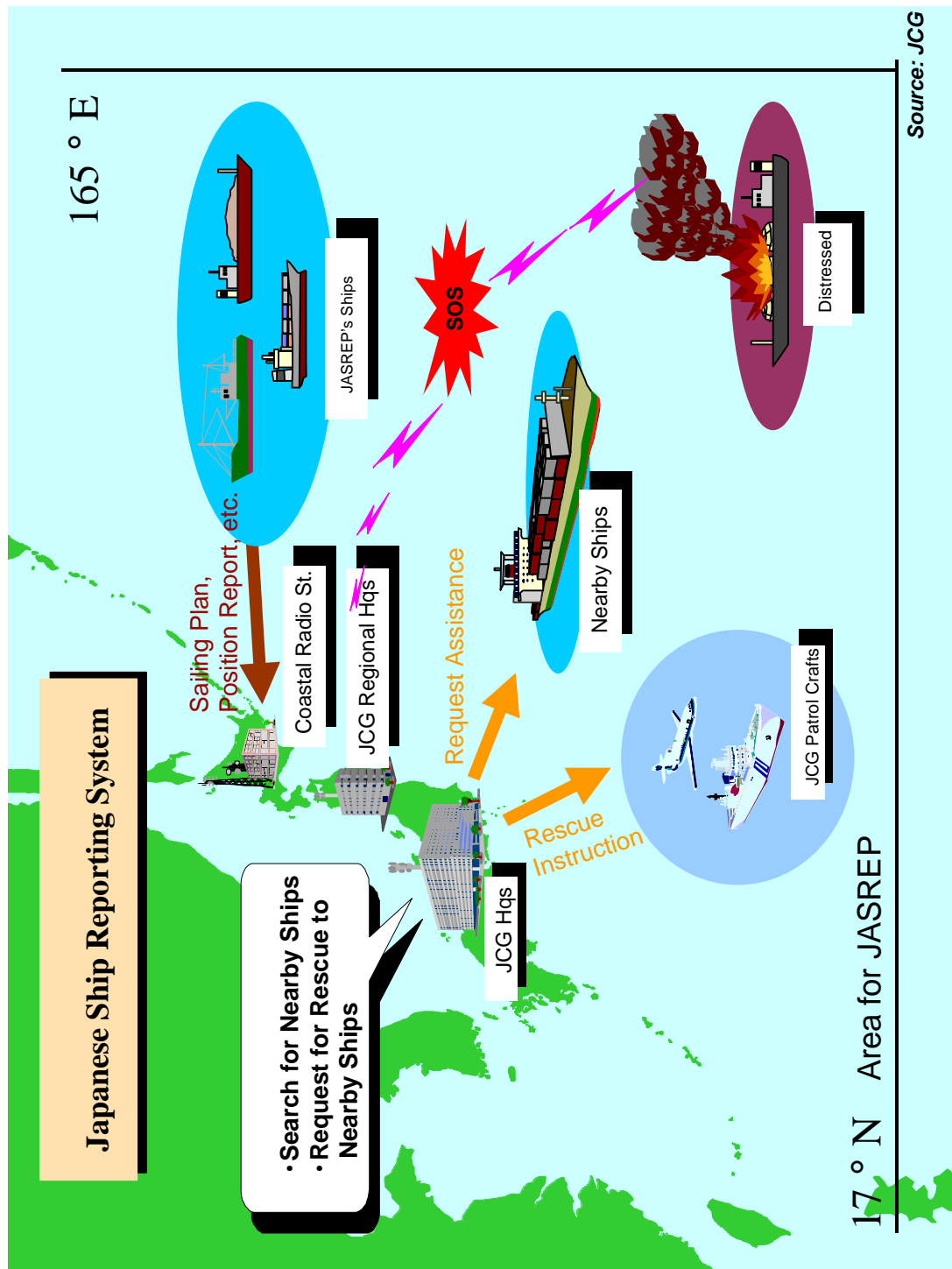
“6.1.3 Ship Reporting System should provide up-to-date information on the movements of vessels in order, in the event of a distress incident:

- a. To reduce the interval between the loss of contact with a vessel and the initiation of search and rescue operations in cases where no distress signal has been received;
- b. To permit rapid determination of vessels which may be called upon to provide assistance;
- c. To permit delineation of a search area of limited size in case the position of a vessel in distress is unknown or uncertain; and
- d. To facilitate the provision of urgent medical assistance or advice to vessels not carrying a doctor.”

In consequence, a Ship Reporting System provides up-to-date information on the movements of vessels in order to give a quick and maximum assistance by participating vessels to a vessel which may be in distress, and in order to facilitate a quick search and rescue (SAR) operation in case of missing of a participating vessel.

**Figure 5.1.** illustrates the concept of a Ship Reporting System and **Figure 5.2.** shows the reporting manners of the System by examples of Japanese Ship Reporting System (JASREP).

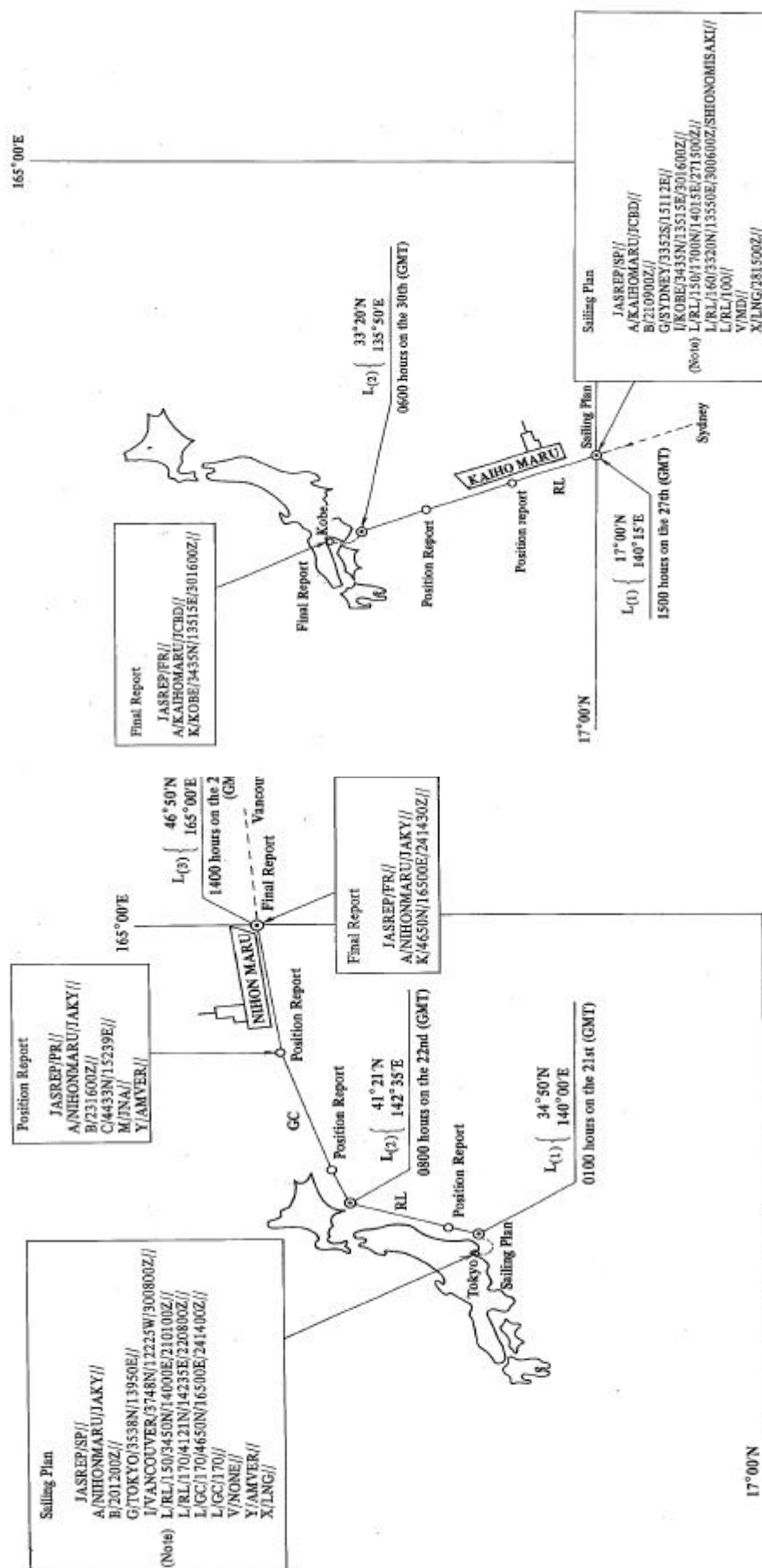
Figure 5.1. Concept of Ship Reporting System



**Figure 5.2. Ship Reporting Manner (example in JASREP)**

for departing Ship

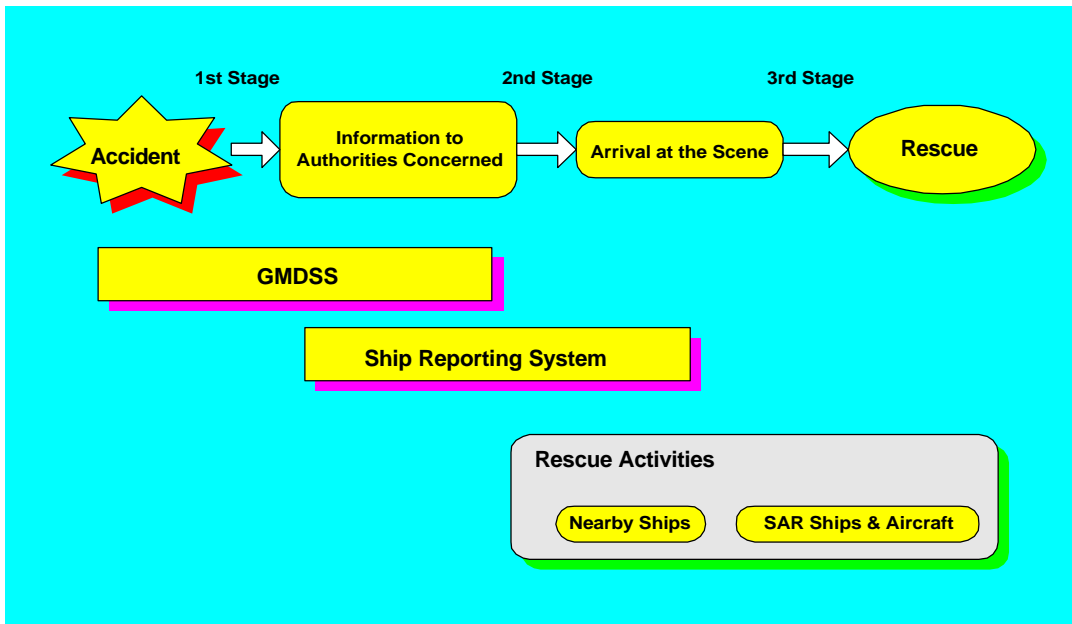
for arriving ship



Source: JCG

As **Figure 5.3.** shows a typical rescue flow in distress at sea, a Ship Reporting System plays an important role in maritime search and rescue in conjunction with Global Maritime Distress and Safety System (GMDSS).

**Figure 5.3. Typical Rescue Flow in Distress at Sea**



**Appendix 5.1.** shows an example of a successful rescue under JASREP. Ship reporting systems are in these days used to provide data for many purposes, not only for search and rescue but also for preventing marine pollution, countermeasures against crimes at sea, etc.

Under these circumstances, International Maritime Organization (IMO) has adopted Resolution A.851 (20) “General Principles for Ship Reporting Systems and Ship Reporting Requirements, including Guidelines for Reporting Incidents involving Dangerous Goods, Harmful Substances and/or Marine Pollutants” in 1997.

Resolution A.851 (20) specifies;

- Types of Reports including General Report and Special Report,
- Standard Reporting Format and Procedures,
- Guidelines for Detailed Reporting Requirements, etc.

**Appendix 5.2.** shows Japanese Government is encouraging for expanded ship reporting after the simultaneous multi-terrorism in the United States on 11 September 2001, considering that there will be threat to ships such as terrorism and piracies hereafter.

## (2) Expansion of Ship Reporting Systems in Asia-Pacific

AMVER (Automated Mutual-assistance Vessel Rescue system), the Ship Reporting System of the United States has been operated since 1958, which has made significant achievements in saving human lives making history in this field.

Thereafter, the System has been established in many countries, for Asia-Pacific regions, AUSREP (Australia), JASREP (Japan), INSPIRES (India), STRAITREP (The Strait of Malacca and Singapore), KOSREP (Korea) and CHISREP (China), have started and contributed greatly to maritime safety, especially in the sea area of less rescue forces.

Service area of each Ship Reporting System in Asia-Pacific region is shown in **Figure 5.4.** and the outline of each System is shown in **Table 5.1.**

**Figure 5.4. Ship Reporting Systems in Asia-Pacific Region**



**Table 5.1. Outline of Ship Reporting System of Each Country**

	JASREP	AMVER	KOSREP	AUSREP	CHISREP
	Japan	USA	Korea	Australia	China
Area to be covered	North of 17 ° N West of 165 ° E	All over the World.	North of 30 ° N South of 40 ° N West of 135 ° E	Refer to the figure.	North of 9 ° N West of 130 ° E
Participating ships	All ships within the Area. (Voluntary)	Ships of 1000GT or over which navigates for 24 hours or more.	Passenger ships engaged in international navigation; Cargo ships of 300GT or over.	Mandatory for merchant ships of Australian flag and foreign ships navigating between ports of Australia; Other ships are recommended to participate while in the AUSREP Area.	Chinese ships of 300GT or over engaged in international navigation; Chinese ships of 1600GT or over; Foreign ships departing from and/or entering into Chinese ports; Ships participating voluntarily.
Type of report	Sailing plan Position report Deviation report Final report	Sailing plan Position report Deviation report Arrival report	Sailing plan Position report Deviation report Final report	Sailing plan Position report Deviation report Final report	Sailing plan Position report Deviation report Final report, and Dangerous goods, Harmful substances and Marine pollutant reports
Reporting interval	24 hours	Within 24 hours after departure, and thereafter every 48 hours.	12 hours	24 hours	24 hours
Implementing authority	Japan Coast Guard	United States Coast Guard	National Maritime Police Agency	Australian Maritime Safety Authority	Chinese Maritime safety Administration
Remarks	Linking with AMVER.  Since 1985.	Linking with JASREP and AUSREP.  Since 1958.	  Since 1999.	Linking with AMVER.  Since 1972.	  Since 2000.

On the other hand, in 1999, the Experts Meeting on Ship Reporting Systems hosted by Japan Coast Guard was held in Tokyo inviting the participants from Asia-Pacific region countries: Australia, China, Indonesia, Korea, Malaysia, Philippines, Russia, Singapore, United States and Japan.

The expansion and the cooperation of Ship Reporting Systems in Asia-Pacific region will be forwarded hereafter.

## **2. Necessity of Ship Reporting System in Indonesia**

- (1) A Ship Reporting System provides up-to-date information on the movements of vessels in order to give a quick and maximum assistance by participating vessels to a vessel which may be in distress, and in order to facilitate a quick SAR operation in case of missing of a participating vessel.

A Ship Reporting System plays an important role in maritime search and rescue in conjunction with distress and safety communication system by GMDSS.

SAR Convention which has become effective since 1985 recommends a contracting Governments to establish a ship reporting system for application within its search and rescue region for which it is responsible, where this is considered necessary to facilitate search and rescue operations and is deemed practicable.

- (2) AMVER, the Ship Reporting System of the United States has been operated since 1958, which has made significant achievements in saving human lives making history in this field.

Thereafter, the System has been established in many countries, for Asia-Pacific regions, AUSREP (Australia), JASREP (Japan), INSPIRES (India), STRAITREP (The Strait of Malacca and Singapore), KOSREP (Korea) and CHISREP (China), have started and contributed greatly to maritime safety, especially in the sea areas of less rescue forces.

- (3) Ship reporting systems are in these days used to provide data for many purposes, not only for search and rescue but also for preventing marine pollution, countermeasures against crimes at sea, etc.

Under these circumstances, IMO has adopted Resolution A.851 (20) "General Principles for Ship Reporting Systems and Ship Reporting Requirements,

including Guidelines for Reporting Incidents involving Dangerous Goods, Harmful Substances and/or Marine Pollutants” in 1997.

After the simultaneous multi-terrorism in the United States on 11 September 2001, Japanese Government (Ministry of Land, Infrastructure and Transport, and Japan Coast Guard) is encouraging expanded ship reporting, considering that there will be threat to ships such as terrorism and piracies hereafter.

- (4) In the Straits of Malacca and Singapore and Indonesian archipelagic sea lanes, there are many transiting vessels for international transportation, and many passenger and cargo vessels for coastal and inter-island shipping. This means Indonesian waters are in good surroundings to give and get mutual assistances by navigating vessels.
- (5) The Republic of Indonesia, as a big maritime state in the world, has a vital responsibility for maritime SAR operation and preventing marine pollution, but vessels for SAR operation are extremely insufficient in quantity and quality.

Therefore, in many cases of marine accidents, SAR authorities have to request for assistance to nearby navigating vessels.

- (6) A lot of human lives have been lost every year in Indonesian waters by serious marine accidents. A Ship Reporting System gives a quick and maximum assistance to a ship in distress and contributes to the decrease of victims at sea.

In case of a passenger ship “Retsu Ilahi” sank at Makassar strait on 27 May 2001, 49 persons are still missing, and 44 persons were rescued in several times within 9 days. If a Ship Reporting System had been established, a lot of lives would have been rescued by nearby ships.

As Indonesian waters have moderate temperature and calm sea, persons in waters can live longer. Therefore, the introduction of a Ship Reporting System may greatly contribute to the rescue for distress persons.

- (7) Indonesia Ship Reporting System should have the vast reporting area to cover the whole Indonesian Search and Rescue Region (SRR).

As DGSC fortunately owns many coast stations throughout Indonesia,

Indonesia Ship Reporting System can be established with low cost and in short term using these existing coast stations.

At the first stage,

- Existing DSC/NBDP at major coast stations (1<sup>st</sup>, 2<sup>nd</sup> and 3<sup>rd</sup> class) should be utilized.
- In addition, Automatic Identification System (AIS) using VHF which will be installed on vessels from 2002, should be introduced at the 1<sup>st</sup> and 2<sup>nd</sup> class stations in order to adopt an automatic position-detecting system.

- (8) Budget from the Light Dues has been allotted to DGSC from 2001, thereby the maintenance and training fee for the maritime telecommunication system have been substantially increased and the maintenance conditions will be greatly improved hereafter.

### **3. Concept of Indonesia Ship Reporting System**

The concept of proposed Indonesia Ship Reporting System is as follows:

(1) System's Name

Indonesia Ship Reporting System is tentatively called INDOSREP.

(2) Area to be covered

Search and Rescue Region (SRR) will be suggested as a reporting area in accordance with SAR Convention.

**Figure 5.5.** shows the area of the Indonesian SRR. This area is too complicated and does not seem to be practical for a ship reporting system. Therefore, further study including negotiations with neighboring countries is required to make a practical reporting area based on Indonesian SRR.

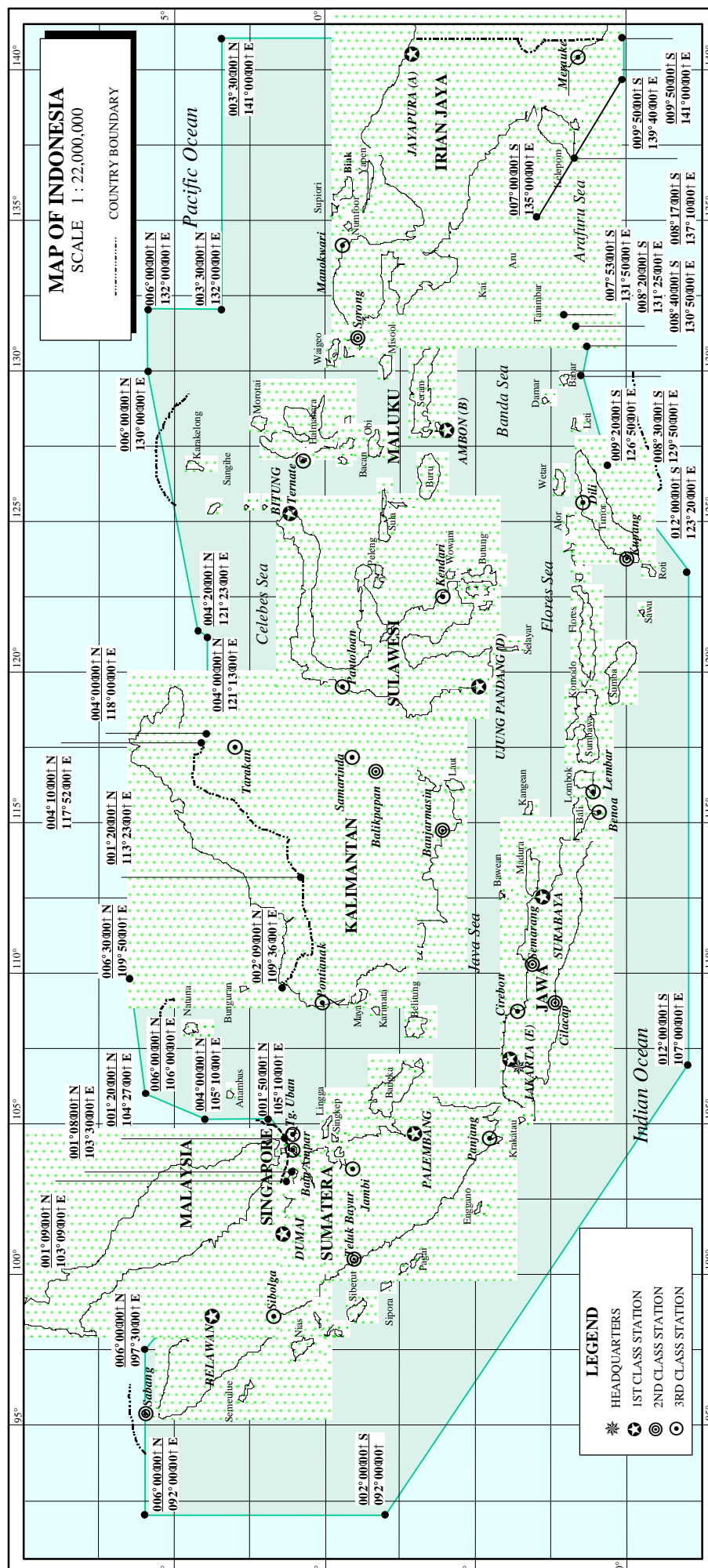
(3) Participating Ships

Basically, any kinds of vessels regardless of nationality are welcomed. Further study for categories on participating ships, based on relevant various regulations and current situation of maritime traffic, is required.

(4) Type of Report

The following reports will be planned in accordance with the IMO Resolution A.851 (20).

**Figure 5.5. Area of Ship Reporting System in Indonesia (for Example, by SRR)**



General Reports;

Sailing plan (SP)	for departure
Position report (PR)	with necessary interval
Deviation report (DR)	as needed
Final report (FR)	on arrival at destination

Special Reports;

Dangerous goods report (DG)	when an incident takes place
Harmful substances report (HS)	when an incident takes place
Marine pollutants report (MP)	in the case of loss or likely loss overboard of harmful substances

(5) Reporting Interval

Basically within 24 hours. Further study, based on the features of an archipelagic Indonesian waters and the current situation of maritime traffic, is required.

(6) Implementing Authority

Implementing authority of Indonesia Ship Reporting System is recommended to be DGSC which directs and supervises coast stations and patrol vessels in Indonesia.

(7) Introduction of INDOSREP

This System is recommended to introduce in the following two stages:

[1st stage]

Existing DSC/NBDP at major coast stations (1<sup>st</sup>, 2<sup>nd</sup> and 3<sup>rd</sup> class) should be utilized.

In addition, Automatic Identification System (AIS) using VHF which will be installed on vessels from 2002, should be introduced at the 1<sup>st</sup> and the 2<sup>nd</sup> class coast stations in order to adopt an automatic position-detecting system.

[2nd stage]

The introduction of AIS using VHF should be expanded to the 3<sup>rd</sup> class coast stations.

In Addition, application of a long range AIS which is now under technological study at International Telecommunication Union (ITU), will be utilized.

#### 4. Contents of the Project

Major system composition of INDOSREP is Report Receiving Stations, Report Sub-Centers, Ship Reporting Center and data transmission lines. System configuration is shown in **Figure 5.6.**, and the flow chart of the reports and data is shown in **Figure 5.7.**

##### (1) Report Receiving Stations

Report Receiving Stations( Receiving Stations )will be set up at the major coast stations (1<sup>st</sup>, 2<sup>nd</sup> and 3<sup>rd</sup> class).

- 1<sup>st</sup> class (9): Belawan, Dumai, Palembang, Jakarta, Surabaya, Makassar, Bitung, Ambon and Jayapura
- 2<sup>nd</sup> class (9): Sabang, Teluk Bayur, Semarang, Cilacap, Benoa(\*), Kupang, Banjarmasin, Balikpapan and Sorong
- 3<sup>rd</sup> class (31): Sibolga, Batu Ampar, Sei Kolak Kijang, Panjang, Lembar, Pontianak, Samarinda, Tarakan, Kendari, Bau-bau, Pantoloan, Ternate, Manokwari, Biak, Merauke, Tapaktuan(\*), Natuna(\*), Pangkal Balam(\*), Benkulu(\*), Bima(\*), Ende(\*), Ketapang(\*), Sampit(\*), Poso(\*), Toli-toli(\*), Tahuna(\*), Tual(\*), Saumlaki(\*), Sanana(\*), Fak-fak(\*) and Agats(\*)

Note: (\*) Station to be up-graded after GMDSS installation

The Receiving Stations receive reports from participating ships by;

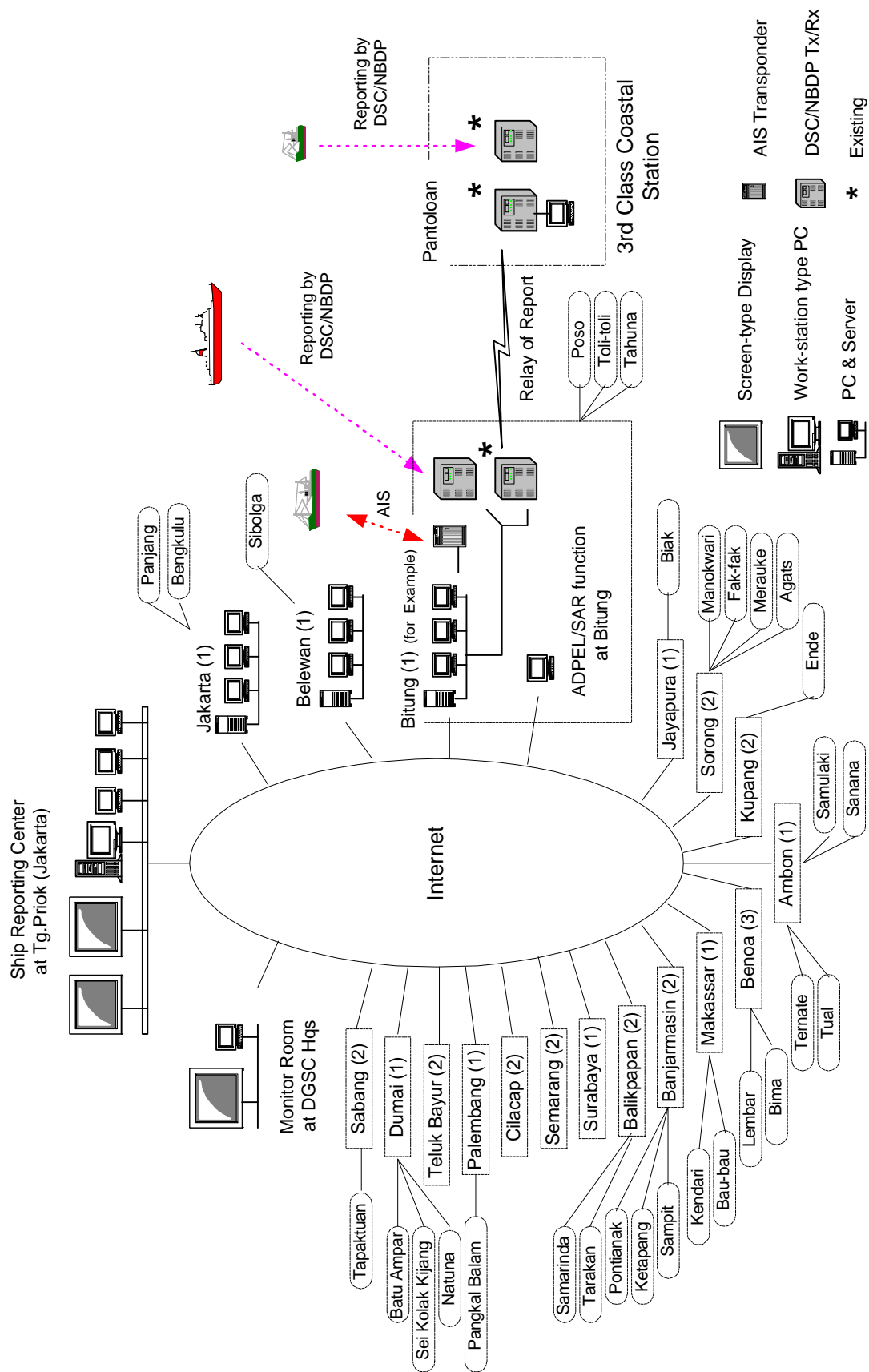
- HF DSC/NBDP : 1<sup>st</sup> and 2<sup>nd</sup> stations
- MF DSC/NBDP : 1<sup>st</sup>, 2<sup>nd</sup> and 3<sup>rd</sup> stations
- VHF AIS : 1<sup>st</sup> and 2<sup>nd</sup> stations
- INMARSAT, e-mail and other public networks

The 3<sup>rd</sup> class station sends the reports to each Report Sub-Center after receiving.

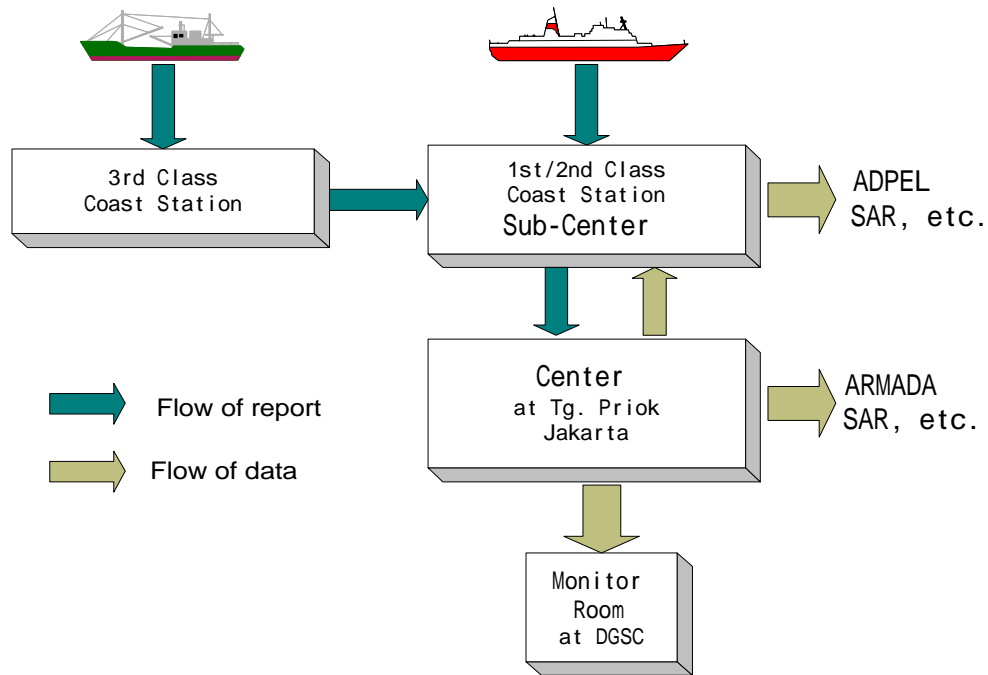
##### (2) Report Sub-Centers

Report Sub-Centers (Sub-Centers) will be set up at nine (9) of 1<sup>st</sup> class and nine (9) of 2<sup>nd</sup> class coast stations.

**Figure 5.6. System Configuration of INDOSREP**



**Figure 5.7. Flow Chart of Report and Data**



Sub-Centers collect reports directly from participating ships or the 3<sup>rd</sup> class coast stations, and send the data to Ship Reporting Center in Jakarta. Also, Sub-Centers receive processed data from Ship Reporting Center and send the data to ADPEL and other SAR related organizations as needed.

### (3) Ship Reporting Center

Ship Reporting Center (Center) will be set up at transmitting site of Jakarta coast station, Tg. Priok.

Center collects, processes, analyzes and stores various reports received from Sub-Centers or directly from ships through INMARSAT and other public networks. Also, Center sends the processed data to Sub-Centers, and to DGSC, ARMADA PLP and SAR related organizations as needed.

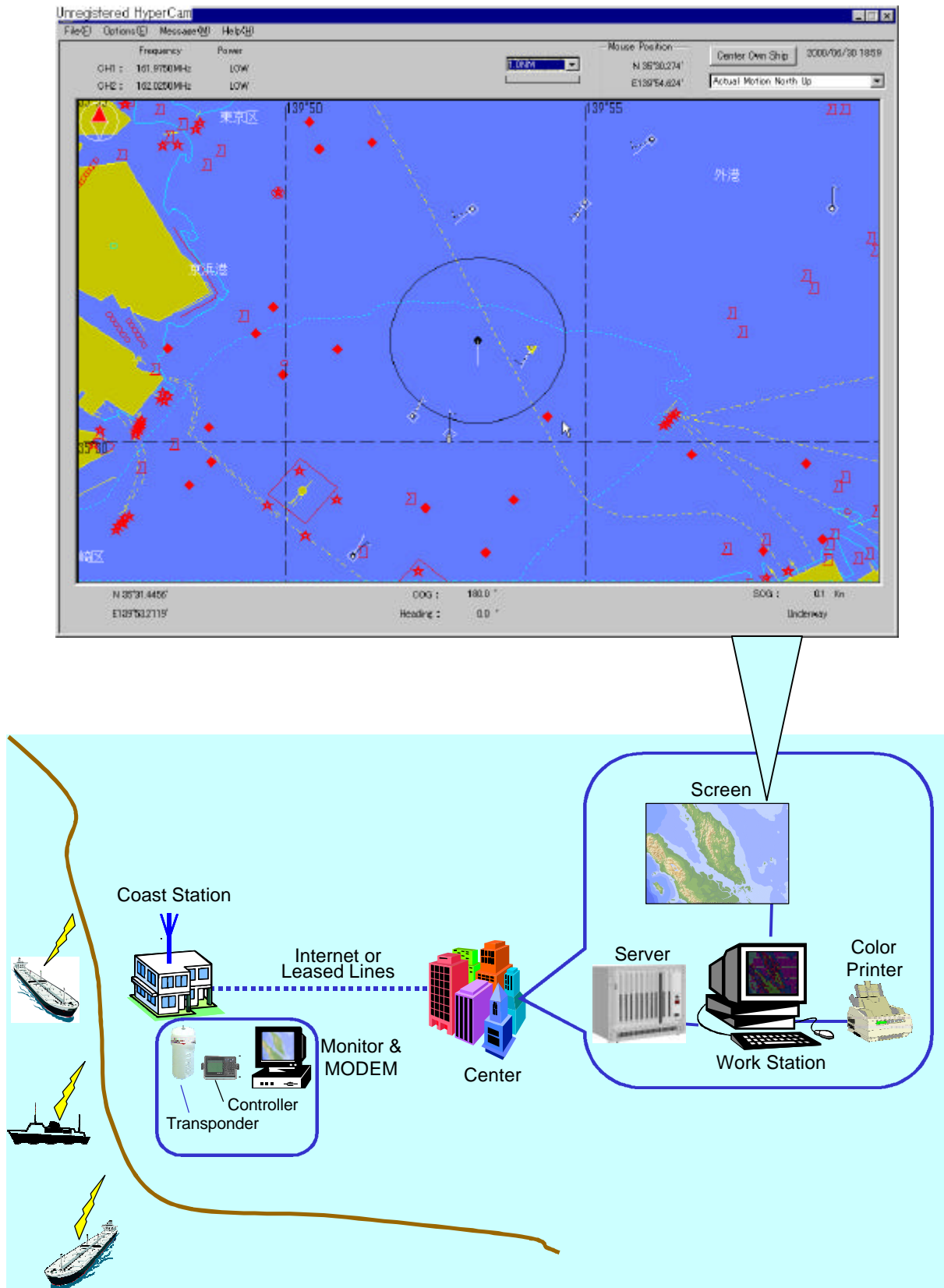
### (4) Data transmission lines

Telecommunication line for reports transmission on land is as follows:

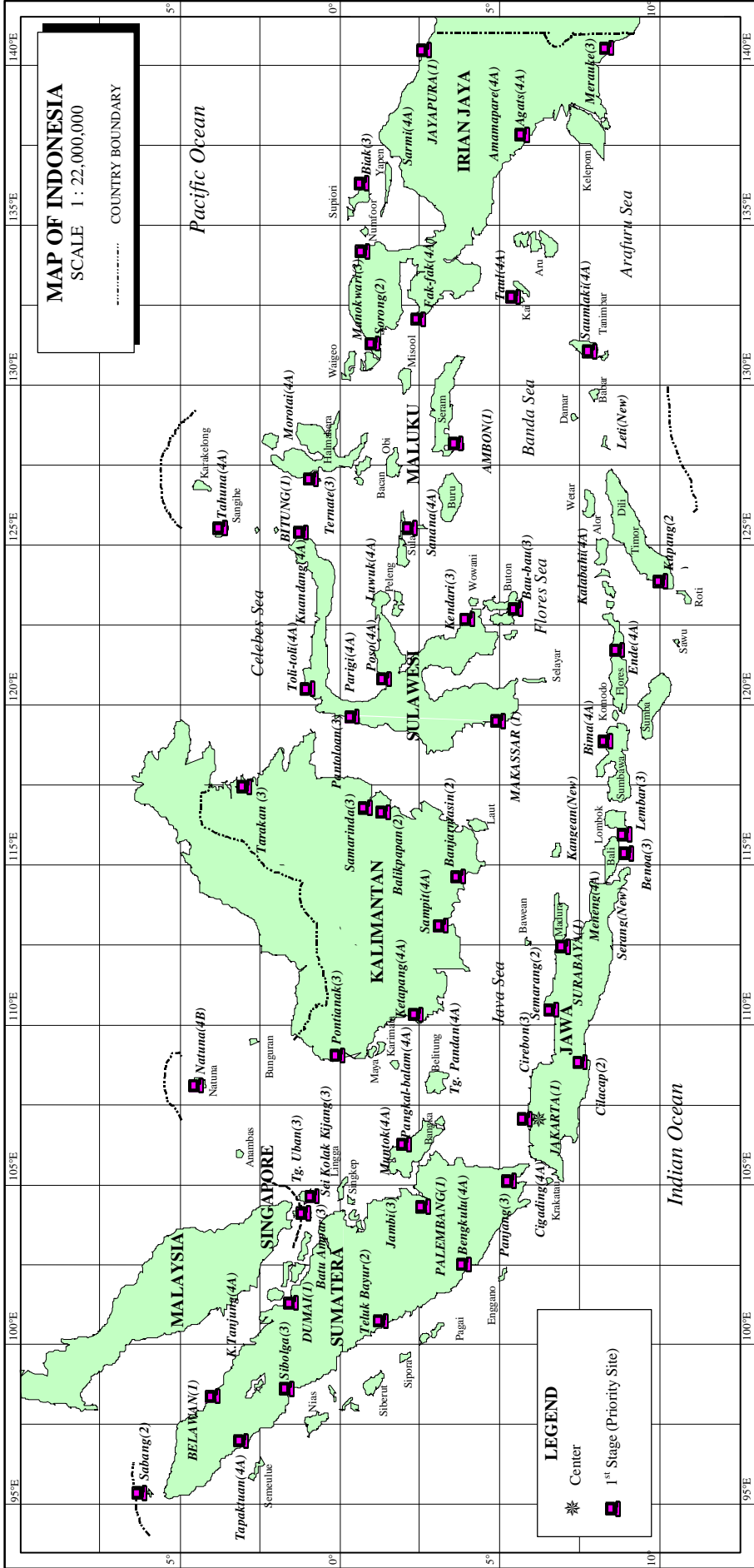
Center	~	Sub-Centers	:	Internet / Existing HF
Sub-Centers	~	3 <sup>rd</sup> class stations	:	Existing HF

VHF AIS signal transfer concept and its display images are shown in **Figure 5.8.**, and **Figure 5.9.** and **Table 5.2.** show the project sites of INDOSREP.

**Figure 5.8. VHF AIS Signal Transfer Concept and Display Images**



### Figure 5.9. Project Sites of Ship Reporting System



**Table 5.2. Establishment Plan for Ship Reporting System**

Class	Name	Center	Sub-center	Controlling & Monitoring	(A3) HF DSC/NBDP	(A2) MF DSC/NBDP	(A1) VHF AIS
	Center (at Tg. Priok)						
	Monitor Room (at HQ)			(Monitoring)			
<b>I</b>	1 Belawan						
	2 Dumai						
	3 Palembang						
	4 Jakarta						
	5 Surabaya						
	6 Makasar						
	7 Bitung						
	8 Ambon						
	9 Jayapura						
<b>II</b>	1 Sabang						
	2 Teluk Bayur						
	3 Semarang						
	4 Cilacap						
	5 Kupang						
	6 Banjarmasin						
	7 Balikpapan						
	8 Sorong						
<b>III</b>	1 Sibolga						
	2 Batu Ampar						
	3 Sei Kolak Kijang						
	4 Panjang						
	5 Benoa						
	6 Lembar						
	7 Pontianak						
	8 Samarinda						
	9 Tarakan						
	10 Kendari						
	11 Bau-bau						
	12 Pantoloan						
	13 Ternate						
	14 Manokwari						
	15 Biak						
	16 Merauke						
<b>IV</b>	1 Tapaktuan						
	2 Natuna						
	3 Pangkal Balam						
	4 Bengkulu						
	5 Bima						
	6 Ende						
	7 Ketapang						
	8 Sampit						
	9 Poso						
	10 Toli-toli						
	11 Tahuna						
	12 Tual						
	13 Saumlaki						
	14 Sanana						
	15 Fak-fak						
	16 Agats						
<b>Total (1st Stage)</b>				<b>2</b>	<b>12</b>	<b>49</b>	<b>18</b>

**5. Preparation for the Project**

In advance of the establishment of a Ship Reporting System, the following items should be clarified, taking account of various relevant regulations, maritime traffic and negotiations with neighboring countries.

- a. Area to be covered
- b. Participating ships
- c. Type of reports
- d. Reporting interval
- e. Operation scheme and rules, etc

For that purpose, the following cooperation from a Ship Reporting implementing country (hereafter referred to as “implementing country”) is needed.

- (1) Training and guidance by an expert in charge of operation from an  
implementing country ----- 12 months
- (2) Training and guidance by an expert (technician) from an implementing  
country ----- 2~3 months
- (3) Study at an implementing country by several DGSC officials in charge of  
operation and technology ----- 2~3 months

**6. Setting up of Executing Organization**

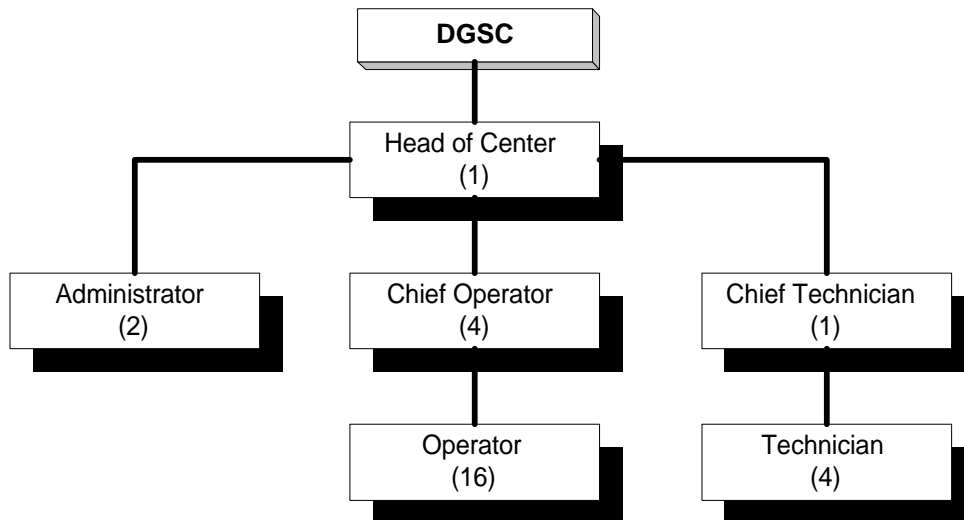
Indonesia Ship Reporting Center will be set up at Tg.Priok which will execute the whole tasks on management, operation and maintenance for Indonesia Ship Reporting System.

The proposed plan of Indonesia Ship Reporting Center is shown in **Figure 5.10**.

**7. Implementation Schedule**

Implementation time of this Project is estimated for 42 months and the schedule is shown in **Table 5.3**.

**Figure 5.10. Indonesia Ship Reporting Center (Proposed plan)**



Duty

Administrator: Management and administration

Operator : Collecting and analyzing reports, and disseminating processed data

Technician : Maintenance works

## **8. Project Cost Estimate**

### **8.1. Project cost and Financing**

The required cost for this Project consists of foreign currency portion and local currency portion with details as follows:

(1) Foreign currency portion will be used for:

- a. Supply of the equipment
  - Equipment and materials
  - Ocean freight and insurance
- b. Consulting services
- c. Training and test (at factory)
- d. Contingency

(2) Local currency portion will be used for:

- a. Supply of the equipment
  - Local equipment and materials
  - Installation and local transportation
- b. Consulting services
- c. Training and test (in Indonesia)
- d. Contingency



## 8.2. Project Cost

a. Center	:	US\$ 1,778,700
b. Sub-Center (1 <sup>st</sup> & 2 <sup>nd</sup> class stations)	:	US\$ 9,355,500
c. 3 <sup>rd</sup> class stations	:	US\$ 314,160
<u>Total</u>		<u>US\$ 11,448,360</u>

**Table 5.4.** shows the estimated project cost for Indonesia Ship Reporting System.

## 9. Operation and Maintenance Cost

Most equipment for INDOSREP will be installed at existing coast stations. Accordingly, most proportion of running cost is used for the following purposes:

- Repairing and/or purchasing spare unit/parts
- Delivering the above goods to/from Jakarta and/or manufacturer's country
- Purchasing consumable spares
- Telephone including internet, electricity, etc.

Total running cost of this Project is estimated US\$ 138,600 per year.

However, as **Table 5.5.** indicates, running cost after 15 years becomes higher. The lifetime of telecommunication equipment is usually 15 years or so after installation, because the provision of spare parts/units by manufacturers expires. Therefore, around half of equipment will be replaced after 15 years of so.

**Table 5.4. Estimated Cost for Establishment of Ship Reporting System (Urgent, Short Range AIS Stage)**

Unit: US\$

		Cost				Remarks
		Unit amount	Q'ty	Sub total	Total	
A	EQUIPMENT AND SERVICES 1 Center (Tg. Priok) Work-station, PC, Interface Display 2 sets Monitor system (PC & display) at HQ	60,000	1	60,000	310,000	WS: 100Gbit Display: 100" XGA or SXGA
		80,000	2	160,000		
		90,000	1	90,000		
	2 1st & 2nd class coast station NBDP transmitter & receiver Coastal type VHF AIS transponder Saver, PC, Interface PC with interface at SAR function	375,000	18	6,750,000	8,100,000	6,075,000 810,000
		50,000	18	900,000		
		20,000	18	360,000		
		5,000	18	90,000		
	3 3rd class coast station PC with interface	8,000	34	272,000	272,000	272,000
	4 Software Map for entire Indonesia and regional areas Map for harbor/port t, l calculation and mapping/plotting AIS monitoring and mapping	50,000	1	50,000	1,230,000	5,000 18,000 100,000 450,000
		10,000	18	180,000		
		500,000	1	500,000		
		500,000	1	500,000		
	Equipment and Services Total (1)				9,912,000	7,458,000
B	CONSULTING SERVICES (2)				991,200	991,200
C	CONTINGENCY (3)				545,160	545,160
	PROJECT TOTAL				11,448,360	8,994,360

Foreign and Local Costs	
a. Foreign Cost	8,994,360
b. Local Cost	2,454,000
Total	11,448,360

**Table 5.5. Initial and Running Cost for INDOSREP**

Unit: Thousand US\$

	Calendar year	Initial Cost			Running Cost		
		Consultant	Contractor	Total	Repairing	Telephone & others	Total
	2002						
	2003						
	2004						
	2005	297.4		297.4			
	2006	297.4	1,982.4	2,279.8			
1	2007	297.4	5,451.6	5,749.0			
2	2008	148.7	2,973.6	3,122.3	93.0	45.6	138.6
3	2009			0.0	93.0	45.6	138.6
4	2010			0.0	93.0	45.6	138.6
5	2011			0.0	93.0	45.6	138.6
6	2012			0.0	93.0	45.6	138.6
7	2013			0.0	93.0	45.6	138.6
8	2014			0.0	93.0	45.6	138.6
9	2015			0.0	93.0	45.6	138.6
10	2016			0.0	93.0	45.6	138.6
11	2017			0.0	93.0	45.6	138.6
12	2018			0.0	93.0	45.6	138.6
13	2019			0.0	93.0	45.6	138.6
14	2020			0.0	241.7	45.6	287.3
15	2021			0.0	1,232.9	45.6	1,278.5
16	2022			0.0	2,967.5	45.6	3,013.1
17	2023			0.0	1,654.1	45.6	1,699.7
18	2024			0.0	93.0	45.6	138.6
19	2025			0.0	93.0	45.6	138.6
20	2026			0.0	93.0	45.6	138.6
21	2027			0.0	93.0	45.6	138.6
22	2028			0.0	93.0	45.6	138.6
23	2029			0.0	93.0	45.6	138.6
24	2030			0.0	93.0	45.6	138.6
25	2031			0.0	93.0	45.6	138.6
26	2032			0.0	93.0	45.6	138.6
27	2033			0.0	93.0	45.6	138.6
28	2034			0.0	93.0	45.6	138.6
29	2035			0.0	93.0	45.6	138.6
30	2036			0.0	93.0	45.6	138.6
		1,040.8	10,407.6	11,448.4			9,742.7

## 10. Economic Analysis

### (1) Purpose

To plan effective use of limited resource (human resources, commodities, currency), cost benefit analysis should be implemented quantitatively as far as possible on the viewpoint of effective utilization of resources. The items, which cannot be converted into currency, will be implemented by qualitative analysis.

### (2) Specification of the project

It is to establish a Ship Reporting System; the existing coast stations (1<sup>st</sup> class: 9 stations, 2<sup>nd</sup> class: 9 stations, 3<sup>rd</sup> class: 31 stations) should be installed with related equipment.

### (3) Evaluation Periods of Projects

The evaluation periods of projects should be normally the same as the loan reimbursement periods. In case of ODA loans, loan period is 30 years, grace period of the principal is 10 years.

#### a. The periods for analysis

The periods of analysis are basically settled on termination of year for use.

#### b. Termination year for use

Termination year for use of almost half of equipment used in the project is around 15 years.

### (4) Approach and Methodology of the Economic Analysis

The primary reason of the selection for ship reporting system is that International Convention on Maritime Search and Rescue, 1979 (SAR Convention) recommends to establish it.

#### Benefits and costs

By development of ship reporting system, benefits and costs are analyzed in **Table 5.6**.

**Table 5.6. Benefits and Costs for Ship Reporting System**

	Items	Contents	Party to be belonged
Benefits	• Increasing probability of rescue	• SAR authorities order the nearby ship to save the ship in distress. By this way, decrease victims. In case of man overboard, SAR authorities order the nearby ship to search the man overboard, victims will decrease.	Ship's owner, crew, crew's family, GOI
	• Increasing navigational safety	• SAR authorities grasp all ships which report to them, in case of stop of reporting, SAR authorities start SAR operation.	
	• Decreasing search costs in distress	• SAR authorities can know the approximate position of ship in distress, therefore rescue ship can arrive the position easily.	GOI
	• Increasing marine environmental protection	• SAR authorities can know ships with dangerous goods in their waters, they can take necessary measures.	GOI
Costs	• Occurrence of installation costs	• Installation costs for the project occur.	GOI
	• Occurrence of education and training costs	• Education and training cost occur by installation of new equipments.	Ship's owner, crew, GOI
	• Campaign costs to the public	• Campaign cost to the public increase.	GOI

“With” case and “Without” case

By expansion and improvement of Ship Reporting System, Benefits are analyzed as “With” case and “Without” case in **Table 5.7**.

**Table 5.7. “With” Case and “Without” Case for Ship Reporting System**

Items	“With” Case	“Without” Case
Probability of rescue	Increasing <ul style="list-style-type: none"><li>• SAR authorities order the nearby ship to save the ship in distress, victims will decrease.</li></ul>	No change <ul style="list-style-type: none"><li>• SAR authorities can not specify the nearby ship, therefore they can not order the particular ship to save the ship in distress. Probability of rescue will maintain the present condition.</li></ul>
Navigational safety	Increasing <ul style="list-style-type: none"><li>• SAR authorities grasp all ships which report to them, in case of stop of reporting, they start SAR operation, increase navigational safety.</li></ul>	No change <ul style="list-style-type: none"><li>• SAR authorities can not grasp what ships are in Indonesian waters, therefore ship in distress without no reporting can not expect the rescue operation. Navigational safety will maintain the present condition.</li></ul>
Search costs in distress	Decreasing <ul style="list-style-type: none"><li>• SAR authorities can know the approximate position of ship in distress, therefore rescue ship can arrive the position easily and decrease search costs.</li></ul>	No change <ul style="list-style-type: none"><li>• SAR authorities may not know the ship’s position in distress therefore rescue ship have to waste a time for search the ship in distress. Search costs in distress will maintain the present condition.</li></ul>
Marine environmental protection	Increasing <ul style="list-style-type: none"><li>• SAR authorities can know ships with dangerous goods in their waters, In case of oil spill, they can take necessary measures earlier, marine environmental protection will increase .</li></ul>	No change <ul style="list-style-type: none"><li>• SAR authorities can not know ships with dangerous goods in their waters, In case of oil spill, they can not take necessary measures earlier. Marine environmental protection will maintains the present condition.</li></ul>

Evaluation of Benefits and costs

Considering **Table 5.6.** and **Table 5.7.**, the items are very hard to convert into currency. But it has fairly strong effects for saving human lives at sea, navigational safety and environmental protection. A lot of human lives have been lost every year in Indonesian waters by serious marine accidents. Ship reporting system contributes above effects. The benefits for decreasing loss of human lives and increasing navigational safety are fully worth the projects costs.

## 11. Financial Analysis

### (1) Purpose

For this project, light dues will be available to cover the operation and maintenance cost. The financial analysis has been assessed in terms of FIRR (Financial Internal Rate of Return).

### (2) Total amount of investment

Total amount of investment for this project is estimated in **Table 5.8**.

**Table 5.8. Total Amount of Investment for Ship Reporting System**

Unit: Thousand US\$

Items	Foreign Cost	Local Cost	Total
Ship Reporting System	8,994	2,454	11,448

### (3) Raising funds for investment

The hypothetical terms and conditions the study team has implemented are to use official development plan (ODA) and market rate. ODA can be broadly divided into bilateral ODA and multilateral ODA. Bilateral ODA consist of bilateral grants and ODA loan. In this case, ODA loan that is the best terms and conditions among soft loans should be used.

The principal terms and conditions for ODA loan and market rate are as follows;

#### a. ODA Loan

15% of total amount of investment (foreign cost + local cost) should be paid from funds of GOI as a down payment.

85% of total amount of investment (foreign cost + local cost) should be loaned to GOI.

Loan period is 30 years, grace period of the principal is 10 years and interest rate is 1.8%.

#### b. Market Rate

15% of total amount of investment (foreign cost + local cost) should be paid from funds of GOI as a down payment.

85% of total amount of investment (foreign cost + local cost) should be loaned to GOI.

Loan period is 10 years and interest rate is 6 %.

(4) Calculation for revenue

Light dues shall be applied to civil works, facilities, machineries, consulting services and other project needs including operating costs, maintenance costs.

According to Communication Bureau of BAPPENAS, 50 % of light dues would be used for Aids to Navigation, supporting facilities and maritime telecommunication.

Total amount of light dues are shown in **Table 5.9**.

**Table 5.9. Forecast of Total Amount of Light Dues**

Unit: US\$

	Likeliest Case	Optimistic case	Pessimistic case
2001	13,094,871	13,094,871	13,094,871
2002	13,994,919	14,299,280	13,693,165
2003	15,175,099	15,840,522	14,529,724
2004	16,457,496	17,552,026	15,418,950
2005	17,851,062	19,452,916	16,364,140
2006	19,365,604	21,564,506	17,368,926
2007	21,011,787	23,910,529	18,437,133
2008	22,801,228	26,517,322	19,572,836
2009	24,746,609	29,414,371	20,780,317
2010	26,861,736	32,634,381	22,064,230
2011	28,511,141	35,219,045	23,028,102
2012	30,262,043	38,008,812	24,034,193
2013	32,120,739	41,019,967	25,084,356
2014	34,093,864	44,270,169	26,180,527
2015	36,188,427	47,778,381	27,324,760
2016	38,411,972	51,565,123	28,519,104
2017	40,772,431	55,652,583	29,765,799
2018	43,278,280	60,064,632	31,067,147
2019	45,938,441	64,827,119	32,425,552
2020	48,762,475	69,967,924	33,843,512

(5) Consideration of **FIRR**

a. FIRR by ODA loan

The initial costs, operating costs, maintenance costs and financial analysis are shown in **Table 5.10**.

Necessary light dues to achieve 1.8 % of **FIRR** (GDP: Likeliest Case) are 3.00 % of light dues.

Necessary funds and light dues (GDP: Likeliest Case) are shown in **Table 5.11**.

**Table 5.10. Financial Analysis for Ship Reporting System**

Light Dues

3.00%

Unit : Million US\$

period	No	Year	TTL Cost (Ship Reporting System)							Revenue					
			Civil	Consultant	Initial Cost Total	Operating & Maintenance	Grand Total	Funds (Initial Cost) 15%	Grand Total-Funds	GDP: Likeliest Case		GDP: Optimistic Case		GDP: Pessimistic Case	
										Light Dues		Light Dues		Light Dues	
			1	2	3=1+2	4	5=3+4	6=3 x 0.15	7=5-6	8	9=8-7	10	11=10-7	12	13=12-7
	1	2000													
	2	2001													
	3	2002													
	4	2003								0.455	0.455	0.475	0.475	0.435	0.435
	5	2004								0.493	0.493	0.526	0.526	0.462	0.462
	6	2005		0.297	0.297		0.297	0.045	0.253	0.535	0.282	0.583	0.330	0.490	0.237
	7	2006	1.982	0.297	2.280		2.280	0.342	1.938	0.580	-1.358	0.646	-1.292	0.520	-1.418
1	8	2007	5.452	0.297	5.749		5.749	0.862	4.887	0.629	-4.257	0.716	-4.170	0.552	-4.334
2	9	2008	2.974	0.149	3.122	0.139	3.261	0.46834	2.793	0.683	-2.109	0.794	-1.998	0.586	-2.206
3	10	2009				0.139	0.139		0.139	0.741	0.603	0.881	0.743	0.622	0.484
4	11	2010				0.139	0.139		0.139	0.805	0.666	0.978	0.839	0.661	0.522
5	12	2011				0.139	0.139		0.139	0.854	0.715	1.055	0.916	0.690	0.551
6	13	2012				0.139	0.139		0.139	0.907	0.768	1.139	1.000	0.720	0.581
7	14	2013				0.139	0.139		0.139	0.962	0.824	1.229	1.090	0.751	0.613
8	15	2014				0.139	0.139		0.139	1.021	0.883	1.326	1.188	0.784	0.646
9	16	2015				0.139	0.139		0.139	1.084	0.945	1.431	1.293	0.819	0.680
10	17	2016				0.139	0.139		0.139	1.151	1.012	1.545	1.406	0.854	0.716
11	18	2017				0.139	0.139		0.139	1.221	1.083	1.667	1.529	0.892	0.753
12	19	2018				0.139	0.139		0.139	1.296	1.158	1.799	1.661	0.931	0.792
13	20	2019				0.139	0.139		0.139	1.376	1.238	1.942	1.803	0.971	0.833
14	21	2020				0.287	0.287		0.287	1.461	1.173	2.096	1.809	1.014	0.727
15	22	2021				1.278	1.278		1.278	1.551	0.272	2.262	0.984	1.058	-0.220
16	23	2022				3.013	3.013		3.013	1.646	-1.367	2.442	-0.571	1.104	-1.909
17	24	2023				1.700	1.700		1.700	1.747	0.047	2.635	0.936	1.153	-0.547
18	25	2024				0.139	0.139		0.139	1.855	1.716	2.844	2.706	1.203	1.065
19	26	2025				0.139	0.139		0.139	1.969	1.830	3.070	2.932	1.256	1.117
20	27	2026				0.139	0.139		0.139	2.090	1.951	3.314	3.175	1.311	1.172
21	28	2027				0.139	0.139		0.139	2.218	2.080	3.577	3.438	1.368	1.230
22	29	2028				0.139	0.139		0.139	2.355	2.216	3.861	3.722	1.428	1.289
23	30	2029				0.139	0.139		0.139	2.500	2.361	4.167	4.029	1.491	1.352
24	31	2030				0.139	0.139		0.139	2.654	2.515	4.498	4.360	1.556	1.417
25	32	2031				0.139	0.139		0.139	2.817	2.678	4.855	4.717	1.624	1.485
26	33	2032				0.139	0.139		0.139	2.990	2.852	5.241	5.102	1.695	1.556
27	34	2033				0.139	0.139		0.139	3.174	3.036	5.657	5.519	1.769	1.631
28	35	2034				0.139	0.139		0.139	3.370	3.231	6.107	5.968	1.847	1.708
29	36	2035				0.139	0.139		0.139	3.577	3.439	6.592	6.453	1.928	1.789
30	37	2036				0.139	0.139		0.139	3.798	3.659	7.116	6.977	2.012	1.873
			10.408	1.041	11.448	9.743	21.192	1.717	19.475	56.564	37.090	89.066	69.592	36.558	17.083
						FIRR					1.80%		3.72%		-0.34%

**Table 5.11. Necessary Funds and Light Dues (Likeliest Case)**

Unit: Million US\$

	Loan	Necessary Funds of GOI	Total Initial Costs	Necessary Light Dues
	1	2	3=1+ 2	
Ship Reporting System	9.731	1.717	11.448	3.00%

## b. FIRR by Market Interest Rate (6%)

Necessary light dues to achieve 6.0 % of FIRR are shown in **Table 5.12**.

**Table 5.12. Necessary Light Dues by Market Interest Rate**

	Necessary Light Dues					
	GDP: Likeliest Case		GDP: Optimistic Case		GDP: Pessimistic Case	
Evaluation Period	10 years	30 years	10 years	30 years	10 years	30 years
Ship Reporting System	8.14 %	5.78 %	6.90 %	4.38 %	9.56 %	7.46 %

## (6) Sensitive Analysis for ODA loan

Sensitive analysis for ODA loan should be implemented among three GDP cases. To implement ship reporting system, necessary light dues are 3.00% in likeliest case, 2.00% in optimistic case, and 4.39% in pessimistic case. It is shown in **Table 5.13**.

**Table 5.13. Sensitive Analysis**

Unit: %

	Necessary Light Dues		
	Likeliest Case	Optimistic Case	Pessimistic Case
Ship Reporting System	3.00	2.00	4.39

## **Appendix 5.1.**

### ***An Example of Successful Rescue under JASREP***

On January 17 in 2001, a yacht of Japanese flag (the tentative name “Y”) with one crew, which was on a single voyage round the world, was disabled about 70 miles west of Luzon Island of Philippines, because rough sea broke and flooded her hull.

The Japan Coast Guard (JCG) received her distress signal via satellite. JCG requested Rescue Coordination Centers (RCC) of Philippines and Hong Kong to provide information and to make search and rescue activities. At the same time, JCG gave information to ships in the vicinity through INMARSAT EGC broadcasting.

JCG searched “P” (tentative name of a ship), which was underway at the nearest position from “Y” through the data of ships participating **JASREP** and requested her to rescue “Y”.

In addition, three ships and four aircraft; including patrol vessels and aircraft of JCG and US military aircraft which were arranged by RCCs of Japan, Hong Kong and Philippines; cooperated the search and rescue activities.

On January 18, an aircraft under search arranged by Hong Kong RCC located “Y” and later “P” guided by the aircraft rescued her. The skipper of “Y” was waiting for rescue clinging desperately to “Y” which was about to sink.

If the rescue by “P” had been slightly late, the rescue activities would have become very difficult.

### ***How important Ship Reporting are!***

Source: JCG Annual Report

## **Appendix 5.2.**

*October 1<sup>st</sup>, 2001*

*Ministry of Land, Infrastructure  
and Transport  
Japan Coast Guard*

### **Encouragement for Ship Reporting**

Since the simultaneous multi-terrorism in the United State, the Ministry of Land, Infrastructure and Transport (hereafter referred to as “MLIT”) and the Japan Coast Guard (hereafter referred to as “JCG”) have concerned about subsequent terrorism against U.S. and alerted ships relevant to Japan to unidentified objects.

Hereafter also, it is feared that there will be threat to ships such as terrorism and piracies, and addition the danger may increase.

Under these circumstances, MLIT and JCG have decided, as a part of ensuring the safety of ships, to encourage the ships navigating sea areas out of JASREP Area to make ship reporting in addition to those within the Area.

It is noticed to those concerned with marine affairs. Furthermore, MLIT and JCG call attention to them to be alert against contingencies and to be very careful about related information such as navigational warnings to be hereafter announced by Japan and countries concerned.

## **REFERENCE 5.1.**

**Japanese Ship Reporting System (JASREP)**

*As of July 2001*

# **J A S R E P**

**(Japanese Ship Reporting System)**

## **USER'S MANUAL**

**for**

**Ocean-going Ships**

**Japan Coast Guard**

# JASREP User's Manual

## for

### Ocean-going Ships

1. Introduction .....	1
2. Outline .....	1
(1) Name .....	1
(2) Purpose .....	1
(3) Service area .....	2
(4) Participating ships .....	2
(5) Types of reports and timing .....	2
(6) Special requirements to participate in both the JASREP and AMVER systems .....	3
(7) How to participate .....	3
3. Reporting procedure .....	4
(1) Reporting format .....	4
(2) Reporting instructions .....	9
4. Communication from Japan Coast Guard .....	11
5. Inquiries on the JASREP System .....	11
Reference: Report Examples .....	12

# 1. Introduction

A large number of ships including ore and oil carriers and fishing vessels are constantly navigating through the peripheral waters of Japan, and marine casualties caused by these ships are hardly exterminated whereby many of precious human lives and sizable amounts of wealth are lost every year.

To develop effective search and rescue operations in a possible event of unfortunate marine casualty, it is highly instrumental that the authorities responsible for such activities are fully provided with information on the movements of ships.

In this connection, the AMVER System, a ship reporting system, has been implemented in the United States since 1958, and many ships in distress were successfully rescued through positive utilization of this system. In the provisions of the International Convention on Maritime Search and Rescue, 1979 (SAR Convention), which came into effect on June 22, 1985 with a purpose of establishing an international search and rescue system, it was prescribed that a ship reporting system should be established.

In order to respond to such an international move, Japan Coast Guard commenced a ship position reporting system from October 1, 1985 under the name of "Japanese Ship Reporting System (JASREP)."

The JASREP System is almost compatible with the AMVER System of USA where the information

including sailing plan, positional data, etc., reported from each ship is processed in the computer of the JASREP System for enabling Japan Coast Guard to recognize the ongoing movement of such a ship.

Participation in this system is not compulsory but is voluntary. No charge whatsoever is applied to all radiotelephonic Japan Coast Guard which pass through coastal radio stations designated by Japan Coast Guard. All informations of ship's position and others reported to Japan Coast Guard will be strictly kept confidential and protected and will never be used for any purposes other than those for search and rescue operations in the event of marine casualty and for the prevention thereof.

In a vast expanse of the sea, it is seldom to have other ships in sight although a number of ships are, in fact, making their respective ways.

The effectiveness of the JASREP System serving to develop most reliable search and rescue operations in a possible event of marine casualty by the close linkage between Japan Coast Guard and participating ships through the computer system will be much more enhanced by increase of the number of participating ships.

Japan Coast Guard is awaiting for reports from many ships.

## 2. Outline

### (1) Name

Japanese Ship Reporting System (JASREP)

### (2) Purpose

The JASREP System provides up-to-date information on the movements of vessels in order, in the event of a distress incident:

- ① to reduce the interval between the loss of contact with a vessel and the initiation of search and rescue operations in cases where no distress signal

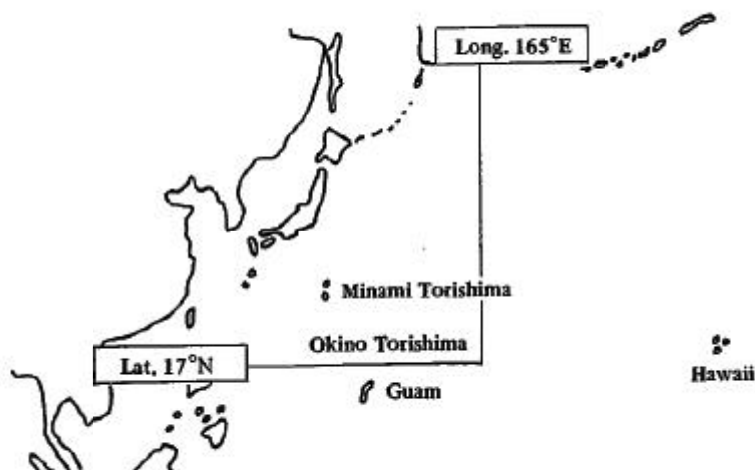
has been received;

- ② to permit rapid determination of vessels which may be called upon to provide assistance;
- ③ to permit delineation of a search area of limited size in case the position of a vessel in distress is unknown or uncertain; and
- ④ to facilitate the provision of urgent medical assistance or advice to vessels not carrying a doctor.

(3) **Service area**

The approximate service area covered by the JASREP System is the sea enclosed by the parallel of latitude 17° N and the meridian of longitude 165° E.

Japan Coast Guard accepts primary responsibility for coordinating search and rescue operations in this area by the Japan-U. S. SAR Agreement.



(4) **Participating ships**

Any ship regardless of tonnage, flag or type is welcome in the JASREP System as far as she is within the service area of the system. Participation is voluntary.

(5) **Types of reports and timing**

There are four types of JASREP Reports: Sailing Plan, Position Report, Deviation Report and Final Report.

① **Sailing Plan**

Sailing Plan is the basic information to estimate ship's position, and it should be sent at the time when a ship participates in this system. Reports should therefore be made when the ship departs from a port within the service area or when the ship enters the area.

**Note:**

When Sailing Plan is sent after departure from a port or after entering the service area, such reporting should be made as soon as practicable. When Sailing Plan is to be sent before departure from a port, such a report may be sent in a written document.

② **Position Report**

Position Report is the information to verify if ship's position input according to the Sailing Plan is correct. The 1st report should therefore be sent at an optional time within 24 hours of departure from a port or entering the service area, and then the reports should be sent subsequently no less frequently than every 24 hours until Final Report.

**Note 1:**

In case where delayed reporting is anticipated due to change of radio operator's duty hours or else, reports should be sent earlier than the scheduled time of reporting as far as practicable.

**Note 2:**

Reports should be sent more frequently than the above schedule, when the ship is in heavy weather or under other adverse conditions.

**Note 3:**

In the JASREP service area, no coordination with weather reporting service is made.

③ Deviation Report

Deviation Report is the information to be used for necessary correction of pre-reported Sailing Plan when a ship deviates from the intended course due to change in Sailing Plan. Reports should be sent whenever the Ship's position deviates 25 miles or more from the original track, or the port of destination is changed, or other changes occur with resultant change in Sailing Plan.

④ Final Report

Final Report is the information to terminate parti-

cipation in the system. Accordingly, reports should be sent prior to or on arrival at port, or when a ship departed from the service area of the system.

Note:

When Final Report is intended to be sent after departing from the service area, such a report should be sent as soon as practicable.

If report is sent after arrival at port, such a report may be sent in a written document.

For reporting procedures, see the "Report Examples."

(6) **Special reporting procedure to participate in both the JASREP and AMVER systems**

Any ship desiring to participate in both the JASREP and AMVER systems should enter JASREP on the system name line and AMVER on the Y line when the ship sends report to one of the coastal stations designated by Japan Coast Guard, and enter AMVER on the system name line and JASREP on the Y line when the ship sends report to one of the costal stations designated by the United States Coast Guard. Hereby above, the information will be transferred mutually between Japan Coast Guard and the United States Coast Guard. (If you fail to follow this procedure you

have to pay charges.)

(7) **Special reporting procedure to link with JASREP and weather report**

Any ship which send weather report to Japan Meteorological Agency (JMA) can omit Position Report of JASREP.

If you enter OBS on the X line of Sailing Plan, JMSA get your position information from JMA.

(8) **How to participate**

Participation in this system initiates when a ship sends her Sailing Plan and terminates when the ship sends her Final Report to Japan Coast Guard.

Note:

If any non-participating ship on departure from a port or on entering the JASREP service area has a desire of participation halfway, it is possible to join the JASREP System by sending her Sailing Plan whenever decision is made. If, on the contrary, any ship desires to terminate her participation in the system, it is possible to terminate the participation simply by sending Final Report at any time.

**If no Position Report or Final Report is received from a participant in no less than 24 hours subsequent to the previous report, Japan Coast Guard will verify the safety and whereabouts of the ship through radiotelegraphic calls and inquiries addressed to the relevant coastal stations, shipowners, agents and ships proceeding in the vicinity.**

**Depending on circumstances, search and rescue operations will be initiated, and hence Position Reports and Final Reports must be sent without fail.**

### 3. Reporting procedure

#### (1) Reporting format

##### 1) Sailing Plan

Sailing Plan							(Notes)
(Required date items)							
System name		Type of report					(1)
JASREP		SP		//			
Ship name		Identification Signal					
A/				//			(2)
Time of departure							
B/		//					(3)
Port of departure		Latitude		Longitude			
G/						//	
Port of destination		Latitude		Longitude		Estimated time of arrival	
I/						//	
Route information							(4)
Navigation method	Average speed	Latitude	Longitude	Estimated time of arrival	Name of land-mark or sea area		
L/	/	/	/	/	/		//
L/	/	/	/	/	/		//
L/	/	/	/	/	/		//
L/	/	/	/	/	/		//
L/	/	/	/	/	/		//
L/	/	/	/	/	/		//
L/	/	/	/	/	/		//
L/	/	/	/	/	/		//
L/	/	/	/	/	/		//
L/	/	/	/	/	/		//
L/	/	/	/	/	/		//
L/	/	/	/	/	/		//
Onboard medical resources							(5)
V/		//					
AMVER							(6)
Y/		//					
(Optional date items)							
Current course							(7)
E/		//					
Estimated average speed							
F/		//					
Current coastal radio station		Next coastal radio station, if any					
M/				//			
Up to 65 characters of amplifying comments							(8)
X/							//

(Notes)

(1) System name

Enter JASREP on the system name line. Also enter SP on the type of report line.

(2) Date/time

All times must be expressed as a six-digit group giving date of month (first two digits) , hours and minutes (last four digits) . Only Universal Coordinated Time (i. e., Greenwich Mean Time) is to be used. The six-digit date-time-group is to be followed by Z.

Example: 201200 Z for 1200 hours on the 20 th (GMT)

(3) Latitude and longitude

Latitude is a four-digit group expressed in degrees and minutes, and suffixed with "N" for north or "S" for south.

Longitude is a five-digit group expressed in degrees and minutes, and suffixed with "E" for east or "W" for west.

Example: 3538 N for lat. 35°38'N, and 13950 E for long. 139°50'E

(4) Route information

Express route information between the turnpoints along the intended route in accordance with the following explanations:

And L lines are needed at least three points, twelve points at maximum. When a ship enters the service area, express latitude and longitude of the point of entrance and the date on the first line without fail.

(Navigation method)

Use GC for great circle, and RL for rhumb line.

(Average speed)

Express estimated average speed up to the intended turnpoint in three-digit group in knots and tenths of knots.

Example: 150 for a speed of 15.0 knots

(Latitude, longitude and estimated time of arrival)

Express latitude, longitude and estimated time of arrival by referring to examples shown in (2) and (3) above.

(Name of landmark or sea area)

Give well-known names of landmark or sea area. Although reporting of these names is not essential, it is requested to provide as far as practicable.

(5) Onboard medical resources

Select as appropriate from the following:

MD (Physician) PA (Physician's assistant or health supervisor)

NURSE NONE

(6) AMVER

In case where a dual participation in the JASREP and AMVER systems is desired, enter "AMVER" on this line.

If no participation in the AMVER System is desired, no entry on this line is required.

(7) Optional date items

These optional date items are useful, but are not necessarily required to report. When report is made, express current course on the line E in three-digit group, and estimated average speed for the entire passage on the F line in three-digit group in knots and tenths of knots.

Example: E/234//for a course of 234°

F/153//for a speed of 15.3 knots

(8) Line X (Reference date) item

**Although these are optional, it is requested to provide estimated time of next reporting, type of cargo, No. of INMARSAT, ID No. of DSC, etc. If you desire to be omitted Position Report (PR) by linking with JASREP and weather report, enter "OBS" on this line.**

Example: X/OBS/251500 Z/LNG/SAT 1234567//  
for the request of OBS, the estimated time of next reporting at 1500 hours on the 25 th, type of cargo LNG and INMARSAT phone No. 1234567

## 2) Position Report

Position		Report	(Notes)
(Required date items)			
System name	Type of report		(1)
JASREP	PR	//	
Ship name	Identification Signal		
A/	/	//	
Date/time at specific position			(2)
B/	//		
Latitude	Longitude		(3)
C/	/	//	
AMVER			(4)
Y/	//		
(Optional date items)			
Current course			(5)
E/	//		
Intended average speed			
F/	//		
Current coastal radio station	Next coastal radio station, if any		
M/	/	//	
Up to 65 characters of amplifying comments			(6)
X/		//	

(Notes)

### (1) System name

Enter JASREP on the system name line. Also enter PR on the type of report line.

### (2) Date/time

All times must be expressed as a six-digit group giving date of month (first two digits), hours and minutes (last four digits). Only Universal Coordinated Time (i. e., Greenwich Mean Time) is to be used. The six-digit date-time-group is to be followed by Z.

Example: B/201200 Z for 1200 hours on the 20 th (GMT)

### (3) Latitude and longitude

Latitude is a four-digit group expressed in degrees and minutes, and suffixed with "N" for north or "S" for south.

Longitude is a five-digit group expressed in degrees and minutes, and suffixed with "E" for east or "W" for west.

Example: C/2511 N/12505 E//for lat. 25°11'N and

long. 125°50'E

### (4) AMVER

In case of a ship with a dual participation in the JASREP and AMVER systems, express "AMVER" on this line.

If not, no entry on this line is required.

### (5) Optional date items

These optional date items are useful, but are not necessarily required to report. When report is made, express current course on the E line in three-digit group, and estimated average speed for the entire passage on the F line in three-digit group in knots and tenths of knots.

Example: E/234//for a course of 234°

F/153//for a speed of 15.3 knots

### (6) Line X (Reference date item)

These are optional, but when reported, provide estimated time of next reporting.

Example: X/251500 Z//for the estimated time of next reporting at 1500 hours on the 25 th (GMT)

### 3) Deviation Report

Deviation Report						(Notes)
(Required date items)						
System name		Type of report				(1)
JASREP		DR		//		
Ship name		Identification Signal				
A/		/		//		
AMVER						(2)
Y/		//				
(One or more from the following optional date items)						(3)
Time of departure						
B/		//				
Current course						
E/		//				
Intended average speed						
F/		//				
Port of departure		Latitude		Longitude		
G/		/		/		//
Port of destination		Latitude		Longitude		Estimated time of arrival
I/		/		/		/ //
Route information						
Navigation method	Average speed	Latitude	Longitude	Estimated time of arrival	Name of land-mark or sea area	
L/	/	/	/	/	/	//
L/	/	/	/	/	/	//
Current coastal radio station		Next coastal radio station, if any				
M/		/		//		
Onboard medical resources						
V/		//				
Up to 65 characters of amplifying comments						
X/						// (4)

(Notes)

(1) System name

Enter JASREP on the system name line. Also enter DR on the type of report line.

(2) AMVER

In case of a ship with a dual participation in the JASREP and AMVER systems, express "AMVER" on this line.

If not, no entry on this line is required.

(3) Deviation items

Specify changes of sailing plan and others.

Example: I/LOSANGELES/3345 N/11816 W/, 201055 Z//for a case where the port of destination is changed from Vancouver to Los Angeles.

(4) OBS

In case of a ship with OBS system (linking with weather report), express "OBS" on this line.

Example: X/OBS//

#### 4) Final Report

Final Report					(Notes)
(Required date items)					
System name		Type of report			(1)
JASREP		FR		//	
Ship name		Identification Signal			
A/				//	
Port of arrival		Latitude		Longitude	Time of arrival
K/				/	//
AMVER					(4)
Y/		//			
(Optional date items)					
Up to 65 characters of amplifying comments					
X/					// (5)

#### (Notes)

##### (1) System name

Enter JASREP on the system name line. Also enter FR on the type of report line.

##### (2) Date/time

All times must be expressed as a six-digit group giving date of month (first two digits) , hours and minutes (last four digits) . Only Universal Coordinated Time (i. e., Greenwich Mean Time) is to be used. The six-digit date-time-group is to be followed by Z.

Example: 201200 Z for 1200 hours on the 20 th (GMT)

##### (3) Latitude and longitude

Latitude is a four-digit group expressed in degrees and minutes, and suffixed with "N" for north or "S" for south.

Longitude is a five-digit group expressed in degrees and minutes, and suffixed with "E" for east or "W" for west.

Example: 3538 N for lat. 35°38'N, and 13950 E for long. 139°50'E

##### (4) AMVER

In case of ship with a dual participation in the JASREP and AMVER systems, express "AMVER" on this line.

However, in case of departing from the service area of the JASREP System and continued participation in the AMVER System is desired, no entry on this line is required.

##### (5) OBS

In case of a ship with OBS system (linking with weather report) , express "OBS" on this line.

Example: X/OBS//

#### (2) Reporting instructions

As far as practicable, report should be sent by shortwave radiotelegraphy to the shortwave coastal radio station designated by Japan Coast Guard in (①) . (In an unavoidable case, report may be received by any of those coastal stations listed in (②) . ) Reporting will be charged free. JASREP reports may be sent by other means of communication such as telex addressed to Japan Coast Guard, submission of documents or reporting by telegram or telephone (including cases

where reporting is made via shipowners, agencies, etc. ) to 11 th Regional Coast Guard Headquarters, a coast guard office or station, or district communications center.

Note, however, that expenses incurred by these other means of communication are to be borne by the participants concerned.

(①) Shortwave coastal radio station

(i) Shortwave radio telegram (Narrow-Band Direct-Printing)

Identification signals	Receiving frequency (kHz)	Transmitting frequency (kHz)
2400 004310001	F 1 B 4179 6269.5 8379.5 12487.5 16688.5 18874 22320	F 1 B 4216.5 6320.5 8419.5 12590 16812 19684.5 22412

(ii) NBDP or Shortwave radio telephone after DSC calling

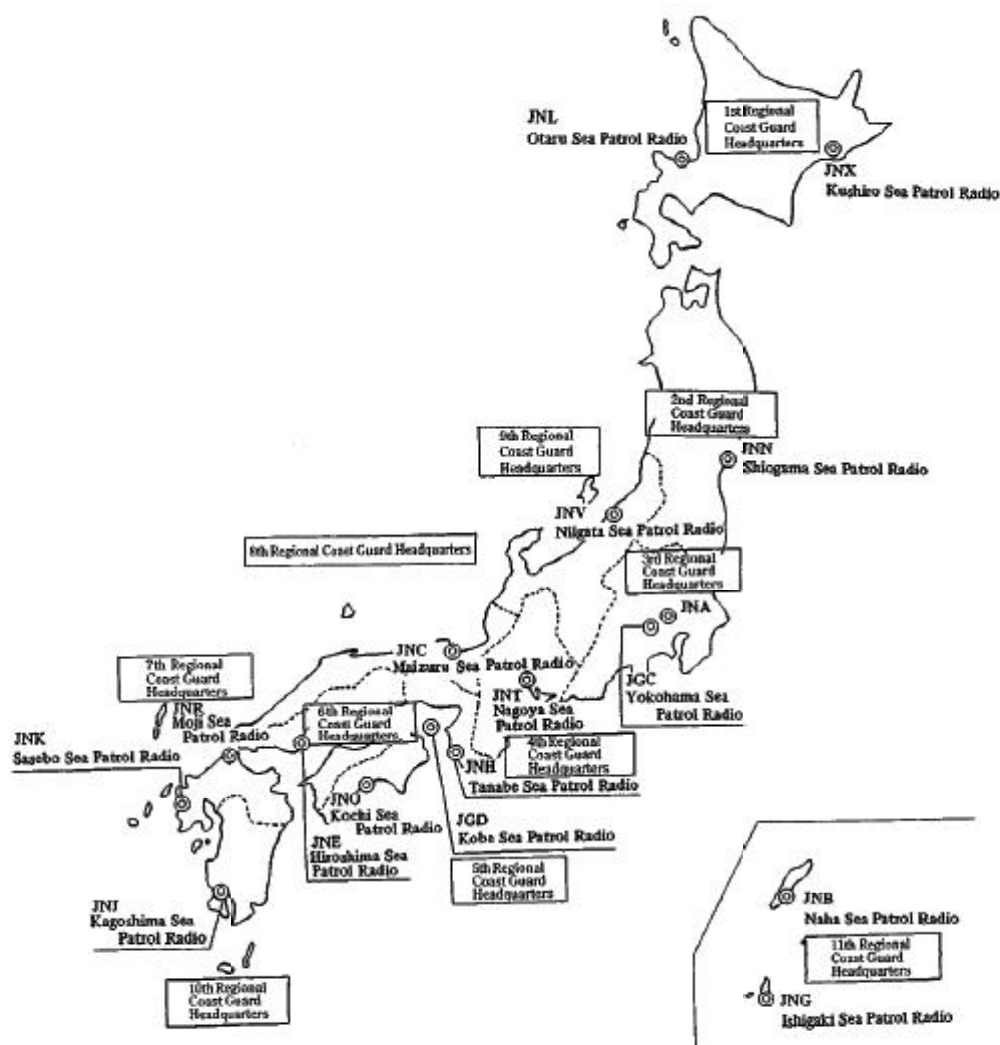
Identification signals	Receiving frequency (kHz)	Transmitting frequency (kHz)
004310001	F 1 B 4208 6312.5 8415 12577.5 16805 18898.5 22374.5 (DSC)	F 1 B 4219.5 6331 8436.5 12657 16903 19703.5 22444 (DSC)
	F 1 B 4197 6269.5 8379.5 12487.5 16688.5 18874 22320 (NBDP)	F 1 B 4216.5 6320.5 8419.5 12590 16812 19684.5 22412 (NBDP)
Tokyo Sea Patrol Radio	J 3 E 4354 6218 8707 8710 12326 12332 16513 16519 18789 18792 22126 22129	J 3 E 4354 6519 8707 8710 13173 13179 17395 17401 19764 19767 22822 22825

(②) MF and VHF coastal radio stations

Identification signals	Receiving frequency (kHz)	Transmitting frequency (kHz)
Otaru Sea Patrol Radio 004310101 JNL	F 3 E 156.6 MHz 156.8 MHz F 1 B 2189.5 (DSC)	F 3 E 156.6 MHz F 1 B 2177 (DSC) 2417.5 (NBDP) J 3 E 2150 2394.5
Kushiro Sea Patrol Radio 004310102 JNX	F 3 E 156.6 MHz 156.8 MHz F 1 B 2189.5 (DSC)	F 3 E 156.6 MHz F 1 B 2177 (DSC) 2417.5 (NBDP) J 3 E 2150 2394.5
Shiogama Sea Patrol Radio 004310201 JNN	F 3 E 156.6 MHz 156.8 MHz F 1 B 2189.5 (DSC)	F 3 E 156.6 MHz F 1 B 2177 (DSC) 2417.5 (NBDP) J 3 E 2150 2394.5
Yokohama Sea Patrol Radio 004310301 JGC	F 3 E 156.6 MHz 156.8 MHz F 1 B 2189.5 (DSC)	F 3 E 156.6 MHz F 1 B 2177 (DSC) 2417.5 (NBDP) J 3 E 2150 2394.5
Nagoysa Sea Patrol Radio 004310401 JNT	F 3 E 156.6 MHz 156.8 MHz F 1 B 2189.5 (DSC)	F 3 E 156.45 MHz 156.6 MHz F 1 B 2177 (DSC) 2417.5 (NBDP) J 3 E 2150 2394.5
Kobe Sea Patrol Radio 004310501 JGD	F 3 E 156.6 MHz 156.8 MHz F 1 B 2189.5 (DSC)	F 3 E 156.45 MHz 156.6 MHz F 1 B 2177 (DSC) 2417.5 (NBDP) J 3 E 2150 2394.5
Tanabe Sea Patrol Radio 004310502 JNH	F 3 E 156.6 MHz 156.8 MHz F 1 B 2189.5 (DSC)	F 3 E 156.6 MHz F 1 B 2177 (DSC) 2417.5 (NBDP) J 3 E 2150 2394.5
Kochi Sea Patrol Radio 004310503 JNO	F 3 E 156.6 MHz 156.8 MHz F 1 B 2189.5 (DSC)	F 3 E 156.6 MHz F 1 B 2177 (DSC) 2417.5 (NBDP) J 3 E 2150 2394.5
Hiroshima Sea Patrol Radio 004310601 JNE	F 3 E 156.6 MHz 156.8 MHz F 1 B 2189.5 (DSC)	F 3 E 156.6 MHz F 1 B 2177 (DSC) 2417.5 (NBDP) J 3 E 2150 2394.5
Moji Sea Patrol Radio 004310701 JNR	F 3 E 156.6 MHz 156.8 MHz F 1 B 2189.5 (DSC)	F 3 E 156.6 MHz F 1 B 2177 (DSC) 2417.5 (NBDP) J 3 E 2150 2394.5
Sasebo Sea Patrol Radio 004310702 JNK	F 3 E 156.6 MHz 156.8 MHz F 1 B 2189.5 (DSC)	F 3 E 156.6 MHz F 1 B 2177 (DSC) 2417.5 (NBDP) J 3 E 2150 2394.5
Maizuru Sea Patrol Radio 004310801 JNC	F 3 E 156.6 MHz 156.8 MHz F 1 B 2189.5 (DSC)	F 3 E 156.6 MHz F 1 B 2177 (DSC) 2417.5 (NBDP) J 3 E 2150 2394.5

Niigata Sea Patrol Radio 004310901 JNV	F 3 E 156.6 MHz 156.8 MHz F 1 B 2189.5 (DSC)	F 3 E 156.6 MHz F 1 B 2177 (DSC) 2417.5 (NBDP) J 3 E 2150 2394.5
Kagoshima Sea Patrol Radio 004311001 JNJ	F 3 E 156.6 MHz 156.8 MHz F 1 B 2189.5 (DSC)	F 3 E 156.6 MHz F 1 B 2177 (DSC) 2417.5 (NBDP) J 3 E 2150 2394.5
Naha Sea Patrol Radio 004311101 JNB	F 3 E 156.6 MHz 156.8 MHz F 1 B 2189.5 (DSC)	F 3 E 156.6 MHz F 1 B 2177 (DSC) 2417.5 (NBDP) J 3 E 2150 2394.5
Ishigaki Sea Patrol Radio 004311102 JNG	F 3 E 156.6 MHz 156.8 MHz F 1 B 2189.5 (DSC)	F 3 E 156.6 MHz F 1 B 2177 (DSC) 2417.5 (NBDP) J 3 E 2150 2394.5

Locations of designated coastal radio stations



Addressee for telex communication:

Operations Office, Search and Rescue Division of Guard and Rescue Department of Japan Coast Guard, Telex No. 720-222-5193 with an answer back code of 2225193 JMSAHQJ

## 4. Communication from Japan Coast Guard

For the purpose of verifying the safely and whereabouts of a ship due to her delayed reporting or to address request to the ships for rescue operations of the ship in distress, Japan Coast Guard call through its

radio coastal station on the following frequencies.

Therefore all ships are requested to watch these frequencies as far as practicable.

F 1 B (DSC)	2177 kHz			
	4216.5 kHz	6320.5 kHz	8419.5 kHz	12590 kHz
	16812 kHz	19684.5 kHz	22412 kHz	
F 3 E	156.8 MHz			

## 5. Inquiries on JASREP

Inquiries on JASREP should be addressed to:

(1) **Search and Rescue Division of Guard & Rescue Department of Japan Coast Guard**

By mail

1-3, Kasumigasake 2 chome, Chiyoda-ku, Tokyo 100-8989, Japan

By phone

03-3591-6361, Extension 535 (Search and Rescue Division) or 574 (Operations Office)

(2) **Nearest Coast Guard Office or Station**

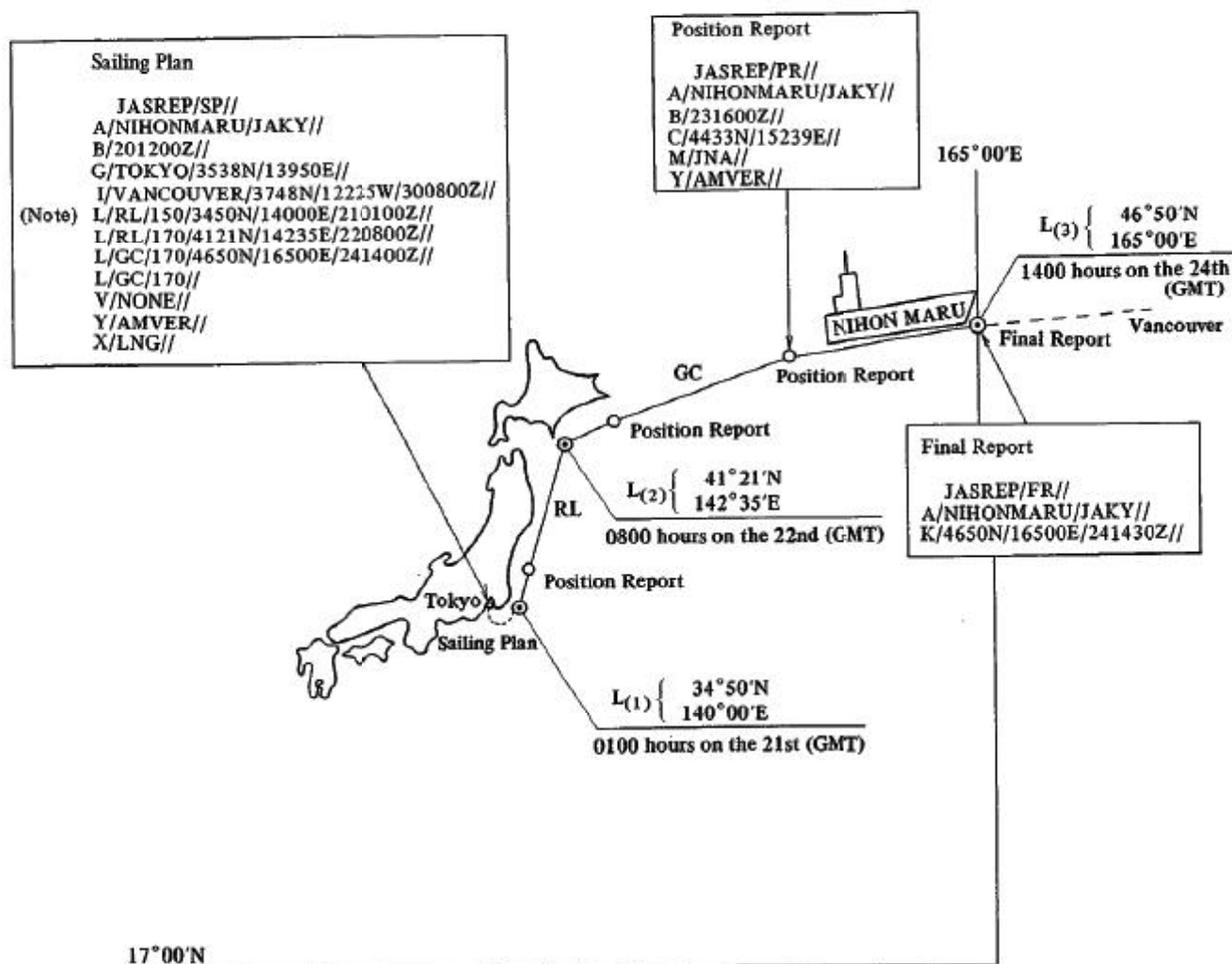
# (Reference)

## Report Example 1

Let us take, for instance, a case of the M/S "NIHON MARU," an ocean-going ship (call sign JAKY) that departed from the port of Tokyo (35°38' N, 139°50'E) at 1200 hours on the 20 th (GMT) , will pass points (34°50'N, 140°00'E) and (41°21'N, 142°35'

0100 hours on the 21 st (GMT) .

- (2) Navigation method of rhumb line (RL) will be taken for the passage from point L<sub>(1)</sub> to point L<sub>(2)</sub> at an average speed of 17.0 knots with an estimated time of arrival at point L<sub>(2)</sub> at 0800 hours on the 22



E) and will be destined for Vancouver (37°48'N, 122° 25'W, with an estimated time of arrival at 0800 hours on the 30 th (GMT) ) by navigation method of great circle.

(Note) Route Information (L lines) represents the following contents:

- (1) Departed from Tokyo and will take navigation method of rhumb line (RL) to point L<sub>(1)</sub> (34°50' N, 140°00'E) at an average speed of 15.0 knots with an estimated time of arrival at point L<sub>(1)</sub> at

nd (GMT) .

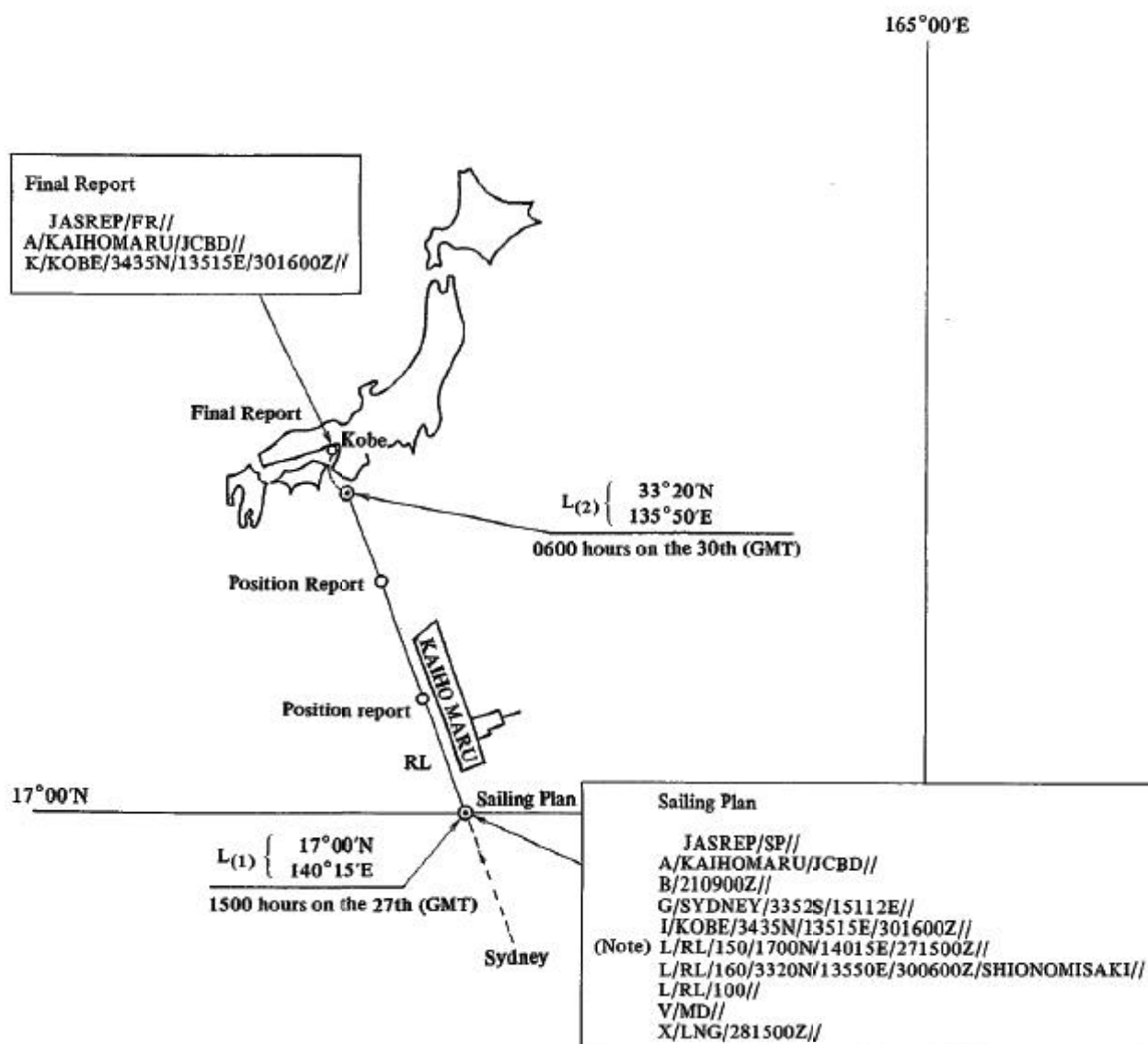
- (3) Navigation method of great circle (GC) will be taken for the passage from point L<sub>(2)</sub> to point L<sub>(3)</sub> at an average speed of 17.0 knots with an estimated time of arrival at point L<sub>(3)</sub> at 1400 hours on the 24 th (GMT) .
- (4) In the passage after point L<sub>(3)</sub>, navigation method of great circle (GC) will be taken at an average speed of 17.0 knots and the ship will be destined for Vancouver.

## Report Example 2

This is a case of the M/S "KAIHO MARU," an ocean-going ship (call sign JCBD) that departed from the port of Sydney at 0900 hours on the 21<sup>st</sup> (GMT), reached a points (17°00'N, 140°15'E) within the ser-

arrival at points  $L_{(1)}$  at 1500 hours on the 27<sup>th</sup> (GMT).

- (2) Navigation method of rhumb line (RL) will be taken for the passage from point  $L_{(1)}$  to off



vice area of JASREP at 1500 hours on the 27<sup>th</sup> (GMT) and will enter the port of Kobe with an estimated time of arrival at 1600 hours on the 30<sup>th</sup> (GMT) via off Shionomisake (33°20'N, 135°50'E). (Note) Route Information (L lines) represents the following contents:

- (1) Departed Sydney and took navigation method of rhumb line (RL) to point  $L_{(1)}$  (17°00'N, 140°15'E) at an average speed of 15.0 knots with a time of

Shionomisaki of point  $L_{(2)}$  (33°20'N, 135°50'E) at an average speed of 16.0 knots with an estimated time of arrival at point  $L_{(2)}$  at 0600 hours on the 30<sup>th</sup> (GMT).

- (3) In the passage after point  $L_{(1)}$ , navigation method of rhumb line (RL) will be taken at an average speed of 10.0 knots and the ship will be destined for Kobe.

## **REFERENCE 5.2.**

**IMO Resolution A.851 (20) :**

**General Principles for Ship Reporting Systems and Ship  
Reporting Requirements, including Guidelines for  
Reporting Incidents involving Dangerous Goods, Harmful  
Substances and/or Marine Pollutants**

ASSEMBLY  
20th session  
Agenda item 9

**RESOLUTION A.851(20)**  
**adopted on 27 November 1997**

**GENERAL PRINCIPLES FOR SHIP REPORTING SYSTEMS AND SHIP REPORTING  
REQUIREMENTS, INCLUDING GUIDELINES FOR REPORTING INCIDENTS  
INVOLVING DANGEROUS GOODS, HARMFUL SUBSTANCES  
AND/OR MARINE POLLUTANTS**

THE ASSEMBLY,

RECALLING Article 15(j) of the Convention on the International Maritime Organization concerning the functions of the Assembly in relation to regulations and guidelines concerning maritime safety and the prevention and control of marine pollution from ships,

RECALLING ALSO resolution 3 of the International Conference on Maritime Search and Rescue, 1979, on the need for an internationally agreed format and procedure for ship reporting systems,

CONSIDERING that current national ship reporting systems may use different procedures and reporting formats,

REALIZING that such different procedures and reporting formats could cause confusion to masters of ships moving from one area to another covered by different ship reporting systems,

BELIEVING that such confusion could be alleviated if ship reporting systems and reporting requirements were to comply as far as practicable with relevant general principles and if reports were made in accordance with a standard format and procedures,

RECALLING the General Principles for Ship Reporting Systems and Ship Reporting Requirements, including Guidelines for Reporting Incidents Involving Dangerous Goods, Harmful Substances and/or Marine Pollutants, adopted by resolution A.648(16),

RECOGNIZING that States Parties to the International Convention relating to Intervention on the High Seas in Cases of Oil Pollution Casualties (1969) and the Protocol relating to Intervention on the High Seas in Cases of Marine Pollution by Substances other than Oil (1973) may take such measures on the high seas as may be necessary to prevent, mitigate or eliminate grave and imminent danger to their coastline or related interests from pollution or threat of pollution of the sea by oil and substances other than oil following upon a maritime casualty or acts related to such a casualty, which may reasonably be expected to result in major harmful consequences,

RECOGNIZING ALSO the need for coastal States to be informed by the master of an assisting ship, or of a ship undertaking salvage, of particulars of the incident and of action taken,

RECOGNIZING FURTHER that an incident involving damage, failure or breakdown of the ship, its machinery or equipment could give rise to a significant threat of pollution to coastlines or related interests,

HAVING CONSIDERED the recommendation made by the Maritime Safety Committee at its sixty-seventh session and the Marine Environment Protection Committee at its thirty-ninth session,

1. ADOPTS the General Principles for Ship Reporting Systems and Ship Reporting Requirements, including Guidelines for Reporting Incidents Involving Dangerous Goods, Harmful Substances and/or Marine Pollutants, set out in the Annex to the present resolution;
2. URGES Governments to ensure that ship reporting systems and reporting requirements comply as closely as possible with the general principles specified in the Annex to the present resolution;
3. URGES ALSO Governments to bring the reporting format and procedures to the notice of shipowners and seafarers as well as of the designated authorities concerned;
4. RECOMMENDS Governments and States Parties to MARPOL 73/78 to implement the Guidelines, in accordance with paragraph (2) of article V of Protocol I thereof;
5. REVOKES resolution A.648(16).

## ANNEX

### GENERAL PRINCIPLES FOR SHIP REPORTING SYSTEMS AND SHIP REPORTING REQUIREMENTS, INCLUDING GUIDELINES FOR REPORTING INCIDENTS INVOLVING DANGEROUS GOODS, HARMFUL SUBSTANCES AND/OR MARINE POLLUTANTS

#### 1 GENERAL PRINCIPLES

1.1 Ship reporting systems and reporting requirements are used to provide, gather or exchange information through radio reports. The information is used to provide data for many purposes including search and rescue, vessel traffic services, weather forecasting and prevention of marine pollution. Ship reporting systems and reporting requirements should, as far as practicable, comply with the following principles:

- .1 reports should contain only information essential to achieve the objectives of the system;
- .2 reports should be simple and use the standard international ship reporting format and procedures; where language difficulties may exist, the languages used should include English, using where possible the Standard Marine Navigational Vocabulary, or alternatively the International Code of Signals. The standard reporting format and procedures to be used are given in the appendix to this Annex;
- .3 the number of reports should be kept to a minimum;
- .4 no charge should be made for communication of reports;
- .5 safety or pollution-related reports should be made without delay; however, the time and place of making non-urgent reports should be sufficiently flexible to avoid interference with essential navigational duties;
- .6 information obtained from the system should be made available to other systems when required for distress, safety and pollution purposes;
- .7 basic information (ship's particulars, on-board facilities and equipment, etc.) should be reported once, be retained in the system and be updated by the ship when changes occur in the basic information reported;
- .8 the purpose of the system should be clearly defined;
- .9 Governments establishing a ship reporting system should notify mariners of full details of the requirements to be met and procedures to be followed. Details of types of ships and areas of applicability, of times and geographical positions for submitting reports, of shore establishments responsible for operation of the system and of the services provided should be clearly specified. Charts depicting boundaries of the system and providing other necessary information should be made available to mariners;

- .10 the establishment and operation of a ship reporting system should take into account:
  - .10.1 international as well as national responsibilities and requirements;
  - .10.2 the cost to ship operators and responsible authorities;
  - .10.3 navigational hazards;
  - .10.4 existing and proposed aids to safety; and
  - .10.5 the need for early and continuing consultation with interested parties including a sufficient period to allow for trial, familiarization and assessment to ensure satisfactory operation and to allow necessary changes to be made to the system;
- .11 Governments should ensure that shore establishments responsible for operation of the system are manned by properly trained persons;
- .12 Governments should consider the interrelationship between ship reporting systems and other systems;
- .13 ship reporting systems should preferably use a single operating radio frequency; where additional frequencies are necessary, the number of frequencies should be restricted to the minimum required for the effective operation of the system;
- .14 information provided by the system to ships should be restricted to that necessary for the proper operation of the system and for safety;
- .15 ship reporting systems and requirements should provide for special reports from ships concerning defects or deficiencies with respect to their hull, machinery, equipment or manning, or concerning other limitations which could adversely affect navigation and for special reports concerning incidents of actual or probable marine pollution;
- .16 Governments should issue instructions to their shore establishments responsible for the operation of ship reporting systems to ensure that any reports involving pollution, actual or probable, are relayed without delay to the officer or agency nominated to receive and process such reports, and to ensure that such an officer or agency relays these reports without delay to the flag State of the ship involved and to any other State which may be affected;
- .17 States which are affected or likely to be affected by pollution incidents and may require information relevant to the incident should take into account the circumstances in which the master is placed, and should endeavour to limit their requests for additional information; and
- .18 the appendix to this Annex does not apply to danger messages referred to under regulation V/2 of the 1974 SOLAS Convention, as amended. The present practice of transmitting such messages should remain unchanged.

## **2 GUIDELINES FOR REPORTING INCIDENTS INVOLVING DANGEROUS GOODS**

2.1 The intent of these Guidelines and those contained in the appendix is to enable coastal States and other interested parties to be informed without delay when any incident occurs involving the loss, or likely loss, overboard of packaged dangerous goods into the sea.

2.2 Reports should be transmitted to the nearest coastal State. When the ship is within or near an area for which a ship reporting system has been established, reports should be transmitted to the designated shore station of that system.

## **3 GUIDELINES FOR REPORTING INCIDENTS INVOLVING HARMFUL SUBSTANCES AND/OR MARINE POLLUTANTS**

3.1 The intent of these Guidelines and those contained in the appendix is to enable coastal States and other interested parties to be informed without delay of any incident giving rise to pollution, or threat of pollution, of the marine environment, as well as of assistance and salvage measures, so that appropriate action may be taken.

3.2 In accordance with article V(1) of Protocol I of MARPOL 73/78, a report shall be made to the nearest coastal State.

3.3 Whenever a ship is engaged in or requested to engage in an operation to render assistance to or undertake salvage of a ship involved in an incident referred to in 1(a) or (b) of article II of Protocol I of MARPOL 73/78, as amended, the master of the former ship should report, without delay, the particulars of the action undertaken or planned. The coastal States should also be kept informed of developments.

3.4 The probability of a discharge resulting from damage to the ship or its equipment is a reason for making a report.

## APPENDIX

### 1 PROCEDURES

Reports should be sent as follows:

- |                                       |                                                                                                                                                                                                                                                                                                           |
|---------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Sailing plan (SP)</b>              | - Before or as near as possible to the time of departure from a port within a system or when entering the area covered by a system.                                                                                                                                                                       |
| <b>Position report (PR)</b>           | - When necessary to ensure effective operation of the system.                                                                                                                                                                                                                                             |
| <b>Deviation report (DR)</b>          | - When the ship's position varies significantly from the position that would have been predicted from previous reports, when changing the reported route, or as decided by the master.                                                                                                                    |
| <b>Final report (FR)</b>              | - On arrival at destination and when leaving the area covered by a system.                                                                                                                                                                                                                                |
| <b>Dangerous goods report (DG)</b>    | - When an incident takes place involving the loss or likely loss overboard of packaged dangerous goods, including those in freight containers, portable tanks, road and rail vehicles and shipborne barges, into the sea.                                                                                 |
| <b>Harmful substances report (HS)</b> | - When an incident takes place involving the discharge or probable discharge of oil (Annex I of MARPOL 73/78) or noxious liquid substances in bulk (Annex II of MARPOL 73/78).                                                                                                                            |
| <b>Marine pollutants report (MP)</b>  | - In the case of loss or likely loss overboard of harmful substances in packaged form including those in freight containers, portable tanks, road and rail vehicles and shipborne barges, identified in the International Maritime Dangerous Goods Code as marine pollutants (Annex III of MARPOL 73/78). |
| <b>Any other report</b>               | - Any other report should be made in accordance with the system procedures as notified in accordance with paragraph 9 of the General Principles.                                                                                                                                                          |

### 2 STANDARD REPORTING FORMAT AND PROCEDURES

2.1 Sections of the ship reporting format which are inappropriate should be omitted from the report.

2.2 Where language difficulties may exist, the languages used should include English, using where possible the Standard Marine Navigational Vocabulary. Alternatively, the International Code of Signals may be used to send detailed information. When the International Code is used, the appropriate indicator should be inserted in the text, after the alphabetical index.

2.3 For route information, latitude and longitude should be given for each turn point, expressed as in C below, together with type of intended track between these points, for example "RL" (rhumb line), "GC" (great circle) or "coastal", or, in the case of coastal sailing, the estimated date and time of passing significant points expressed by a 6-digit group as in B below.

Telegraphy	Telephone (alternative)	Function	Information required
Name of system (e.g. AMVER/ AUSREP/MAREP/ ECAREG/JASREP)	Name of system (e.g. AMVER/ AUSREP/MAREP/ ECAREG/JASREP) State in full	System identifier	Ship reporting system or nearest appropriate coast radio station
SP		Type of report	Type of report:
PR			Sailing plan
DR			Position report
FR			Deviation report
DG			Final report
HS			Dangerous goods report
MP			Harmful substances report
Give in full			Marine pollutants report
A	Ship (alpha)	Ship	Any other report
B	Time (bravo)	Date and time of event	Name, call sign or ship station identity, and flag
C	Position (charlie)	Position	A 6-digit group giving day of month (first two digits), hours and minutes (last four digits). If other than UTC state time zone used
			A 4-digit group giving latitude in degrees and minutes suffixed with N (north) or S (south) and a 5-digit group giving longitude in degrees and minutes suffixed with E (east) or W (west); or

Telegraphy	Telephone (alternative)	Function	Information required
D	Position (delta)	Position	True bearing (first 3 digits) and distance (state distance) in nautical miles from a clearly identified landmark (state landmark)
E	Course (echo)	True course	A 3-digit group
F	Speed (foxtrot)	Speed in knots and tenths of knots	A 3-digit group
G	Departed (golf)	Port of departure	Name of last port of call
H	Entry (hotel)	Date, time and point of entry into system	Entry time expressed as in (B) and entry position expressed as in (C) or (D)
I	Destination and ETA (India)	Destination and expected time of arrival	Name of port and date time group expressed as in (B)
J	Pilot (juliet)	Pilot	State whether a deep-sea or local pilot is on board
K	Exit (kilo)	Date, time and point of exit from system or arrival at the ship's destination	Exit time expressed as in (B) and exit position expressed as in (C) or (D)
L	Route (lima)	Route information	Intended track
M	Radiocommunications (mike)	Radiocommunications	State in full names of stations/frequencies guarded
N	Next report (november)	Time of next report	Date time group expressed as in (B)

Telegraphy	Telephone (alternative)	Function	Information required
O	Draught (oscar)	Maximum present static draught in metres	4-digit group giving metres and centimetres
P	Cargo (papa)	Cargo on board	Cargo and brief details of any dangerous cargoes as well as harmful substances and gases that could endanger persons or the environment (See detailed reporting requirements)
Q	Defect, damage, deficiency, limitations (quebec)	Defects/damage/ deficiencies/other limitations	Brief details of defects, damage, deficiencies or other limitations (See detailed reporting requirements)
R	Pollution/dangerous goods lost overboard (romeo)	Description of pollution or dangerous goods lost overboard	Brief details of type of pollution (oil, chemicals, etc.) or dangerous goods lost overboard; position expressed as in (C) or (D) (See detailed reporting requirements)
S	Weather (sierra)	Weather conditions	Brief details of weather and sea conditions prevailing
T	Agent (tango)	Ship's representative and/or owner	Details of name and particulars of ship's representative or owner or both for provision of information (See detailed reporting requirements)

Telegraphy	Telephone (alternative)	Function	Information required
U	Size and type (uniform)	Ship size and type	Details of length, breadth, tonnage, and type, etc., as required
V	Medic (victor)	Medical personnel	Doctor, physician's assistant, nurse, personnel without medical training
W	Persons (whiskey)	Total number of persons on board	State number
X	Remarks (x-ray)	Miscellaneous	Any other information - including, as appropriate, brief details of incident and of other ships involved either in incident, assistance or salvage (See detailed reporting requirements)
Y	Relay (yankee)	Request to relay report to another system e.g., AMVER, AUSREP, JASREP, MAREP etc.	Content of report
Z	End of report (zulu)	End of report	No further information required

### **3 GUIDELINES FOR DETAILED REPORTING REQUIREMENTS**

#### **3.1 Dangerous goods reports (DG)**

3.1.1 Primary reports should contain items, A, B, C (or D), M, Q, R, S, T, U, X of the standard reporting format; details for R should be as follows:

- |   |   |                                                                                                                                                                                                                                                                   |
|---|---|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| R | 1 | Correct technical name or names of goods.                                                                                                                                                                                                                         |
|   | 2 | UN number or numbers.                                                                                                                                                                                                                                             |
|   | 3 | IMO hazard class or classes.                                                                                                                                                                                                                                      |
|   | 4 | Names of manufacturers of goods when known, or consignee or consignor.                                                                                                                                                                                            |
|   | 5 | Types of packages including identification marks. Specify whether portable tank or tank vehicle, or whether vehicle or freight container or other cargo transport unit containing packages. Include official registration marks and numbers assigned to the unit. |
|   | 6 | An estimate of the quantity and likely condition of the goods.                                                                                                                                                                                                    |
|   | 7 | Whether lost goods floated or sank.                                                                                                                                                                                                                               |
|   | 8 | Whether loss is continuing.                                                                                                                                                                                                                                       |
|   | 9 | Cause of loss.                                                                                                                                                                                                                                                    |

3.1.2 If the condition of the ship is such that there is danger of further loss of packaged dangerous goods into the sea, items P and Q of the standard reporting format should be reported; details for P should be as follows:

- |   |   |                                                                                                                                                                                                                                                                   |
|---|---|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| P | 1 | Correct technical name or names of goods.                                                                                                                                                                                                                         |
|   | 2 | UN number or numbers.                                                                                                                                                                                                                                             |
|   | 3 | IMO hazard class or classes.                                                                                                                                                                                                                                      |
|   | 4 | Names of manufacturers of goods when known, or consignee or consignor.                                                                                                                                                                                            |
|   | 5 | Types of packages including identification marks. Specify whether portable tank or tank vehicle, or whether vehicle or freight container or other cargo transport unit containing packages. Include official registration marks and numbers assigned to the unit. |
|   | 6 | An estimate of the quantity and likely condition of the goods.                                                                                                                                                                                                    |

3.1.3 Particulars not immediately available should be inserted in a supplementary message or messages.

## 3.2 Harmful substances reports (HS)

3.2.1 In the case of actual discharge primary HS reports should contain items A, B, C (or D), E, F, L, M, N, Q, R, S, T, U, X of the standard reporting format. In the case of probable discharge (see 3.4), item P should also be included. Details for P, Q, R, T and X should be as follows:

- |   |    |                                                                                                   |
|---|----|---------------------------------------------------------------------------------------------------|
| P | 1  | Type of oil or the correct technical name of the noxious liquid substances on board.              |
|   | 2  | UN number or numbers.                                                                             |
|   | 3  | Pollution category (A, B, C or D), for noxious liquid substances.                                 |
|   | 4  | Names of manufacturers of substances, if appropriate, when known, or consignee or consignor.      |
|   | 5  | Quantity.                                                                                         |
| Q | 1  | Condition of the ship as relevant.                                                                |
|   | 2  | Ability to transfer cargo/ballast/fuel.                                                           |
| R | 1  | Type of oil or the correct technical name of the noxious liquid discharged into the sea.          |
|   | 2  | UN number or numbers.                                                                             |
|   | 3  | Pollution category (A, B, C or D), for noxious liquid substances.                                 |
|   | 4  | Names of manufacturers of substances, if appropriate, when known, or consignee or consignor.      |
|   | 5  | An estimate of the quantity of the substances.                                                    |
|   | 6  | Whether lost substances floated or sank.                                                          |
|   | 7  | Whether loss is continuing.                                                                       |
|   | 8  | Cause of loss.                                                                                    |
|   | 9  | Estimate of the movement of the discharge or lost substances, giving current conditions if known. |
|   | 10 | Estimate of the surface area of the spill if possible.                                            |

- |   |   |                                                                                                                                               |
|---|---|-----------------------------------------------------------------------------------------------------------------------------------------------|
| T | 1 | Name, address, telex and telephone number of the ship's owner and representative (charterer, manager or operator of the ship or their agent). |
| X | 1 | Action being taken with regard to the discharge and the movement of the ship.                                                                 |
|   | 2 | Assistance or salvage efforts which have been requested or which have been provided by others.                                                |
|   | 3 | The master of an assisting or salvaging ship should report the particulars of the action undertaken or planned.                               |

3.2.2 After the transmission of the information referred to above in the initial report, as much as possible of the information essential for the protection of the marine environment as is appropriate to the incident should be reported in a supplementary report as soon as possible. That information should include items, P, Q, R, S and X.

3.2.3 The master of any ship engaged in or requested to engage in an operation to render assistance or undertake salvage should report, as far as practicable, items A, B, C (or D), E, F, L, M, N, P, Q, R, S, T, U, X of the standard reporting format. The master should also keep the coastal State informed of developments.

### 3.3 Marine pollutants reports (MP)

3.3.1 In the case of actual discharge, primary MP reports should contain items, A, B, C (or D), M, Q, R, S, T, U, X of the standard reporting format. In the case of probable discharge (see 3.4), item P should also be included. Details for P, Q, R, T and X should be as follows:

- |   |   |                                                                                                                                                                                                                                                                   |
|---|---|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| P | 1 | Correct technical name or names of goods.                                                                                                                                                                                                                         |
|   | 2 | UN number or numbers.                                                                                                                                                                                                                                             |
|   | 3 | IMO hazard class or classes.                                                                                                                                                                                                                                      |
|   | 4 | Names of manufacturers of goods when known, or consignee or consignor.                                                                                                                                                                                            |
|   | 5 | Types of packages including identification marks. Specify whether portable tank or tank vehicle, or whether vehicle or freight container or other cargo transport unit containing packages. Include official registration marks and numbers assigned to the unit. |
|   | 6 | An estimate of the quantity and likely condition of the goods.                                                                                                                                                                                                    |
| Q | 1 | Condition of the ship as relevant.                                                                                                                                                                                                                                |
|   | 2 | Ability to transfer cargo/ballast/fuel.                                                                                                                                                                                                                           |
| R | 1 | Correct technical name or names of goods.                                                                                                                                                                                                                         |
|   | 2 | UN number or numbers.                                                                                                                                                                                                                                             |

- 3 IMO hazard class or classes.
  - 4 Names of manufacturers of goods when known, or consignee or consignor.
  - 5 Types of packages including identification marks. Specify whether portable tank or tank vehicle, or whether vehicle or freight container or other cargo transport unit containing packages. Include official registration marks and numbers assigned to the unit.
  - 6 An estimate of the quantity and likely condition of the goods.
  - 7 Whether lost goods floated or sank.
  - 8 Whether loss is continuing.
  - 9 Cause of loss.
- T 1 Name, address, telex and telephone number of the ship's owner and representative (charterer, manager or operator of the ship or their agent).
- X 1 Action being taken with regard to the discharge and the movement of the ship.
- 2 Assistance or salvage efforts which have been requested or which have been provided by others.
- 3 The master of an assisting or salvaging ship should report the particulars of the action undertaken or planned.

3.3.2 After the transmission of the information referred to above in the initial report, as much as possible of the information essential for the protection of the marine environment as is appropriate to the incident should be reported. That information should include items P, Q, R, S and X.

3.3.3 The master of any ship engaged in or requested to engage in an operation to render assistance or undertake salvage should report, as far as practicable, items A, B, C (or D), M, P, Q, R, S, T, U, X of the standard reporting format. The master should also keep the coastal State informed of developments.

#### 3.4 Probability of discharge

3.4.1 The probability of a discharge resulting from damage to the ship or its equipment is a reason for making a report. In judging whether there is such a probability and whether the report should be made, the following factors, among others, should be taken into account:

- .1 the nature of the damage, failure or breakdown of the ship, machinery or equipment; and
- .2 sea and wind state and also traffic density in the area at the time and place of the incident.

3.4.2 It is recognized that it would be impracticable to lay down precise definitions of all types of incidents involving probable discharge which would warrant an obligation to report. Nevertheless, as a general guideline the master of the ship should make reports in cases of:

- .1 damage, failure or breakdown which affects the safety of ships; examples of such incidents are collision, grounding, fire, explosion, structural failure, flooding, cargo shifting; and
  - .2 failure or breakdown of machinery or equipment which results in impairment of the safety of navigation; examples of such incidents are failure or breakdown of steering gear, propulsion plant, electrical generating system, essential shipborne navigational aids.
-

## **REFERENCE 5.3.**

**IMO Resolution MSC.74 (69) Annex 3:  
Recommendation on Performance Standards for an  
Universal Shipborne Automatic Identification System (AIS)**

## IMO Resolution MSC.74(69) Annex 3

### **RECOMMENDATION ON PERFORMANCE STANDARDS FOR AN UNIVERSAL SHIPBORNE AUTOMATIC IDENTIFICATION SYSTEM(AIS)**

#### **1 Scope**

1.1 These performance standards specify the requirements for the universal AIS.

1.2 The AIS should improve the safety of navigation by assisting in the efficient navigation of ships, protection of the environment, and operation of Vessel Traffic Services (VTS), by satisfying the following functional requirements:

- .1 in a ship-to-ship mode for collision avoidance;
- .2 as a means for littoral States to obtain information about a ship and its cargo; and
- .3 as a VTS tool, i.e. ship-to-shore (traffic management).

1.3 The AIS should be capable of providing to ships and to competent authorities, information from the ship, automatically and with the required accuracy and frequency, to facilitate accurate tracking. Transmission of the data should be with the minimum involvement of ship's personnel and with a high level of availability.

1.4 The installation, in addition to meeting the requirements of the Radio Regulations, applicable ITU-R Recommendations and the general requirements as set out in resolution A.694 (17), should comply with the following performance standards.

#### **2. Functionality**

2.1 The system should be capable of operating in a number of modes:

- .1 an "autonomous and continuous" mode for operation in all areas. This mode should be capable of being switched to/from one of the following alternate modes by a competent authority;
- .2 an "assigned" mode for operation in an area subject to a competent authority responsible for traffic monitoring such that the data transmission interval and/or time slots may be set remotely by that authority; and
- .3 a "polling" or controlled mode where the data transfer occurs in response to interrogation

from a ship or competent authority.

### **3 Capability**

#### **3.1 The AIS should comprise:**

- .1 a communication processor, capable of operating over a range of maritime frequencies, with an appropriate channel selecting and switching method, in support of both short and long range applications;
- .2 a means of processing data from an electronic position-fixing system which provides a resolution of one ten thousandth of a minute of arc and uses the WGS-84 datum.;
- .3 a means to automatically input data from other sensors meeting the provisions as specified in paragraph 6.2;
- .4 a means to input and retrieve data manually;
- .5 a means of error checking the transmitted and received data; and
- .6 built in test equipment (BITE).

#### **3.2 The AIS should be capable of:**

- .1 providing information automatically and continuously to a competent authority and other ships, without involvement of ship's personnel;
- .2 receiving and processing information from other sources, including that from a competent authority and from other ships;
- .3 responding to high priority and safety related calls with a minimum of delay; and
- .4 providing positional and manoeuvring information at a data rate adequate to facilitate accurate tracking by a competent authority and other ships.

### **4 User interface**

To enable a user to access, select and display the information on a separate system, the AIS should be provided with an interface conforming to an appropriate international marine interface standard.

### **5 Identification**

For the purpose of ship and message identification, the appropriate Maritime Mobile Service

Identity (MMSI) number should be used.

## 6 Information

### 6.1 The information provided by the AIS should include

#### .1 Static:

- IMO number (where available)
- Call sign & name
- Length and beam
- Type of ship
- Location of position-fixing antenna on the ship (aft of bow and port or starboard of centerline)

#### .2 Dynamic:

- Ship's position with accuracy indication and integrity status
- Time in UTC \*
- Course over ground
- Speed over ground
- Heading
- Navigational status (e.g. NUC, at anchor, etc. - manual input)
- Rate of turn (where available)
- Optional - Angle of heel (where available)\*\*
- Optional - Pitch and roll (where available)\*\*

#### .3 Voyage related:

- Ship's draught
- Hazardous cargo (type)\*\*\*
- Destination and ETA (at masters discretion)
- Optional - Route plan (waypoints)\*\*

#### .4 Short safety-related messages

### 6.2 Information update rates for autonomous mode

The different information types are valid for a different time period and thus need a different update rate:

- Static information: Every 6 min and on request

- Dynamic information: Dependant on speed and course alteration according to Table 1

---

\* Date to be established by receiving equipment.

\*\* Field not provided in basic message.

\*\*\* As required by competent authority.

- Voyage related information: Every 6 min, when data has been amended and on request

-Safety-related message: As required

**TABLE 1**

<b>Type of ship</b>	<b>Reporting interval</b>
Ship at anchor	3 min
Ship 0-14 knots	12 sec
Ship 0-14 knots and changing course	4 sec
Ship 14-23 knots	6 sec
Ship 14-23 knots and changing course	2 sec
Ship > 23 knots	3 sec
Ship > 23 knots and changing course	2 sec

Ship Reporting Capacity - the system should be able to handle a minimum of 2000 reports per min to adequately provide for all operational scenarios envisioned.

### 6.3 Security

A security mechanism should be provided to detect disabling and to prevent unauthorised alteration of input or transmitted data. To protect the unauthorized dissemination of data, the IMO guidelines (Guidelines and Criteria for Ship Reporting Systems<sup>\*</sup>) should be followed.

## 7. Permissible initialization period

The installation should be operational within 2 min of switching on.

## 8 Power supply

The AIS and associated sensors should be powered from the ship's main source of electrical energy. In addition, it should be possible to operate the AIS and associated sensors from an alternative source of electrical energy.

## 9 Technical characteristics

The technical characteristics of the AIS such as variable transmitter output power, operating frequencies (dedicated internationally and selected regionally), modulation, and antenna system should comply with the appropriate ITU-R Recommendations.

---

<sup>\*</sup>Resolution MSC.43(64)

