Overall assessment

19. The foregoing discussions and examinations can be summarized and evaluated as shown in Table 7-3. Each assessment corresponds to the school type classified in Table 7-1.

Table 7-3 Assessment of Seafarer Education System in Indonesia

	Category A		Category B		Category C	
Phase Category	officer	rating	officer	rating	officer	rating
Education in class	vg/f	vg/f	vg/f	f	vg/f	f
Education on-board	f/p	-	f/p	-	f/p	-
Examination	f/f	-	f/f	-	f/f	-
Retraining	f/f	f/p	f/f	p	f/p	p

Note: vg = very good, f = fair, p = poor

Improvement issues

20. In the connection of the previous assessment, this study reveals the following issues concerning seafarer education system in Indonesia (in brief):

(a) There is a need to upgrade private schools so as to avoid the fixing of double standards between public and private schools.
(b) A training course by an appointed Harbor Master is insufficient for the ratings in Category A. Therefore, enhancement of formal education for ratings is an essential task. For that purpose, it is imperative to segregate the SKPD Certificate through formal rating schools from the SKPD by the appointed Harbor Master.

(c) There is a need to introduce exclusive training ships.
(d) There is a need to re-examine the "Sandwich System" and related examination schemes.
(e) It is required to rearrange the existing certificate system in order to adopt international circumstances.
(f) There is a need to unify the examination period of the students from public MMAs and from private schools.
(g) There is a need to give the teachers some incentives in order to attract the excellent students who will become competent teachers.

B. Future Demand of Indonesia Seafarers

Assumptions

21. In order to meet future traffic demand, Indonesian fleet will be expanded both in number and in capacity volume. In a field of seafarers' education, not only the vessels discussed in Chapter 3 but also ocean-going vessels, tugs, landing craft and

supply vessels should be encompassed as the Indonesian fleet. Therefore, the future Indonesian fleet in 2005 is estimated to be 3,850 vessels. These vessels can be categorized into three types as already defined in Chapter 10 of Part I.

22. As for foreign fleet, considerable foreign operators will be expected to employ Indonesian seafarers on their vessels due to cheap labor cost and international shortage of seafarers. With such expectations, the foreign vessels handled by Indonesian seafarers are assumed to be 1,200 in 2005, which will be double that of the existing ones.

23. Generally, shrinkage of manning scale is naturally considered in line with labor saving trend and technology renovation. The fleet modification designed for less seafarers, however, is costly to operate compared with operating the conventional types in Indonesia. Therefore, the existing manning scale will remain or shrink within the minimum range up to year 2005.

24. To enhance formal education for ratings, the SKPD certificate will separate into SKPD-I educated through formal rating schools and SKPD-II by appointed harbor masters. From the same viewpoint, the SKPD-I holders will not have any limitation while the SKPD-II holders will be applicable only to the vessels belonging to Category B and C. The quantity of SKPD-II holders is not worth estimating because it is easy to adjust to demand under current training courses held by appointed harbor masters.

25. In order to keep the same magnitude of seafarers, it is necessary to send out a certain portion of newcomers annually. This attrition rate can be calculated as 5% in case of Indonesia. As a matter of fact, 10% attrition is internationally used. However, it reflects the labor-saving trend in advanced countries.

Demand and supply analysis

26. Based on the above mentioned assumptions, future Indonesian seafarers from both demand and supply sides are estimated in Table 7-4. On the demand side, officers and ratings from maritime schools will be annually required to be 1,500 and 1,365, respectively. As for the supply side, existing maritime schools send out 1,335 graduates for officers and 385 for ratings based on the averaged result in recent years. By comparison of these figures, some shortage of seafarers will occur in the future. More precisely, 165 officers and 980 ratings will be lacking every year.

C. Conceptual Framework

Necessary consideration

27. To keep pace with the times, world shipping industry have nowadays received many waves such as technical renovations and environmental considerations. Seafarer education has also made progress to meet the demand of the times. This trend requires seafarers who are highly skilled and multi-functioned. Even in Indonesia, seafarer education is situated in the same surrounding.

28. From this point of view, Indonesia seafarer education, particularly on its quality aspect, can be analyzed as follows:

(a) Education for officers: Public MMAs must provide satisfactory education while private MMAs and MMMSs must catch up with international standard. Among several problems, apprenticeship training is the common and most critical one. The current poor situation, long list of applicants, and absence of training ship present a bottleneck in the education system.

Table 7-4 Demand and Supply of Indonesian Seafarers in 2005

	Officer			Rating	
	MPB (Deck + Engine)	MPI (Deck + Engine)	MPT (Deck + Engine)	SKIP-I	
				Deck+Engine	Catering
(DEMAND IN 2005)					
Category A					
Domestic (550 vsls)	5,280			6,600	1,980
International (1,200 vsls)	5,760			14,400	4,320
Category B					
Domestic (1,300 vsls)		9,360		-	-
Category C					
Domestic (2,000 vsls)			9,600	-	-
Total (I)	11,040	9,360	9,600	21,000	6,300
Annual Number to be Admitted (I)	552	468	480	1,050	315
(SUPPLY FROM EXISTING SCHOOL CAPACITY)					
Regular Course:					
PLAP (Jakarta)	145				
BPLP (Semarang)	100				
BPLP (U.Pandang)	90				
BP3IP	65				
Private MMAs, and					
Private MMMSs,	170	200	200	210	
BPLPD (Barombong)		40	45	90	
BPLPD (Surabaya)			110	85	
Special Course:					
BPLPD (Barombong)		170			
Total (II)	570	410	355	385	0
DEMAND/SUPPLY GAP (I) - (II)	-18	58	125	665	315

Note: 1. According to the METC, BP3IP sends 65 of MPB-III level officers annually.
2. Private MMAs and MMMSs send 170 and 610 of graduates as an average result in recent years, respectively.
3. Graduates from private MMMSs are distributed as above is estimation based on number of successful candidates on MPI level examination.

(b) Education for ratings: Rating education system has different problems. First of all, rating education lacks schools. As a result, this system must depend on the irregular training course held by the appointed harbor masters on occasion. This course provides precious educational opportunity but it is impossible to give enough knowledge and skill for employment on large and modernized vessels.

(c) Education for graduates and maritime related-personnel: BP3IP offers upgrading/refreshing courses for existing seafarers. And also, each public maritime schools offers retraining for compliance with the requirements of STCW and SOLAS convention. Pilot school Surabaya offers pilot training courses and PT. PELABUHAN II offers port management training courses. However, these training institutions are generally showing little or no facilities with respect to staff and administration, laboratories, training material and simulators.

29. The quantity aspect is also an important consideration. Shortage of seafarers was projected in the previous section.

30. As an administrative aspect, statistical data in relation to seafarers are not sufficient and some discrepancies usually occur. Under such circumstances, it is difficult to formulate proper plans.

31. Looking at local conditions, three provinces have no maritime school in Eastern Indonesia, that is, Maluku, East Timor and Irian Jaya. In the three provinces, young people must attend the training course held by appointed harbor masters to get the certificate of SKPD and others below MPT level. When they wish to have the certificate above MPI level, they have to go far with considerable financial burden.

Concept for development plan

32. To meet future demand in quality and in volume as well as to resolve the above-mentioned issues, the development plan for seafarer education is formulated as follows:

For the quality aspect:

(i) Training facilities and equipments will be upgraded in existing maritime schools.
(ii) Formal education for ratings will be enhanced.
(iii) Three exclusive training ships will be introduced. Among them, one will be mainly utilized by the maritime schools in Eastern Indonesia.
(iv) A multi-purpose institution with a maritime library and a publishing house for higher maritime education, teaching staff's training, retraining for existing seafarers and maritime researchers will be established.

For the quantity aspect:

(i) Existing schools such as public MMAs and public rating schools will be expanded to meet officers' demand.
(ii) Three rating schools will be constructed to meet qualified ratings'

demand. They will be distributed in Western Indonesia, Java and Eastern Indonesia taking account of a geographical balance.

For administrative and regulatory aspects:

(i) Seafarer database system will be set up for routine administrative works and for planning works.
(ii) The proposed improvements as conclusions of an Assessment of Seafarer Education System will be implemented.

33. Among these plans, the following three (3) plans are preliminarily designed in this study.

(i) A rating school in Eastern Indonesia
(ii) A training ship
(iii) Seafarer database system

D. Site Selection and Basic Design for a Rating School

Site selection

34. For a new rating school in Eastern Indonesia, most suitable site should be selected in terms of the following criteria:

(a) Hinterland: There should be abundant applicants who have aptitude for ratings in its hinterland.
(b) Site condition: There should be enough space. Favorable location is near a large port and at seaside for the convenience of training.
(c) Local acceptance: Various local cooperations and communications are necessary for school management. Then local communities should welcome a school warmly.
(d) Provision of educational opportunity: A school should be constructed at the province where there is no maritime school in order to provide educational opportunity.

35. The fourth criterion narrows site possibility within Maluku, Irian Jaya and Eastern Timor. Then, representative ports of the three provinces (e.q. Ambon in Maluku, Sorong in Irian Jaya and Dilli in Eastern Timor) are compared and evaluated in Table 7-5.

Table 7-5 Comparison with Candidate Sites

	Hinterland	Site Condition	Local Acceptance	Evaluation
Ambon	Good	Good	Excellent	Suitable
Sorong	Good	Excellent	Excellent	Suitable
Dilli	Fair	Fair	Fair	Unsuitable

36. As a result, Ambon and Sorong are suitable. Although Ambon is preferable in respect of geographic location, Sorong is also preferable in respect of site condition. The proposed site in Sorong is located at seaside with enough space (around 30 ha.) while the proposed site in Ambon is situated on a hill-side(See Appendix 7-1). And it is difficult to draw the line between them at this stage.
Therefore, finally the study team recommends Ambon or Sorong, which should be decided upon by the feasibility study and the further discussions among agencies concerned.

Basic design for a new rating school in Eastern Indonesia

1) Courses and staff

37. The purpose of setting up a rating school are basically two-fold, namely: (a) to produce well-educated ratings for larger interisland and ocean-going vessels, and (b) to elevate the competence of officers on-board domestic trade vessels. Moreover, the courses to be offered with corresponding students to be accommodated are outlined in Table 7-6.

Table 7-6 Courses for a Rating School

Courses Offered	No. of Students
A. Regular Courses	
(1) PD-I Course (140 persons)	
a. Deck Rating Course	60
b. Engineer Rating Course	40
c. Catering Staff Course	40
(2) PD-II Course (40 persons)	
a. Deck Officer Course for MPT	20
b. Marine Engineer Course for AMK-PI	20
(3) PD-III Course (40 persons)	
a. Deck Officer Course for MPI	20
b. Marine Engineer Course for AMK-PI	20
B. Special Courses	
(1) Re-freshing/re-training Course for SKPD-I	unfixed
a. Deck Rating Course	
b. Engine Rating Course	
c. Catering Course	
(2) Upgrading Course for Existing Seafarers	unfixed
a. MPT/AMK-PT Course	
b. MPT/AMK-PI Course	
(3) Maritime Safety Course	unfixed
a. Basic Fire Fighting Course	
b. Radar Observer Course	
c. Personal Sea Survival Technique Course	
d. Proficiency in Survival Craft Course	
e. First Aid Course	
f. Oil Tanker Familiarization Course	
g. Chemical Tanker Familiarization Course	

38. The estimation on the number of instructors and employees to adequately staff a new rating school is based on existing schools (i.e., in Barombong and Surabaya) which are considered performing fairly well. Table 7-7 presents the estimated staff by responsibility.

Table 7-7 Estimated Staffing for a New Rating School

	Existing Schools	New Schools
a. Administration	(42)	40
b. General Instructor	(18)	20
c. Nautical Instructor	(14)	15
d. Technical Instructor	(12)	15
e. Catering Instructor	(0)	5
Total		95

2) Curriculum for courses

39. The curriculum of BPLPD Barombong except a catering staff course will be basically employed to the proposed school. Further adjustment will be done by experts in a next phase.

40. Catering department takes an important role to ensure crew the regular and healthy lives which are essential for safe navigation. In particular, daily meals are like a spice of life for the crew who must spend monotonous time on board. Therefore, the multi-functioned caterers who can not only cook but also manage the storage of food, calculate the nutritive value and make the varied menu for three times in a day are requested on the long voyage.

41. As Indonesia has no experience on the catering course, the necessary subjects to supplement this lack should be introduced. These subjects are enumerated as follows.

(a) General basic subjects (Indonesian Language, English, Mathematics, Geography)
(b) Sanitary laws
(c) Public hygienics
(d) Nutrition
(e) Food preservation
(f) Food purchase/stock planning
(g) Food accounting
(h) Cookery
(i) Practice (life boat drill, cooking, table service)

3) Major training facilities and equipments

42. Major training facilities and equipments are presented in Appendix 7-2.

4) Necessary considerations for school management

43. Existing rating schools (BPLPD Barombong and Surabaya) are today mostly educating officers for domestic (inter-island) service. On the other hand, graduates from rating courses are lower than designed capacity. To adapt graduates to the needs of employers-shipping companies, registration for admission will be separately done among PD-I, PD-II, and PD-III from the beginning.

44. To upgrade PD-I (for ratings) education, course program will be extended from 6 months to 12 months. This extension makes possible to satisfy the minimum age requirement (16 years old) for watch keeping ratings in compliance with the STCW Convention-1978. In addition, it contributes to the building up of physical strength to a great extent.

45. To encourage PD-I education, proposed SKPD-I certificates in this study will be given to graduates exempt from examination. The proposed SKPD-I certificate is intended to prove the graduates from formal rating courses.

46. Course program for PD-II will consist of 1.5 years lecture in class and 1.5 years practice on-board to meet the minimum age requirement (18 years old) for watch keeping officers and to be competent for related certificates.

47. Course program for PD-III will consist of 2 years lecture in class and 1 year practice on-board by the above-stated reasons.

48. The study team proposed three rating schools in Indonesia. However, capacity of regular courses is designed differently (e.g., 220 students per year for a school in Eastern Indonesia, 320 students for a school in Java and 280 students for a school in Western Indonesia) with consideration of socio-economic factors, particularly existence of shipping companies and active manning business. For that reason, a rating school in Ambon or Sorong will start on a comparatively small size. But there should be room for expansion in line with an increase in applicants and increase in job offers to qualified seafarers in Eastern Indonesia.

E. Training Ships

49. To meet the demand of apprenticeship trainees, three training ships which are designed to be 3,000 GRT and to accommodate 200 cadets per ship are proposed. Taking account of local demand, one will be served for the maritime schools in Eastern Indonesia.

50. Sectional and deck drawings are designed by the study team as shown in Figure 7-1. Outline of the proposed ships are as follows.

(a)	Principal dimensions		
	(i)	length, o.a.	84.0 m
	(ii)	length, b.p.	74.0 m
	(iii)	breadth, mld	14.8 m
	(iv)	depth, mld	6.8 m
	(v)	designed draught, mld	4.8 m
(b)	Gross tonnage and deadweight		
	(i)	gross tonnage (international admeasurement)	abt. 3,000 tons
	(ii)	deadweight	abt. 1,400 metric tons
(c)	Speed		
	(i)	service speed	14.0 knots
	(ii)	endurance	abt. 7,000 n.m.

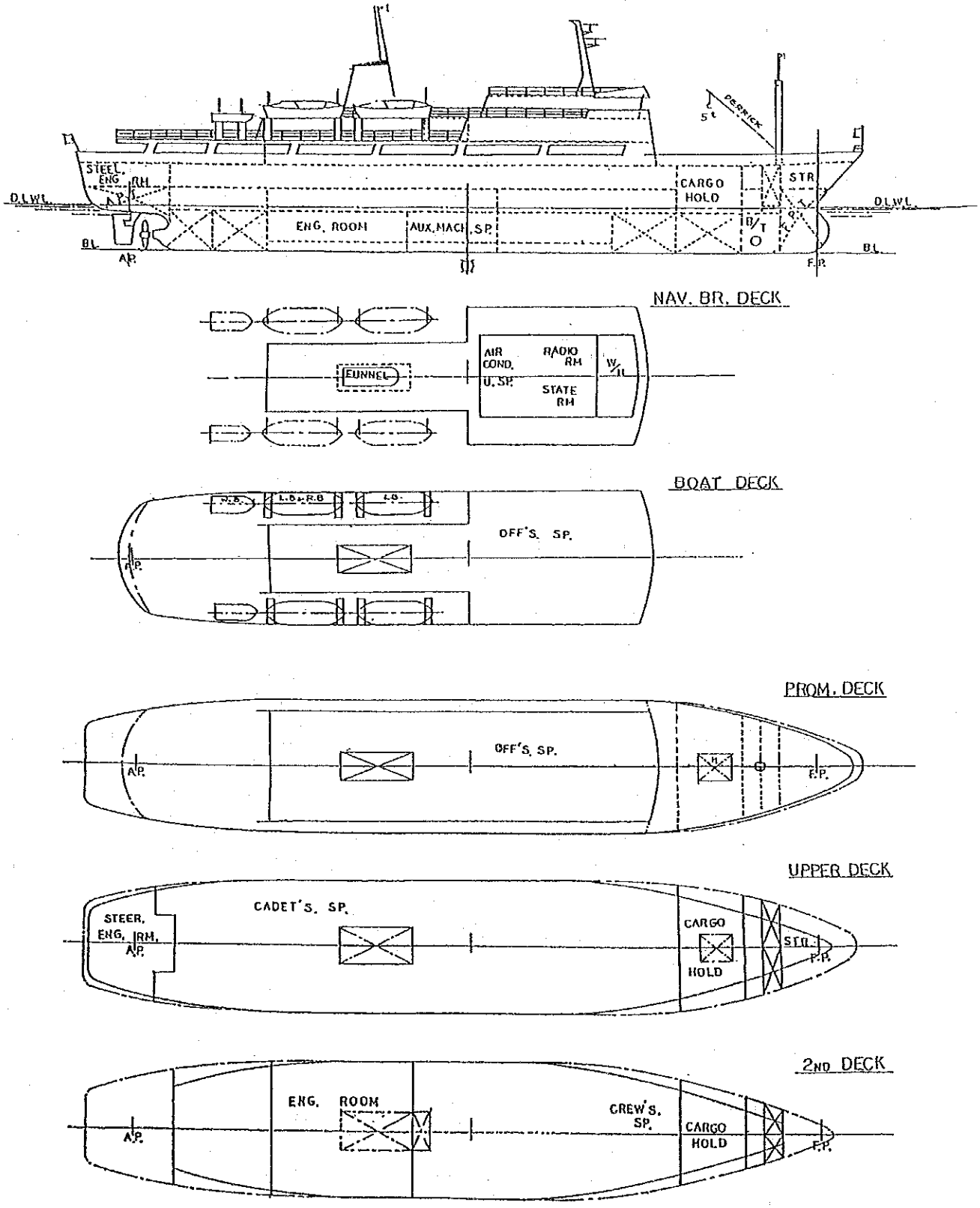


Figure 7-1 Outline Arrangement of A Training Ship

51. Necessary instructors and crew complement for a training ship are as follows.

(a) Officers

Deck	:	8
Eng.	:	8
Radio	:	3
Purser	:	3
Total	:	22

(b) Ratings

Deck	:	11
Eng.	:	11
Catering	:	8
Total	:	30

52. The training ships will belong to the METC. Therefore, Training Ship Division of the METC is proposed in order to maintain ships and implement the training program effectively.

F. Seafarer Database System

53. The accurate data on seafarers is not available as good as other shipping related data in the country due to lack of systematic reporting system and data base system.

54. In order to grasp the current situation of shipping industry including number of existing seafarers and make the necessary development plan of seafarers in future, it is necessary to formulate the data base system on seafarers connected with the database development of DGSC which includes the following subjects with constant updating yearly:

(a) Shipping company data:
- (i) Name of company
- (ii) Location of the head office
- (iii) Number and GRT of operating vessels with their trades
- (iv) Number of seafarers by rank, certificate and duties
- (v) Style of employment (Permanent or contractual)
- (vi) Future employment plan

(b) Maritime school data (public and private)
- (i) Name of school
- (ii) Class room capacity
- (iii) Dormitory capacity
- (iv) Number of applicants with their provinces
- (v) Number of enrollment (Input) and graduates (Output) by course
- (vi) Number of full-time teachers with their profession

(c) Certificate data

The following data should be shown with age and province distribution and also on a yearly basis.
- (i) Number of Seamen's Service Record Books
- (ii) Number of SKPD certificates by job assignment
- (iii) Number of MPT and AMK-PT certificates
- (iv) Number of MPI and AMK-PI certificates

(v) Number of MPB-III and AMK-A certificates
(vi) Number of MPB-II and AMK-B certificates
(vii) Number of MPB-I and AMK-C certificates
(viii) Number of 1st, 2nd, 3rd and 4th class radio operators

(d) Other certificate data for STCW Compliance:

(i) Name of authorized training institution for SKKP certificates
(ii) Number of SKKP certificates by course (Fire Fighting, Tanker Safety, etc.) and by training institution.

G. Cost Estimation

55. Among the above-mentioned projects, one rating school and one training ship shall be introduced to Eastern Indonesia in the scope of this study by 2005.

56. Fixed price in 1993 is used for costing and 1:19.75 for Japanese Yen to Indonesian Rupiahs assumed as the changing rate.

1) A rating school

57. Construction cost of the proposed rating school in Ambon or Sorong is estimated at 45,603 million rupiahs with the following breakdown. Land acquisition cost and related tax are not included.

Construction of Buildings and Related Facilities	20,658 (Rp mil.)
Installation of Training Equipments	17,025
Consulting Service	4,148
Contingency	3,772
Total	45,604

58. The construction period inclusive of detail design works is assumed to be 3 years between 1995 and 1997.

2) A training ship

59. It is assumed that the proposed ship would be constructed in Indonesia by making use of foreign development assistance. Under such conditions, the greater part of training equipments should be imported. The cost is estimated as follows.

Construction of Training Ship	71,100 (Rp mil.)
Consulting Service	3,992
Contingency	1,975
Total	77,067

60. This project shall be implemented between 1998 and 1999.

Chapter 8 IMPLEMENTATION PROGRAM

A. Integrated Master Plan of Sea Transport in Eastern Indonesia

Basic strategy

1. Eastern Indonesia, in general, is still in a developing stage compared to the West. The impetus for development must be initiated from public sectors. In this area, the shipping is the first thing to be exploited and trade follows, even though in other areas shipping follows trade.

2. Basic objective of the master plan is to promote the economy and public welfare of Eastern Indonesia through modernization of the sea transportation system.

3. In order to accelerate economic growth in Eastern Indonesia, investment of both public and private sectors needs to be promoted. Thus the population of this area would increase with the influx of settlers which would in turn increase production output.

4. The sea transportation system in this area, therefore, must not only provide good service but must also cater to the growing traffic demand. This will be achieved by general improvement of overall maritime transportation system including shipping service, shipbuilding industries, seafarers, navigation supporting system and facilities, port facilities and port operations.

5. Needless to say, shipping service is one of the key elements of maritime transportation service. Its improvement, both in quality and quantity, is vital for the success of the master plan.

6. Future supply of shipping fleet depends largely on ability of domestic shipbuilding industries in the case that they are provided by Indonesian shipyards.

7. Reliance on foreign vessels, including purchase of new and used or charter, is not desirable because such arrangements will not promote domestic shipbuilding industries but will expose interisland shipping to international market fluctuations. Moreover, the local shipyards are very important for effective maintenance of shipping fleet.

8. Safety of sea transportation is also very important. In this respect, quality of ship maintenance must be improved. At the same time, various other marine safety measures and facilities including aids to navigation, search and rescue system as well as safe operation management system must be strengthened.

9. Enforcement of seafarers for shipping fleet is also important, both in terms of numbers and quality, to satisfy prospective demand. Upgrading of quality of seafarers is also essential for marine safety.

10. Development of port facilities in Eastern Indonesia will not only appease port congestion, thereby improving the overall transport efficiency, but will also induce potential investors to the project area.

Shipping network and port development

11. Shipping network in the year 2005 is made out based upon origin and destination analysis. According to the analysis, volume of traffic expands in the area more than 300% in cargo and 500% in passengers.

12. Specialized traffic such as oil, mining products and log are handled by special carriers using private berths.

13. Other cargoes including general cargo, agriculture products and construction materials rely upon common carriers.

14. Since most general cargoes are still expected to be supplied through Java in 2005, the shipping network pattern will not be changed from the present pattern.

15. As industrialization in the project area progresses, however, the shipping network pattern will gradually become decentralized.

16. Ferry services as an extension of the road network are expected to supplement shipping network as part of the growth of connecting highway network. Ferry services are particularly effective for passenger transportation of short distance shuttle service.

17. Considering the future traffic demand increase and securing efficient vessel operation, standardization of vessels in service will be effective. For the main inter-island routes, 5,000 DWT type will be the most appropriate in 2005 as the largest standard type vessel. 2,500 DWT type and 1,000 DWT will be operated for secondary route or to serve major ports without sufficient water depth.

18. Rakyat ships will supplement service for small ports and infrequent routes for foreseeable future. Number and tonnage of wooden ships will gradually decrease as supply of lumber diminishes.

19. While major islands and ports of middle and over middle class are served by inter-island regular liners, remote islands and small ports in isolated areas are served by Perintis shipping lines.

20. For promotion of inter-island shipping, general improvement of shipping service is required. Improvement and expansion of port facilities for that purpose will be effective for efficiency of shipping operations. By increasing handling capacity, both by volume and unit weight, the over-middle class ports will attract potential port users and they will become regional centers.

21. Small class ports, on the other hand, are required to achieve equal distribution of development benefits. Through service of Perintis shipping, most of the small class ports will be connected to over-middle class ports in the vicinity and will have even access to regional centers.

Promotion of shipbuilding industry

22. In order to respond to the future demand of shipbuilding and ship repair by domestic shipyard, substantial improvement in the industry is required. Shipbuilding capacity in all Indonesia will be required to increase approximately 10% each year during the project period, if Eastern Indonesian related demand is to be limited within 30% of the total production capacity.

23. This annual increment in building capacity, however, may not require physical expansion of shipyard facility. It is mostly achieved by improvement of shipbuilding productivity.

24. Standardization of proposed common carriers will effectively reduce design and engineering cost and time required for shipbuilding.

25. Since maintenance and repair facility for vessels greater than 1,000 DWT is not available in Eastern Indonesia, a new slipway for 2,500 DWT class ship will be needed. The proposed location of the new slipway is at the existing PT. Waiame Ambon shipyard.

Enhancement of Maritime safety

26. Improvement of maritime safety will be achieved by various measures.

27. The most urgent and effective measure is to strengthen ship inspection. Many ships now engaged in the area need substantial repair otherwise they should be scrapped. This will not only upgrade existing ships' quality but also eliminate obscure operators in respect of management and finance.

28. Introduction of safe operation management system will also be effective for improvement of marine safety.

29. Installation and rehabilitation of aids to navigation in the project area is acutely needed as the traffic is expected to increase rapidly during the project period.

30. Search and rescue facilities including communication systems also need substantial enforcement.

31. In order to eliminate human elements from marine accidents, improvement of seafarers quality is essential. Particularly, supply of qualified ratings has to be increased. For that purpose, establishment of a new rating school in Eastern Indonesia is proposed. A new training ship for common use for maritime academies and rating schools will facilitate upgrading of the training standard.

32. In compliance with MARPOL convention, reception and disposal facilities for waste oil and bilge from vessels have to be installed at major public ports besides major specialized oil terminals.

B. Implementation Program

Project packages for implementation

33. In order to achieve objectives of the project at the target year of 2005, every sector should have their own implementation programs. Several project packages, which may have suitability for potential international financial assistance, are identified. The investment program should be divided into four stages during the project period of 1994 to 2005.

34. The package plan for each sector and stage is shown in the following table.

Table 8-1 Package Plan

		1st Stage (1994/1996)	2nd Stage (1997/1999)	3rd Stage (2000/2002)	4th Stage (2003/2005)	TOTAL (1994/2005)
Shipbuilding	P--type ships (Number of ships)	8	12			20
	Part of other type ships			11	10	21
	Passenger ships	1	6	2		9
	Waiame Shipyard		1/Ambon			1
	Sub--total (Rp. Bn.)	259.1	857.2	354.1	187.0	1,657.4
Port	Sampit (Number and length of Berths)		4B (280 m)		3B (210 m)	7B (490 m)
	Banjarmasin		17B (1870 m)		19B (2130 m)	36B (4000 m)
	Lembar		2B (260 m)		3B (390 m)	5B (650 m)
	Kupang	1B (170 m)		2B (340 m)		3B (510 m)
	Dili		1B (130 m)		1B (130 m)	2B (260 m)
	Balikpapan	3B (510 m)		6B (1120 m)		9B (1630 m)
	Samarinda		9B (990 m)		5B (550 m)	14B (1540 m)
	Bitung	3B (590 m)		5B (850 m)		8B (1440 m)
	Pantoloan		1B (130 m)		2B (260 m)	3B (390 m)
	Ujung Pandang	4B (760 m)		7B (1290 m)		11B (2050 m)
	Pare Pare		2B (260 m)		2B (260 m)	4B (520 m)
	Kendari		1B (130 m)			1B (130 m)
	Ternate				2B (320 m)	2B (320 m)
	Ambon	1B (170 m)		4B (780 m)		5B (950 m)
	Sorong		1B (170 m)			1B (170 m)
	Biak	1B (170 m)				1B (170 m)
	Jayapura		1B (130 m)		1B (130 m)	2B (260 m)
	Middle Class Ports (Rp. Bn.)	442.5	642.9	700.0	614.9	2,400.3
	Small Class Ports (Rp. Bn.)	135.8	273.3	273.3	267.6	950.0
	Sub--total (Rp. Bn.)	578.3	916.2	973.3	882.5	3,350.3
ATN	Lighthouse (40m)	13	6	6	3	28
	Lightbeacon (30m)	13	8	5	0	26
	Lightbeacon (20m)	13	10	0	0	23
	Lightbeacon (10m)	105	76	41	0	222
	Light Buoy	65	65	65	58	253
	Radar Beacon	86	73	58	44	261
	Loran--C System	0	1	0	1	2
	Vessel Traffic Service (VTS)	0	0	0	1	1
	Multi--purpose Buoy Tender Vessel (MB)	0	3	2	1	6
	Supply and Aids Tender Vessel (SA)	6	6	2	0	14
	Aids Tender (AT)	5	0	1	0	6
	Inspection Boat(IB)	1	1	1	1	4
	Sub--total (Rp. Bn.)	224.1	360.8	139.2	228.0	952.1
SAR	SAR ship of Class I--A	1/Surabaya	0	1/U.Pandang	0	2
	SAR Ship of Class I--B	0	1/Ambon	0	1/Bitung	2
	SAR Ship of Class II	1/Jayapura	1/Kupang	1/Balikpapan	0	3
	Pier for Class I--A Ship	1/Surabaya	0	1/U.Pandang	0	2
	Pier for Class I--B Ship	0	1/Ambon	0	1/Bitung	2
	Special Rescue Team	1/Surabaya	1/Ambon	1/U.Pandang	0	3
	Sub--total (Rp. Bn.)	80.0	61.2	80.0	38.2	259.4
Seafarer	A Rating School	1/Ambon or Sorong				
	A Training Ship		1/E.Indonesia			
	Sub--total (Rp. Bn.)	45.6	77.1	0.0	0.0	122.7
	TOTAL (Rp. Bn.)	1,187.1	2,272.5	1,546.6	1,335.7	6,341.9

Recommendations for successful implementation

35. It is recommended that the government of Indonesia promote the shipping business particularly on following matters.

a) Since Eastern Indonesia is less developed compared to the West, the government should give favorable treatment to attract more private investment to the area.

b) Establishment of shipping companies should be restricted in order to eliminate unsound operators and to stabilize shipping service.

c) Foreign vessels especially short-term or trip charter vessels should be restricted for domestic common carriers in order to stabilize shipping service and freight rate.

d) Financial arrangement for standard-type ship building should be improved so that the financial cost for the operators is reduced.

e) Modest increment of freight rate for inter-island shipping should be permitted so that the shipping management can be stabilized.

f) Appointment of Perintis operators should have at least 3 continuous years of contract period.

g) DGSC subsidy for the appointed Perintis operators to assure sound management has to be based on calculation by fixed subsidy ratio within budget.

h) A part of Perintis subsidy cost should be borne by local government.

36. For improvement of the shipbuilding and ship inspection in Indonesia, the following is recommended.

a) The newbuilding program of new tonnage should be worked out for development of shipbuilding industry as well as modernization of Eastern Indonesian fleet.

b) In order to successfully complete the newbuilding program, some proper measures to help the shipyards such as design supply, technical assistance at the shipyards and "package deal" for procurement of major components should be considered.

c) In order to improve the productivity of the Indonesian shipyards, some suggestions such as activation of middle management, promoting worker's will to work etc., will be effective.

d) Beside the newbuilding program for Eastern Indonesian fleet, a master plan for nationwide development of the shipbuilding industry should be made by both the shipping and shipbuilding sectors in order to set up a concrete developing target in line with the total shipping demand in this country.

e) The quality and number of ship inspectors should be increased through training course. In this connection, ship inspection organization in Indonesia namely, Biro Klasifikasi Indonesia (B.K.I.) should be utilized.

f) In order to strengthen the ship inspection in Eastern Indonesia, technical and non-technical support are considered necessary.

37. Regarding port sub-sector development program, the following is recommended;

a) In order to stimulate economic development in Eastern Indonesia, ports should be regarded as a basic social infrastructure, and be improved so as to help lower the maritime transportation cost.

b) Feasibility studies should be carried out for the over middle class ports prior to the implementation of the projects in order to take into consideration the local conditions in detail.

c) Development priority of the small class ports should be given to the Perintis ship calling ports, and the basic port facilities should be provided at least on the inhabited islands.

d) The latest information about the noncommercial ports should be compiled into a data base.

e) To achieve the economic development and public welfare in Eastern Indonesia, national budget for port development should be significantly expanded.

38. In order to upgrade maritime safety, following measures are recommended.

a) Training must be implemented to provide the ATN personnel with not only fundamental expertise knowledge on maritime safety but also the maintenance and repair policy.

b) From a short-term viewpoint, a Maritime Safety Training Center (MSTC) is proposed in order to train both newly recruited and active personnel swiftly.

39. Seafarer training program has to be upgraded to meet demand of shipping industry. The following is recommended in this connection.

a) Seafarer database system should be developed in order to grasp the current situation of shipping industry and make the necessary development plan of seafarers in future.

40. For effective implementation of the projects, closer coordination among various departments and government agencies, both at central and local levels, as well as related industries is necessary.

APPENDIX

APPENDIX

(PART I)

CONTENTS (APPENDIX)

PART I GENERAL

Chapter 3 OVERVIEW OF NATURAL CONDITIONS IN EASTERN INDONESIA

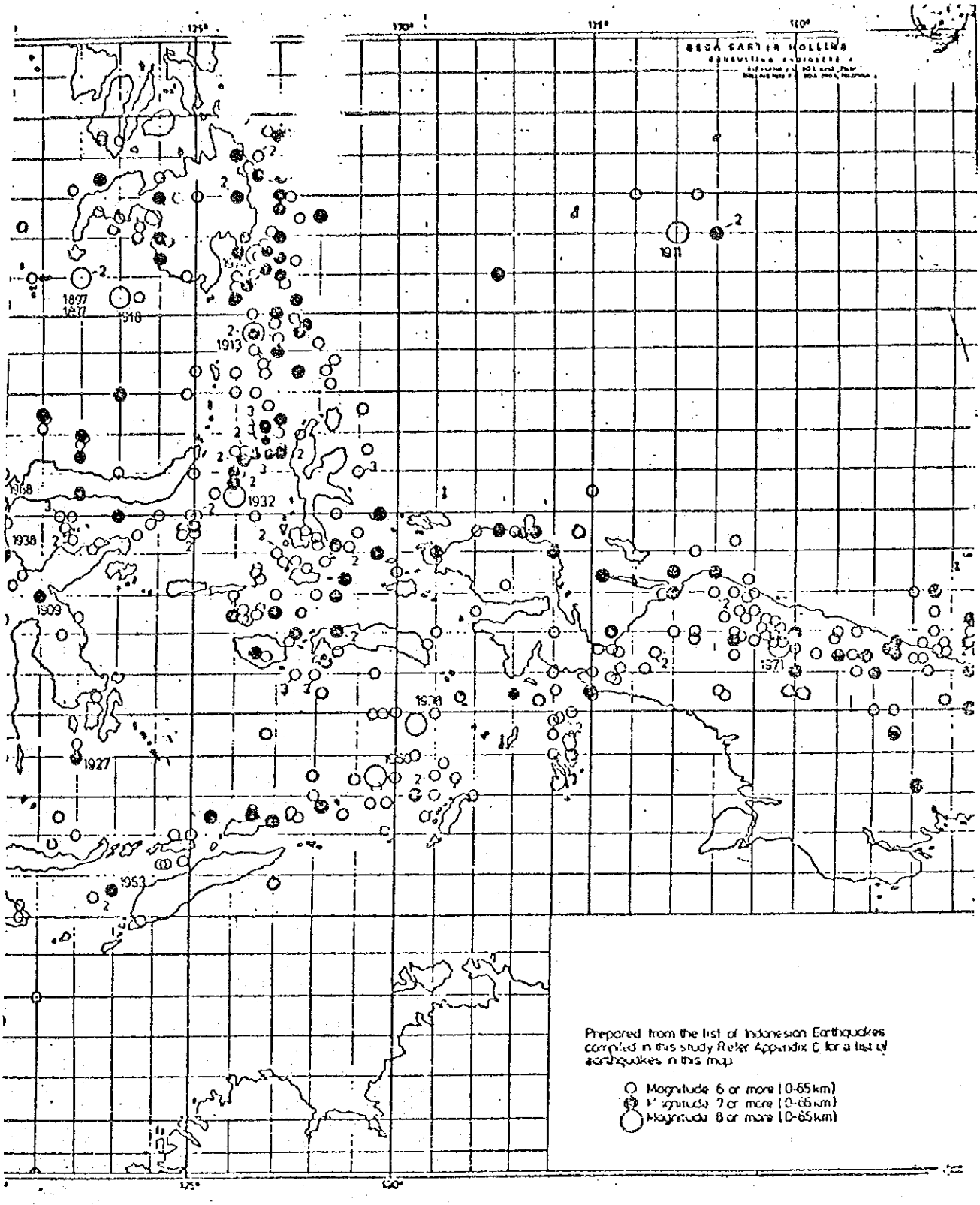
Chapter 6 REVIEW OF THE PRESENT SITUATION IN SHIPPING

Chapter 7 REVIEW OF THE PRESENT SITUATION IN SHIPBUILDING AND SHIP INSPECTION

Chapter 9 REVIEW OF THE PRESENT SITUATION IN MARITIME SAFETY

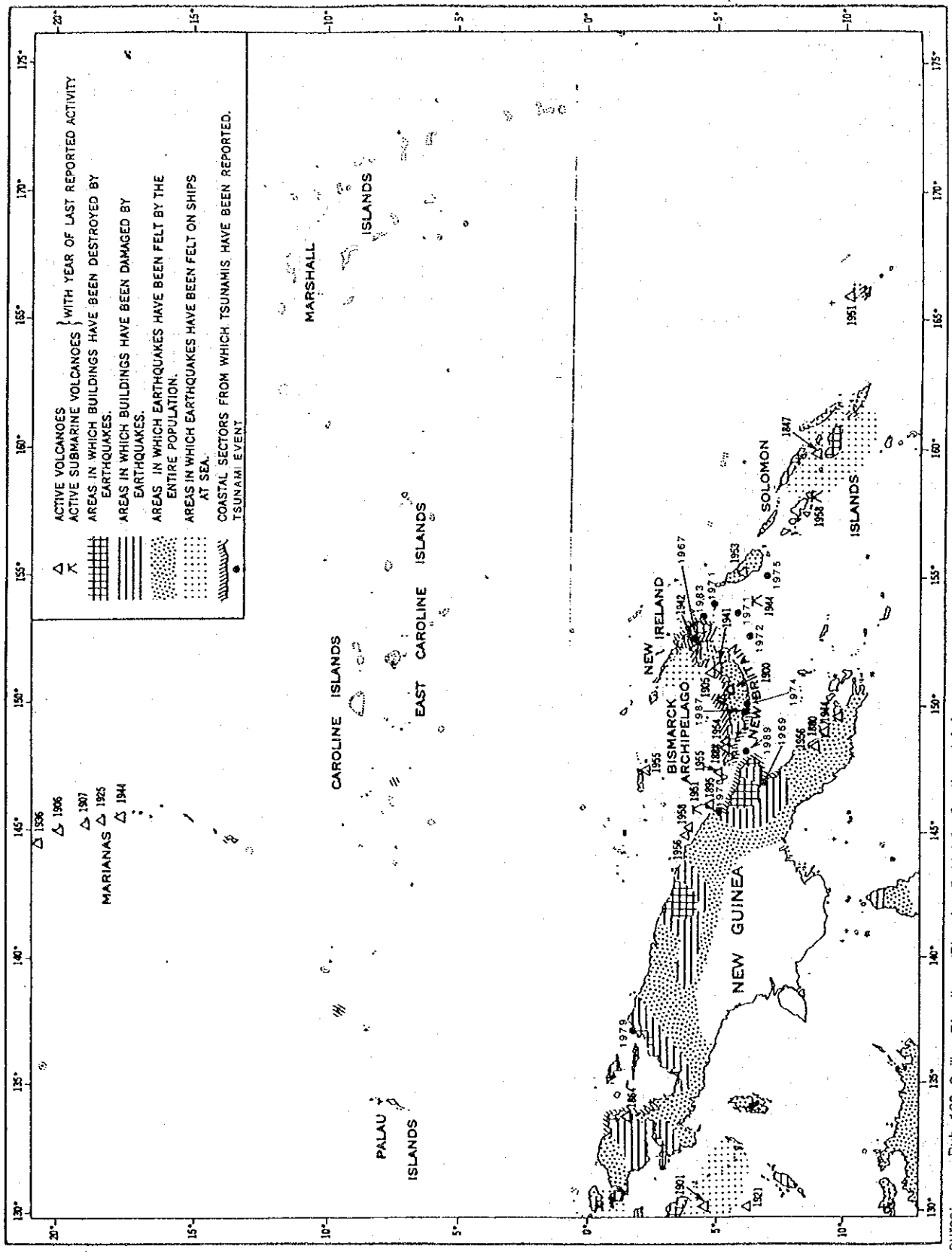
Chapter 10 REVIEW OF THE PRESENT SITUATION IN SEAFARER'S EDUCATION

Appendix 3-1 Major Earthquakes at Limited Depths in Indonesia(1897-1975)

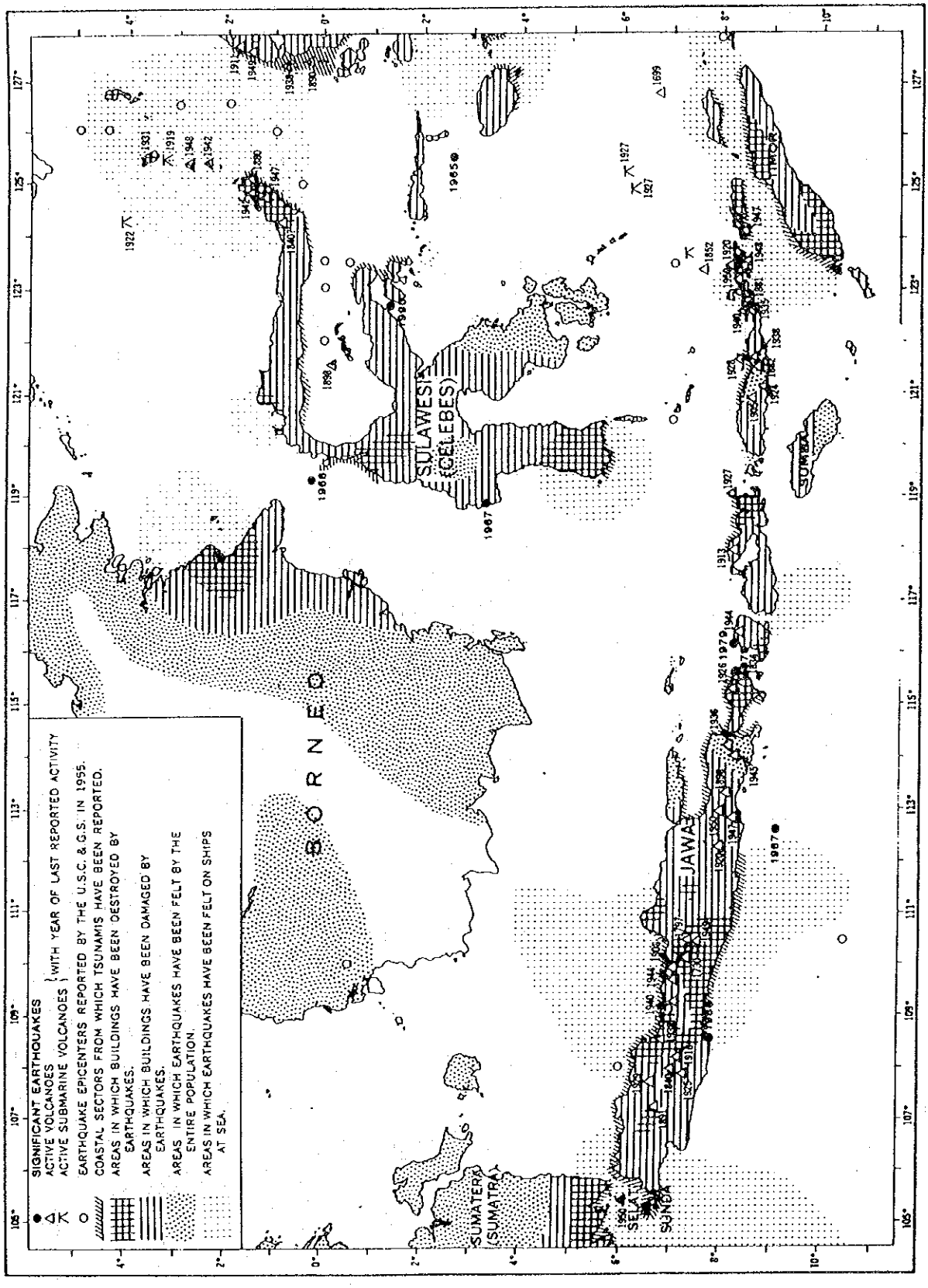


Source: Provisional Report for the Study on the Development Project of the Port of Sorong, the Republic of Indonesia, August 1980 by Japan International Cooperation Agency

Appendix 3-2(1) Volcanoes, Earthquakes and Tsunamis

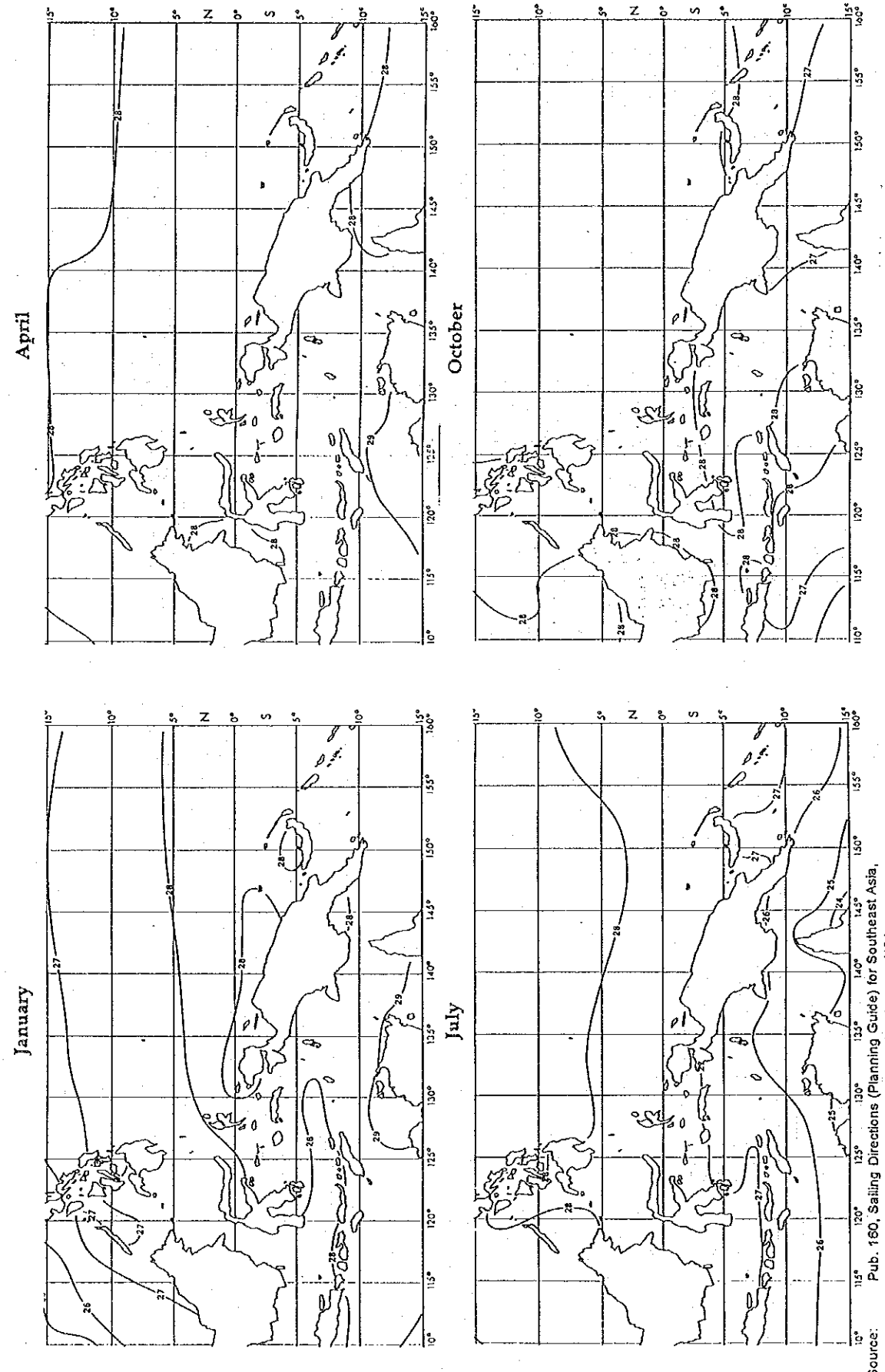


Source: Pub. 160, Sailing Directions (Planning Guide) for Southeast Asia, Third Edition, 1991 by Defense Mapping Agency, USA



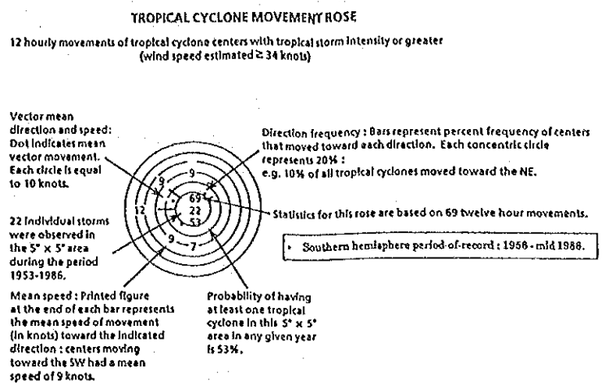
Source: Pub. 160, Sailing Directions (Planning Guide) for Southeast Asia, Third Edition, 1991 by Defense Mapping Agency, USA

Appendix 3-3 Air Temperature (°C)

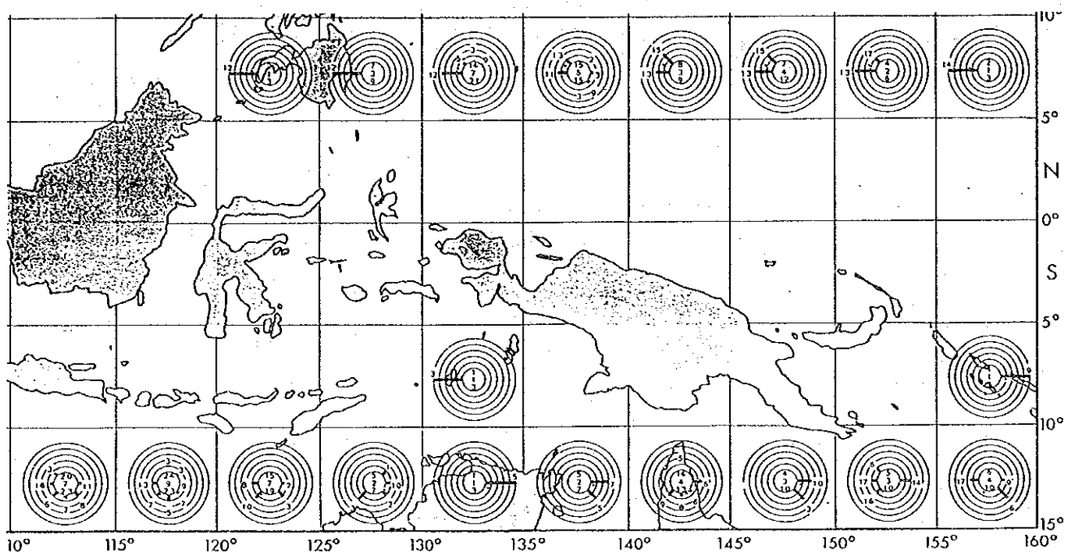


Source: Pub. 160, Sailing Directions (Planning Guide) for Southeast Asia, Third Edition, 1991 by Defense Mapping Agency, USA

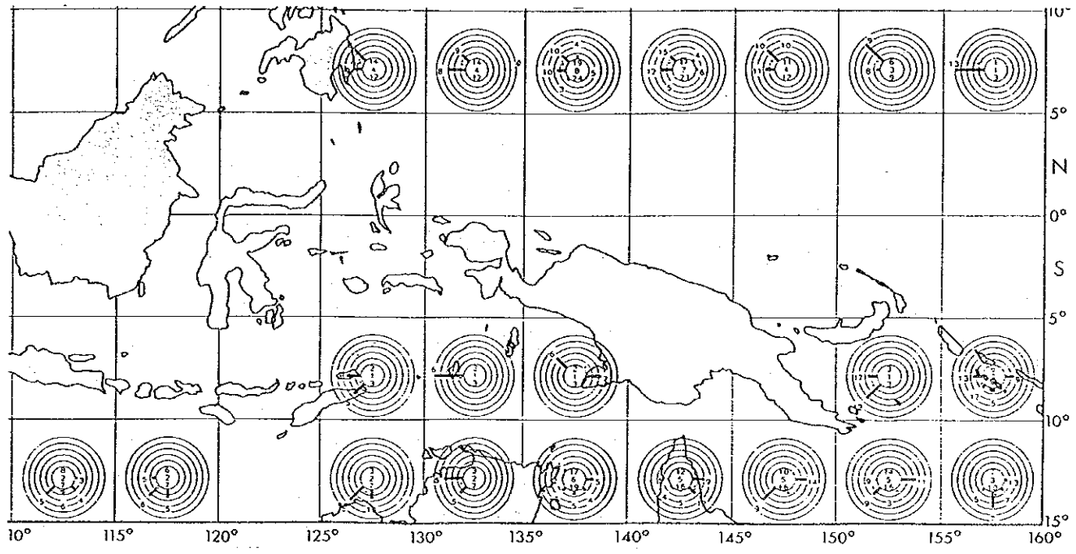
Appendix 3-4 Tropical Cyclone Movements



January



April



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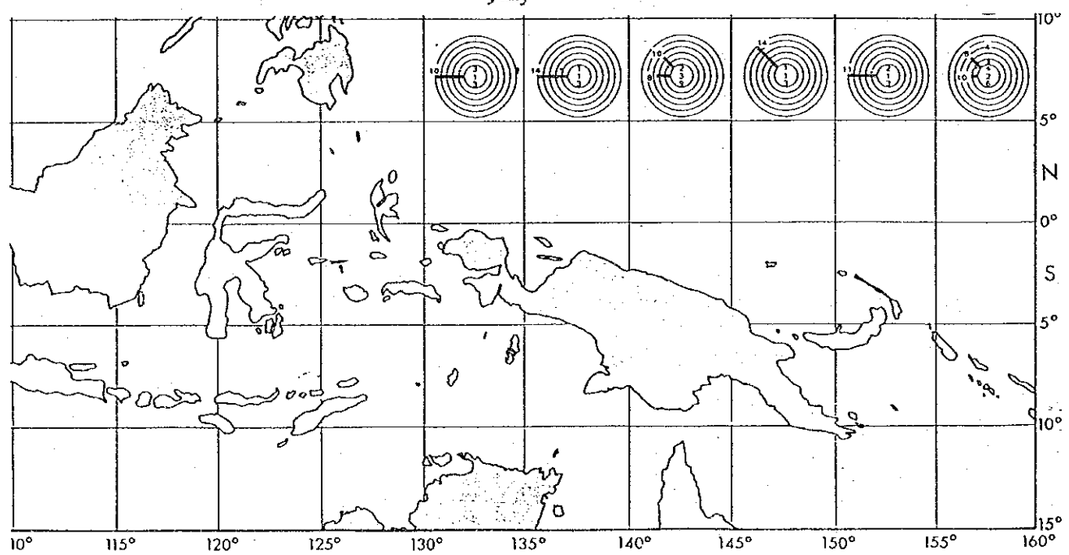

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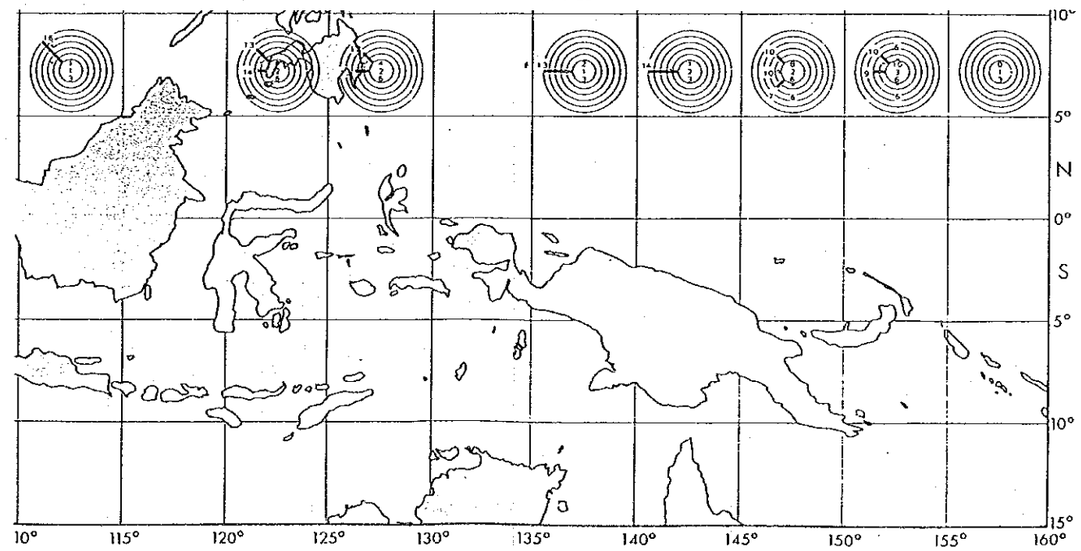
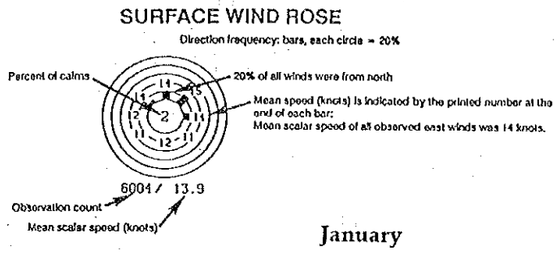


Source: Pub. 160, Sailing Directions (Planning Guide) for Southeast Asia, Third Edition, 1991 by Defense Mapping Agency, USA



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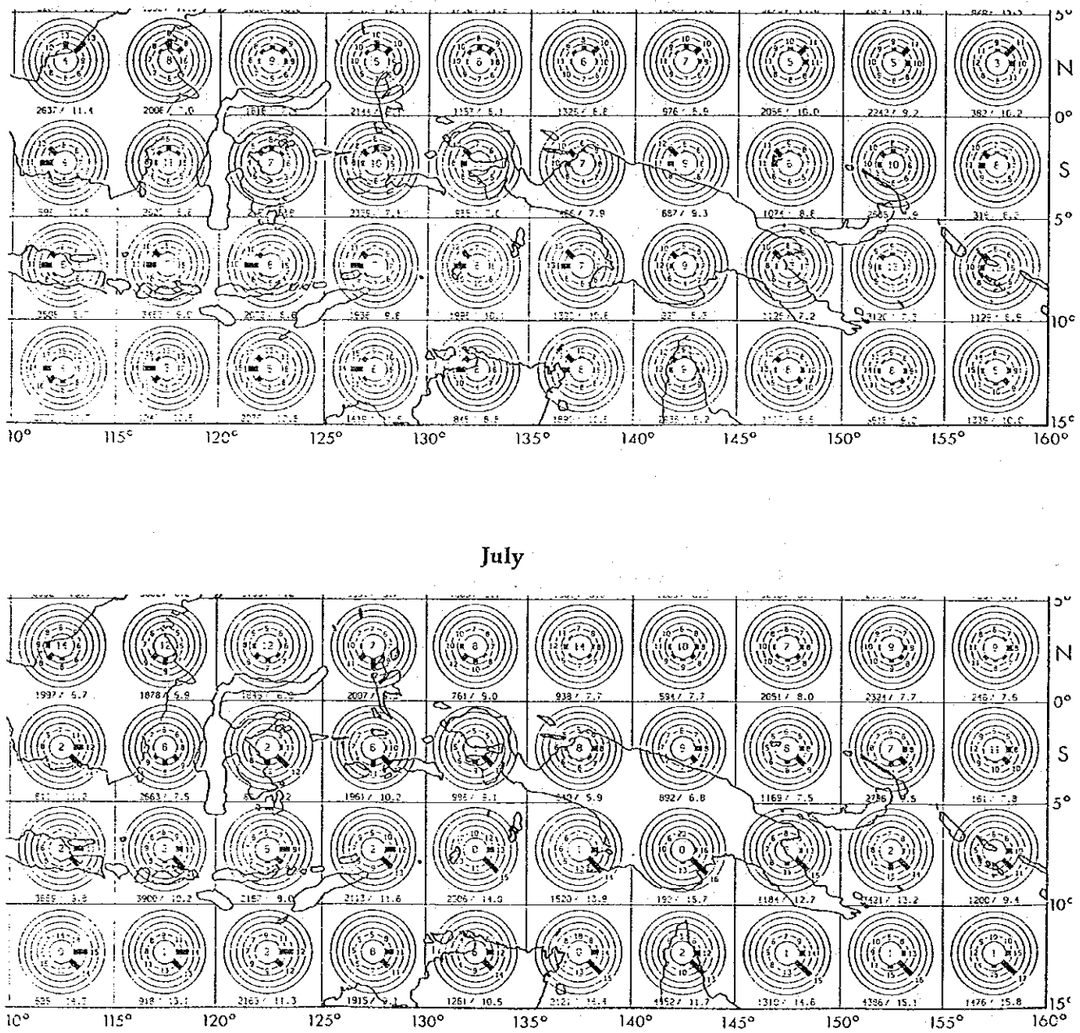

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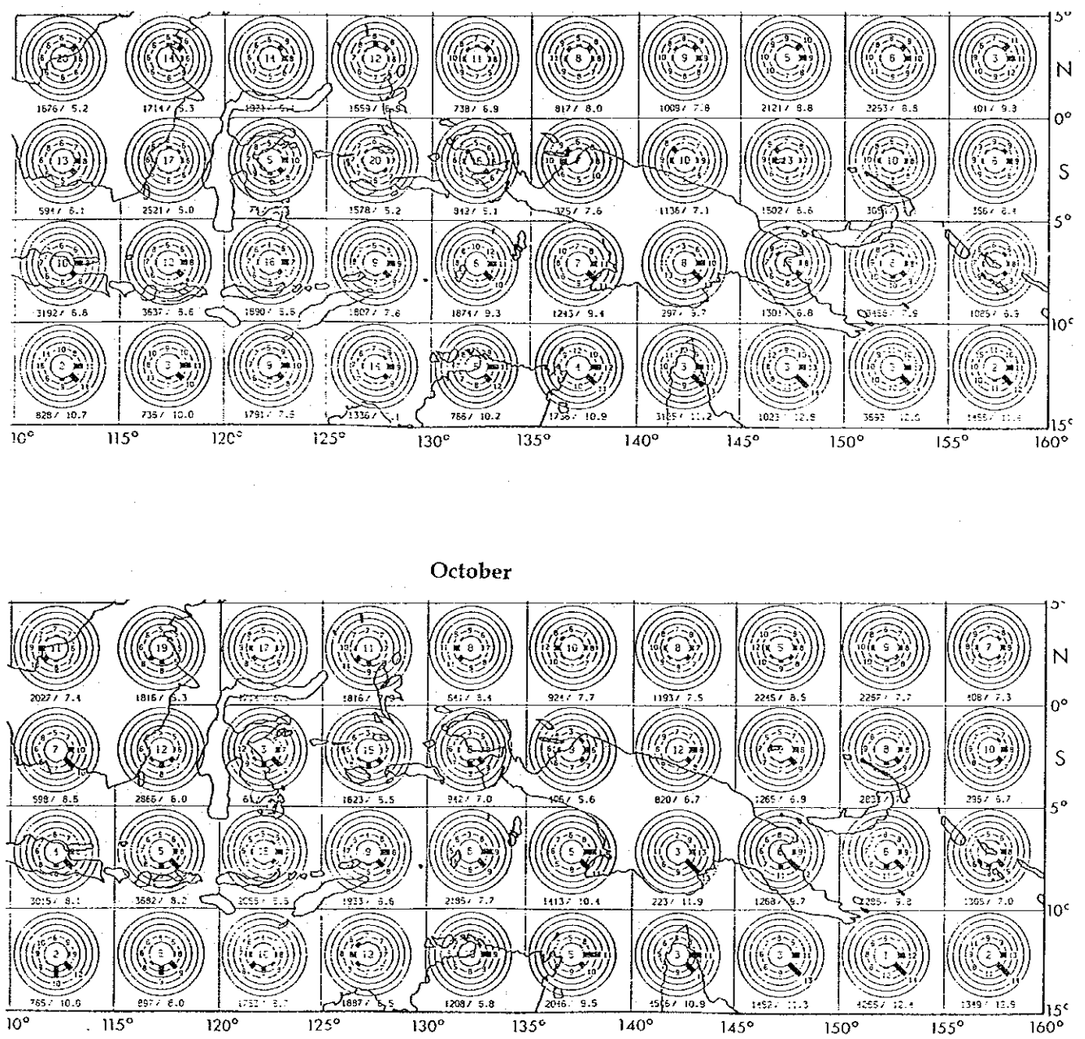
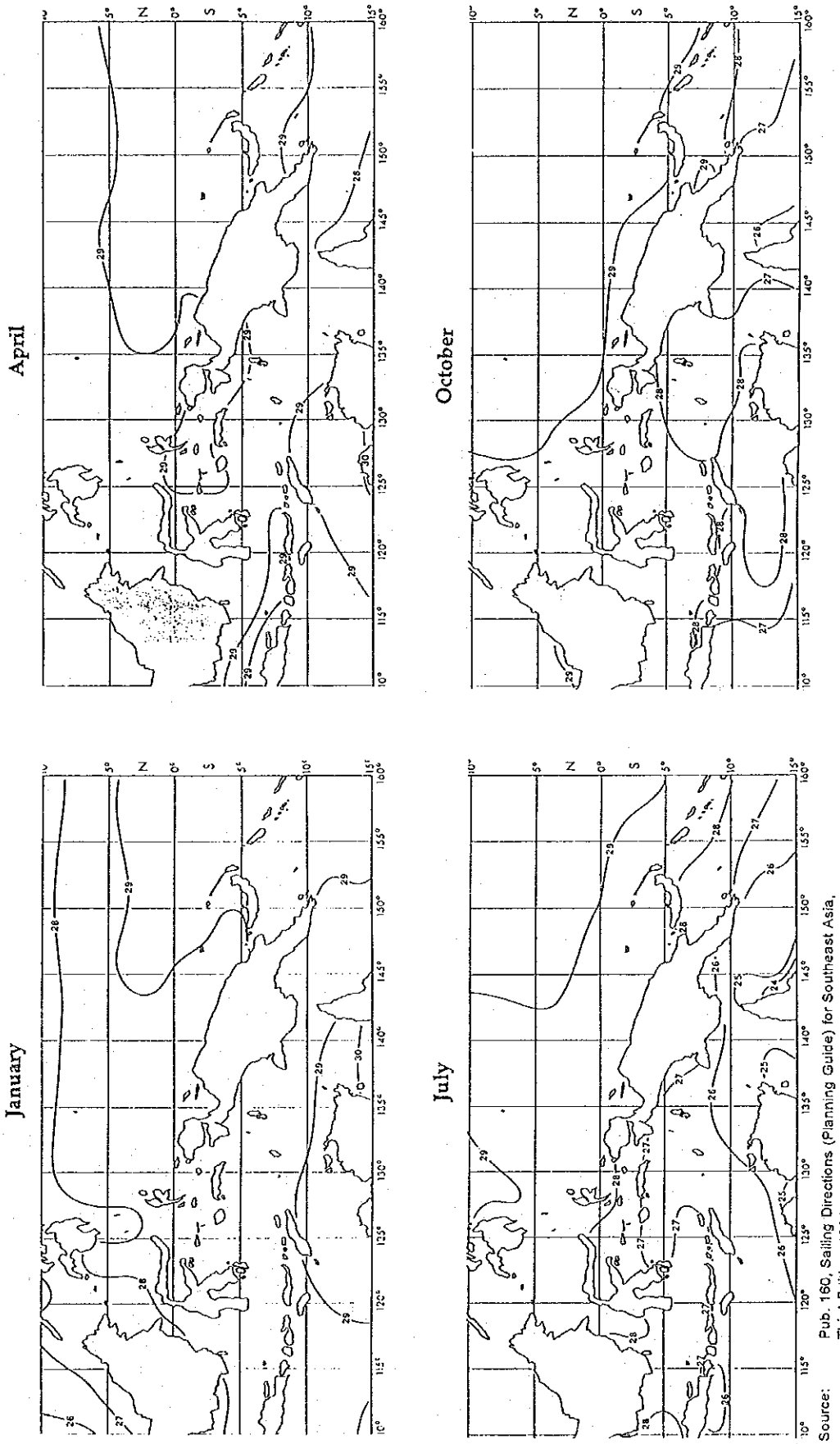


July

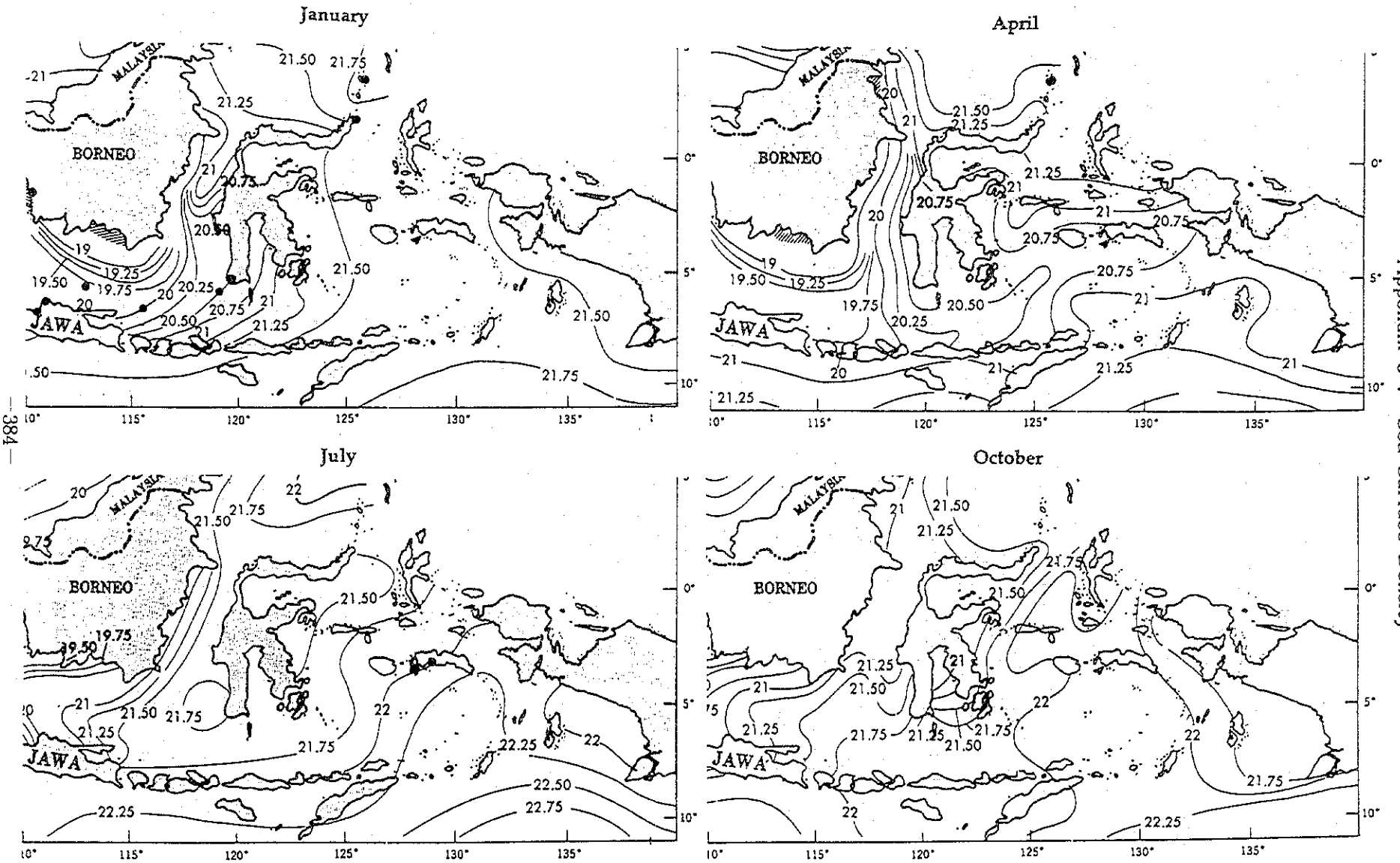
October

Source: Pub. 160, Sailing Directions (Planning Guide) for Southeast Asia, Third Edition, 1991 by Defense Mapping Agency, USA

Appendix 3-6 Sea Surface Temperature (°C)



Source: Pub. 160, Sailing Directions (Planning Guide) for Southeast Asia, Third Edition, 1991 by Defense Mapping Agency, USA



Source: Pub. 160, Sailing Directions (Planning Guide) for Southeast Asia, Third Edition, 1991 by Defense Mapping Agency, USA

Appendix 6-1 Cargo/Passenger Traffic in Indonesia (1990-1991)

Cargo unit: in Ton/m3

	1990	1991
Shipping		
Inter-island		
Cargo	7,025,739	12,447,687
	+ 125,521 TEUs	
Passenger	2,301,288	2,705,759
Cattle	27,780	51,599
Local		
Cargo	2,497,737	2,893,613
Passenger	545,640	632,009
Cattle	4,956	11,961
Pioneer Routes		
Cargo	48,392	83,943
Passenger	201,189	219,571
People Shipping		
Cargo	4,952,339	5,762,965
Passenger	845,111	2,187,024
Cattle	41,532	127,807
Sub-total		
Cargo	14,524,207	21,188,208
Passenger	3,893,228	5,744,363
Cattle	74,268	191,367
Container	125,521 TEUs	n.a.
Other Shipping		
Cargo	13,622,471	14,699,656
Cattle	1,521	n.a.
PERTAMINA	49,039,384	66,659,550
Non-Shipping	8,308,230	8,719,527
Grand Total		
Cargo only	85,494,292	111,266,941

Note: TEU = twenty-foot container equivalent unit
n.a.= not available
Source: DGSC

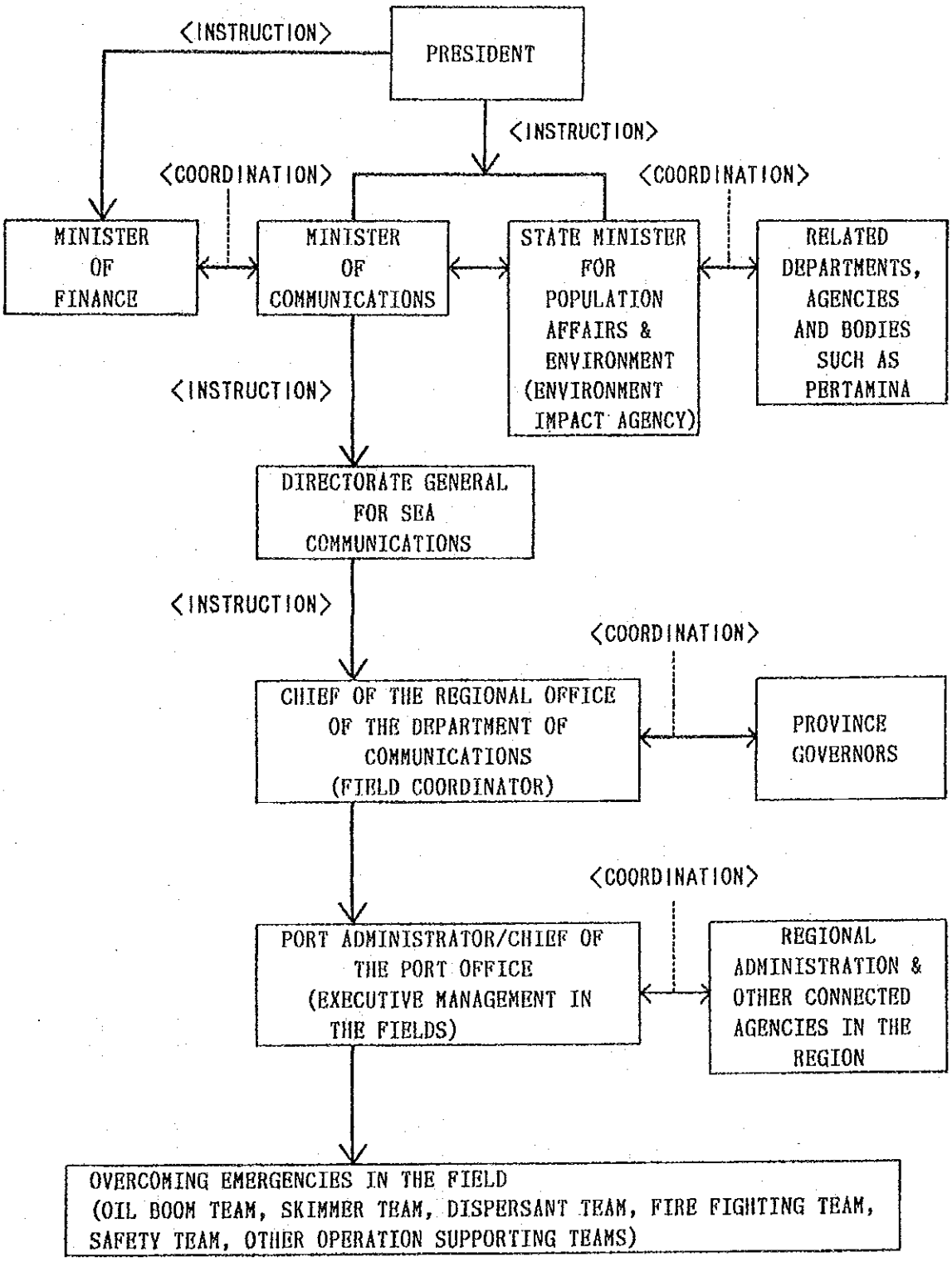
Appendix 6-2 Composition of the Current Domestic Fleet in Indonesia

Type of Service	1990 No. of Vessels	1990 Combined Dimensions	1991 No. of Vessels	1991 Combined Dimensions
Inter-island				
(Cargo)	202	430,956	344	742,242
	---	---	---	---
	---	---	---	---
(Passenger)	7	19,968 (a)	15	30,711 (a)
	---	---	2	6,105 *
	---	---	---	---
	(Note:(a)=80,400 GRT)		(Note:(a)=115,749 GRT)	
Local	---	---	---	---
	833	161,694 *	462	92,234 *
	115	85,641 **	38	16,345 **
			(Note:collected data only)	
			(Note:70 vessel/boats - tonnage N/A)	
Perintis (Pioneer)	26	15,800	26	15,800
	---	---	---	---
	---	---	---	---
Rakyat (People)	2,982	255,107 *	3,131	267,362 *
	---	---	---	---
Pertamina	73	1,061,472	73	1,061,472
	184	100,895 *	184	100,895 *
	280	178,561 **	280	178,561 **
Other Shipping	207	1,077,501	229	1,137,369
	267	246,098 *	224	234,751 *
	378	511,646 **	365	506,071 **
Non-Shipping	25	195,208	26	201,674
	1,411	384,826 *	1,249	350,604 *
	553	131,289 **	339	104,923 **
	25	2,190 ***	37	3,345 ***
T O T A L	540	2,800,905	713	3,189,268
	5,677	1,148,620 *	5,252	1,051,951 *
	1,326	907,135 **	1,022	805,900 **
	25	2,190 ***	37	3,345 ***
	-----		-----	
	7,568		7,024	

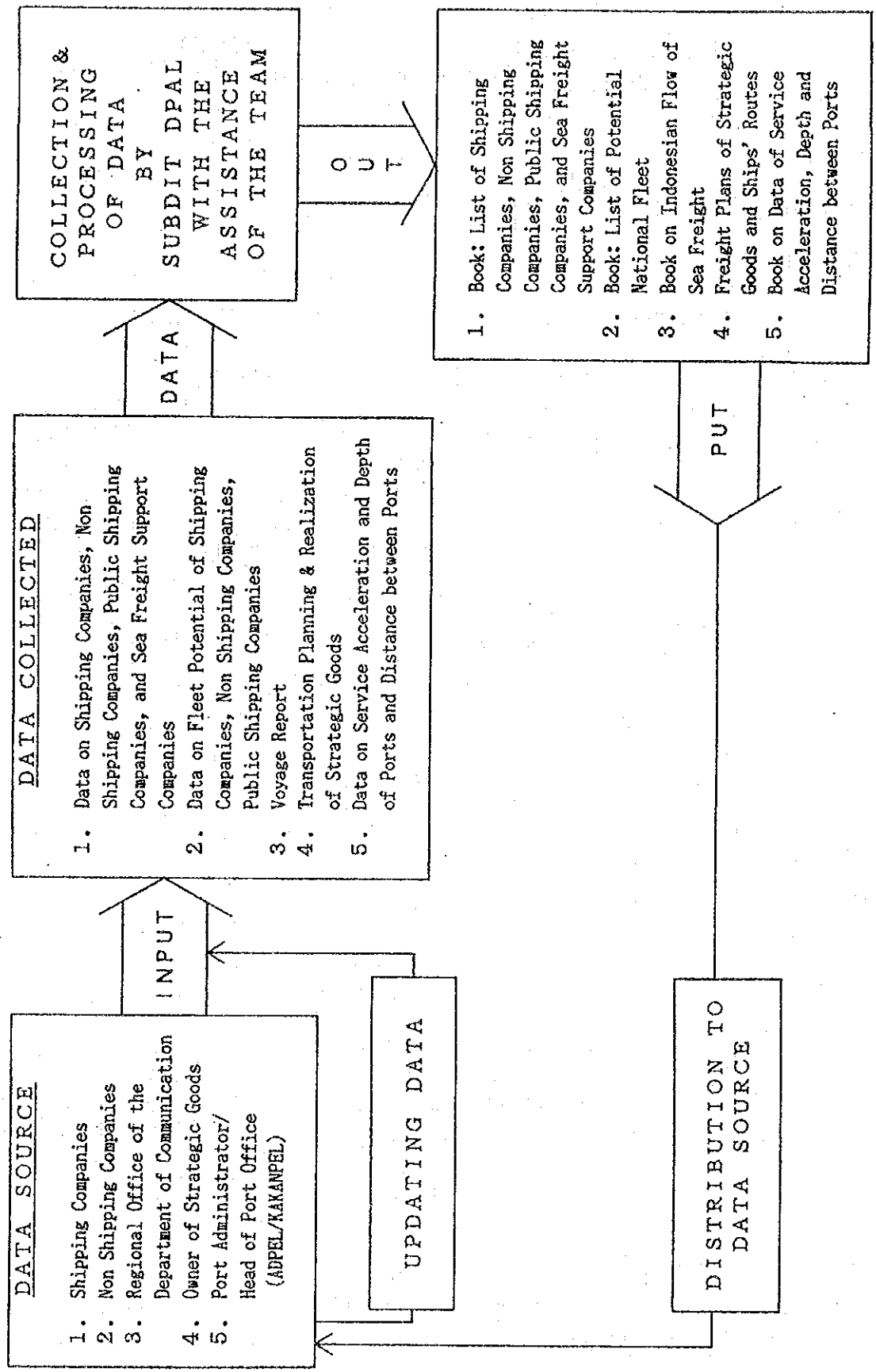
Note: figures without mark is given in DWT, * in GRT,
** in HP, and *** in cubic meters.
N/A = not available

Appendix 6-3 Indonesian National Contingency Plan

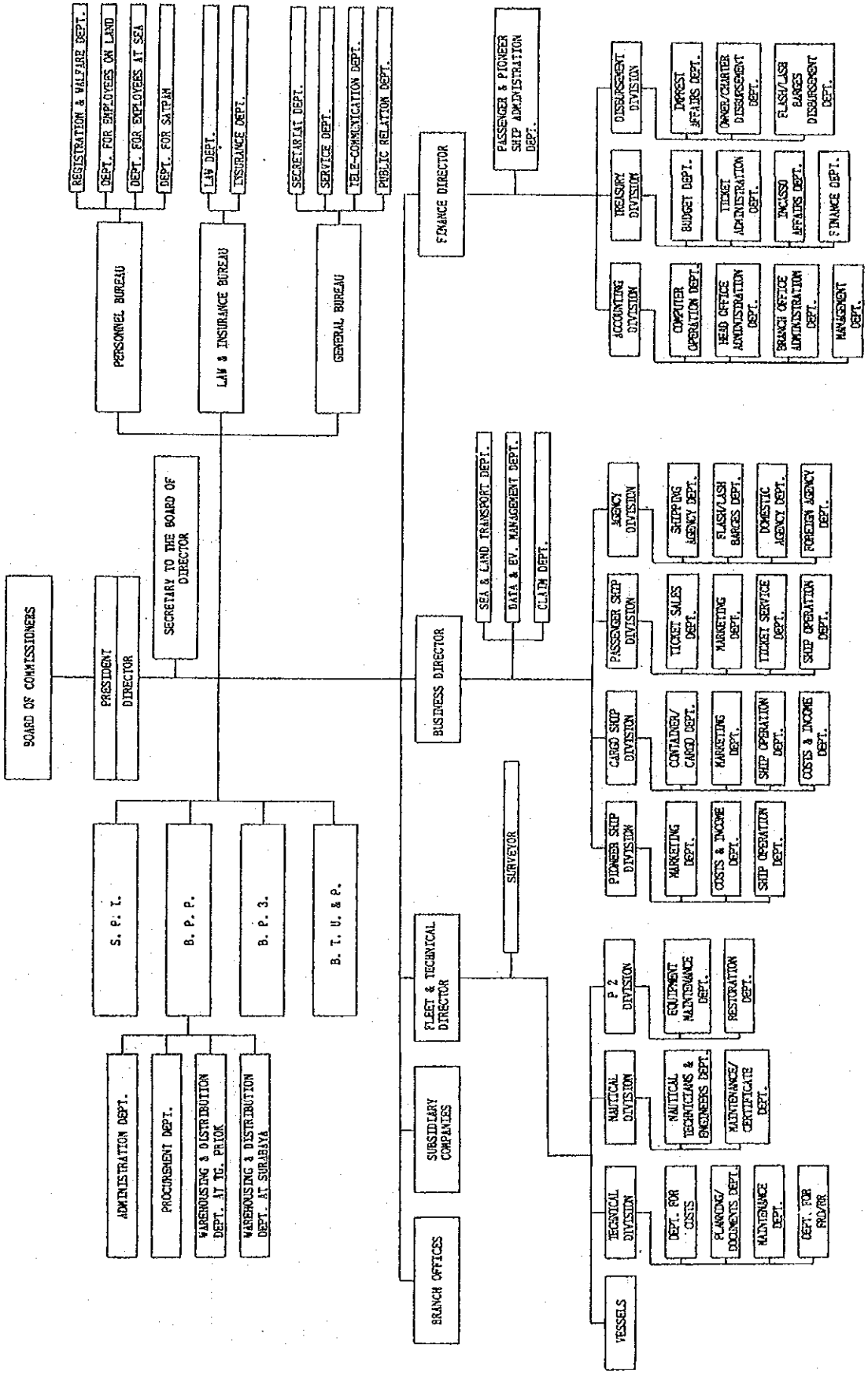
(NATIONAL PATTERN FOR OVERCOMING EMERGENCY OF MARINE ENVIRONMENT POLLUTION BY OIL)



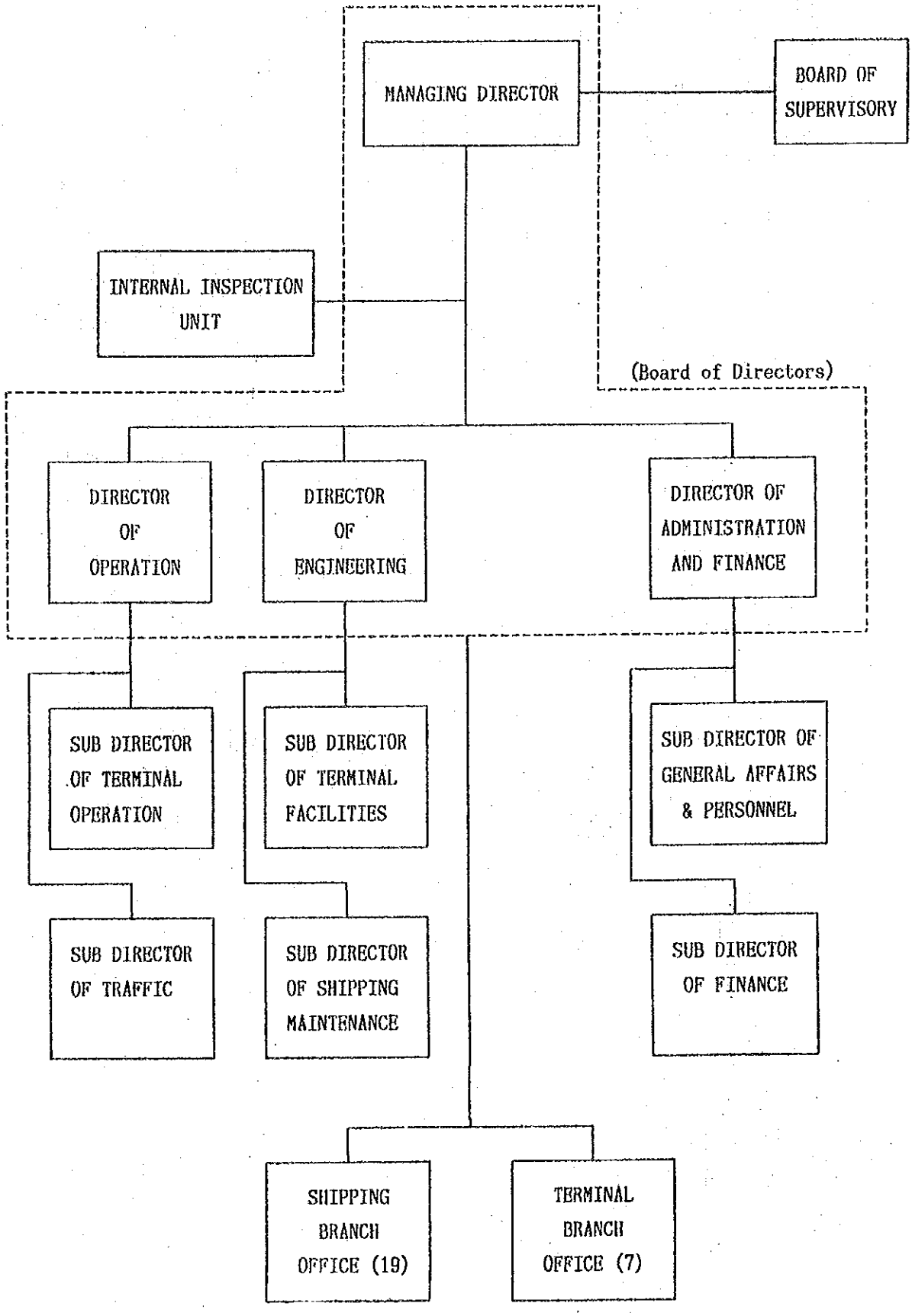
Appendix 6-4 System of Collecting, Processing, and Updating of Data on Sea Freight



Appendix 6-5 Organizational Chart of PT. PELNI's Head Office

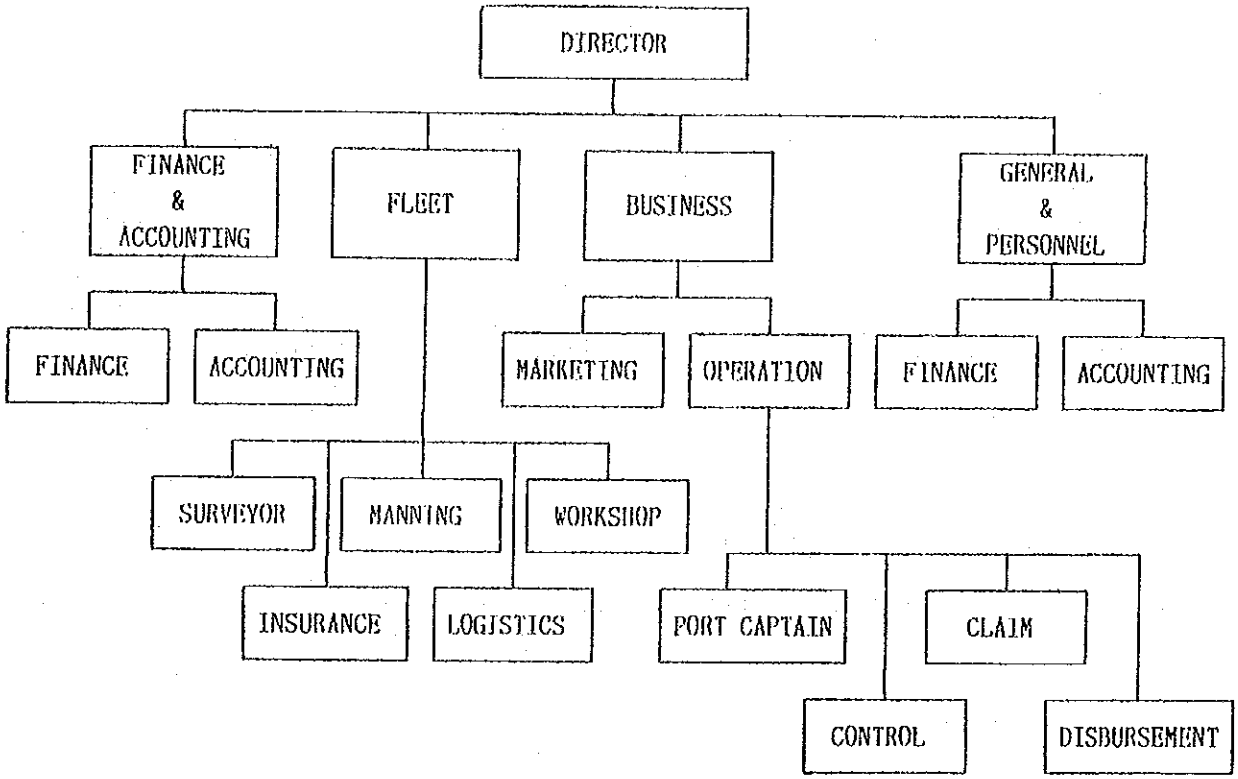


Appendix 6-6 Organizational Chart of PERUM ASDP

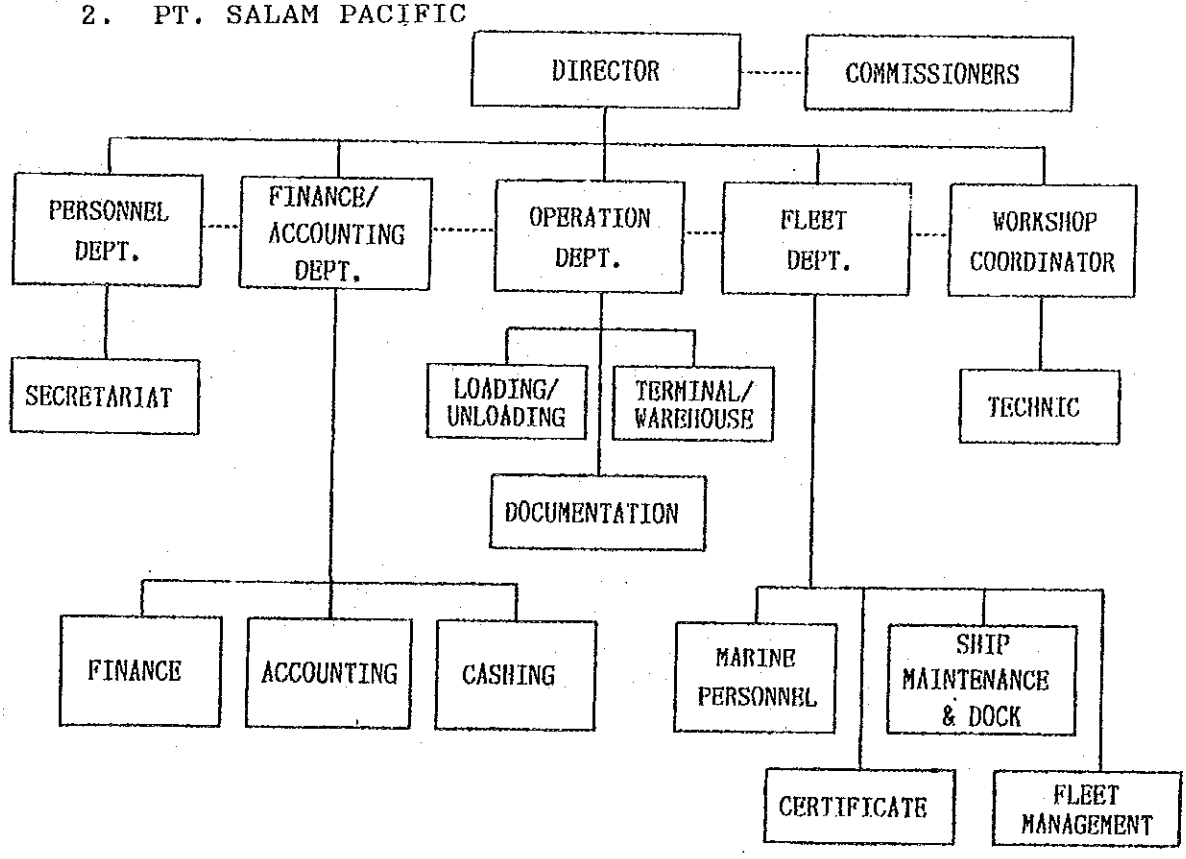


Appendix 6-7 Company Organization Structure

1. PT. PELAYARAN MERATUS



2. PT. SALAM PACIFIC



Appendix 6-8 Rules and Regulations Concerning Navigation Control

1) National Laws and Decrees

At present, the national laws and regulations pertaining to navigation in Indonesia are listed and categorized as follows.

(a) On the Ship's Safety:
- Shipping Ordinance of 1935
- Construction Regulation for Passenger Ship
- General Instruction for Ship Surveillance
- Ordinance and Regulations for Oil Transportation of 1927

(b) On the Ship's Measurement and Registration:
- Ship's Measuring Ordiance of 1937
- Ship's Registration Regulations of 1935
- Ordinance on Duty for Transfer of Ship's Name of 1924

(c) On the Legal Order at the Port:
- Port Regulation of 1925
- Pilot Service Ordinance of 1927
- Indonesian Shipping Law of 1936
- Quarantine Law of 1962

(d) On the Traffic and Safety at Sea:
- Ordinance on Territorial Seas and Marine Environment of 1939
- Law No. 4 of 1960 on the Indonesian Territorial Seas

(e) On the Ship's Accident:
- Ordinance of Shipping Court of 1934
- Ordinance of Ship's Crew Accident of 1940

(f) On the Ship's Crew
- Statute Book of 1934
- Shipping Ordinance of 1935

In addition to the above laws, the various Government Regulations (PP), the Presidential Decrees (KEPPRES) and the Decrees of the Minister of Communications (KEPMEN) are in force and effective in developing maritime activities in Indonesia.

On September 17, 1992, Maritime Law(the Law Number 21/1992) was promulgated and validated by the government of Indonesia. This Law shall take effect two years after the date of its promulgation when the following maritime laws/regulations, which were enacted during the Dutch Indies Administration, shall no longer apply with the progress of time, science and technology, and shall be declared null and void:

- Indonesian Shipping Law of 1936 No. 700
- Pilot Service Ordinance of 1927 No. 62
- Shipping Ordinance of 1927 No. 210
- Binnenscheepen Ordonnantie, Staatsblad of 1927 No. 289
- Sea Document and Ship's Pass Ordinance of 1935 No. 492
- Shipping Ordinance of 1935 No. 66
- Bakeneld Ordonnantie, Staatsblad of 1935 No. 468

Law Number 21/1992 defines navigation as everything connected with transportation on waters, to the harbours, as well as the security and safety of the transportation, all of which are controlled by the state and guided by the government.

With the promulgation of this Law, the stipulations contained in the following laws and regulations shall be closely linked with this Law:

- Law No. 4 Prp./1960 on the Indonesian Waters
- Law No. 4/1982 on Basic Stipulations on the Management of the Environment
- Law No. 17/1985 on the Ratification of the United Nations Convention on the Law of the Sea
- Law No. 9/1985 on Fishery
- Ordinance on Territorial Sea and the Maritime Environment of 1939

Regarding passenger ships, the Statute Book of 1939, the Regulation on Passenger Ship Construction of 1935, and other regulations define a passenger ship as a vessel that carries more than 12 passengers, and regulations stipulate the provisions of classification of passengers, spaces and deck for passengers and passenger certificate.

In the Law No. 21/1992, the responsibility of the conveyor is stipulated as follows:

"A company engaged in transportation on waters shall be responsible for the consequences arising from the operation of the ship in the form of:

- death or injury on the part of the passenger transported
- the cargoes transported being destroyed, lost or damaged
- delay in the transportation of passengers and/or chargoes
- losses incurred on third party."

In order to protect the passengers on board the ship, the clauses concerning the compulsory compensation and contribution to the compulsory insurance fund for passenger accidents on the sea are stipulated by the following laws and regulations:

- Law No. 33/1964 on the passenger accidents compulsory insurance fund
- Government Regulation No.17/1965 on the realization of the passenger accident compulsory insurance fund
- Government Regulation No.39/1980 on the change of Jasa Raharja Public Corporation into a State Trading Corporation
- Presidential Decree (KEPPRES) No. 64M/1988
- The Decrees of the Minister of Finance No.337/KMK.011/1981 and No. 17/KMK.013/1991

According to the above regulations, the compensation awarded to the victim/victim's family of maritime accident are as follows:

- When the victim dies Rp.2,000,000
- Maximum cost of medical/doctor's treatment..... Rp.1,000,000

2) International Conventions

The Government of Indonesia has ratified the following International Conventions on navigational control:

(a) International Convention for Safety of Life at Sea, 1973 (SOLAS 1973) and Protocol, 1978

(b) International Regulations for Preventing Collisions at Sea, 1972 (COLREG 1972)

(c) International Convention on Load-Lines, 1966 (ILLC 1966)

(d) International Convention on Tonnage Measurement of Ships, 1969 (TM 1969)

(e) International Convention for the Prevention of Pollution from Ships, 1973 (MARPOL 1973) and the Protocol 1978

(f) International Convention on Special Trade Passenger Ships, 1971

(g) United Nations Convention on the Law of the Sea, 1982

The above-mentioned Law Number 21/1992 reflects these international conventions and regulations, and the Ministry of Communications is now preparing regulations and decrees for the implementation of the Law, taking into account other related laws/regulations, as well as international conventions.

Appendix 7-1 Schedule of Training for 1993-1994

PROGRAM DIKLAT UNTUK DITKAPEL TAHUN 1993/1994
(Schedule of Training for 1993-1994)

No.	NAME DIKLAT (name of education)	TEMPAT (place)	WAKTU PELAKSANAAN (duration)	SUMBER DANA (project)
1.	GMDSS	JAKARTA	JUNI S/D JULI 1993	DIK. KPLKP
2.	KESYAHBANDARAN TYPE A (harbor master)	JAKARTA	JULI S/D SEPT 1993	DIP. PUSDIKLAT
3.	KESYAHBANDARAN TYPE B (harbor master)	SURABAYA	AGT S/D OKT 1993	DIP. PUSDIKLAT LAUT
4.	KESAYABANDARAN TYPE B (harbor master)	UJUNG PANDANG	AGT S/D 1993	DIP. PUSDIKLAT LAUT
5.	MARINE INSPECTOR TYPE B	JAKARTA	OKT S/D NOP 1993	DIP. PUSDIKLAT LAUT
6.	PPNS	JAKARTA	SEPT S/D OKT 1993	DIK. DITJENLA

DIKLAT YANG DIBIAYAI DARI GRAND NORWAY
(Education by Norwegian grant aid)

1. MARINE INSPECTION TYPE A (ADA 2 ANGKATAN):

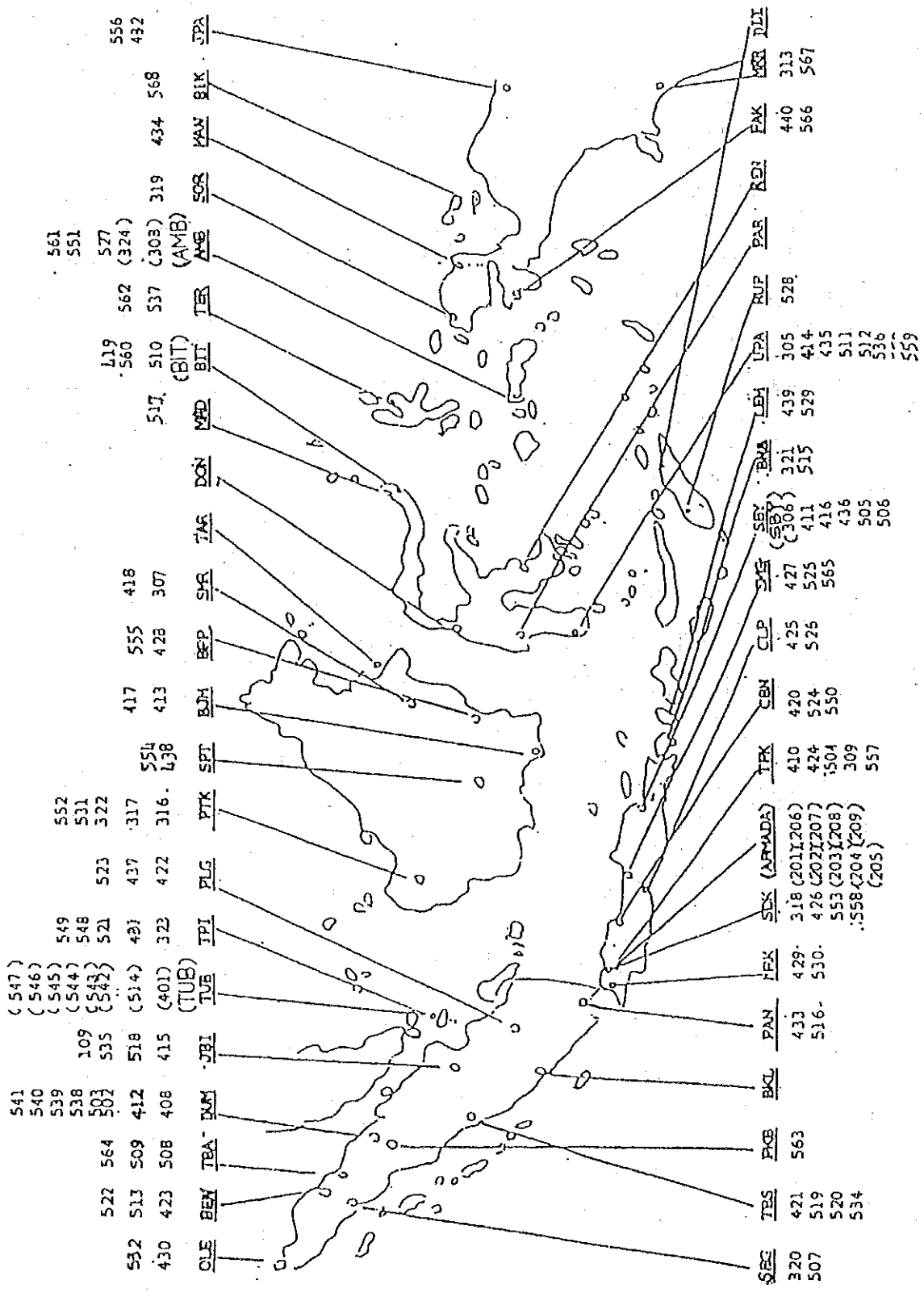
   ANGKATAN I : DILAKSANAKAN BULAN OKTOBER 1993
   ANGKATAN II : DILAKSANAKAN BULAN PEBRUARI 1995

2. COURSE FOR HARBOUT PERSONAL INCL. UP GRADING COURSE FOR TONNAGE SURVEYOR:

   ANGKATAN I : COURSE FOR HARBOUT - SEPTEMBER 1994
   ANGKATAN II : UP GRADING COURSE - JUNI 1995
   FOR TONNAGE SURVEYOR

Appendix 9-1 Locational Distribution of KPLP Bases and SAR Ships

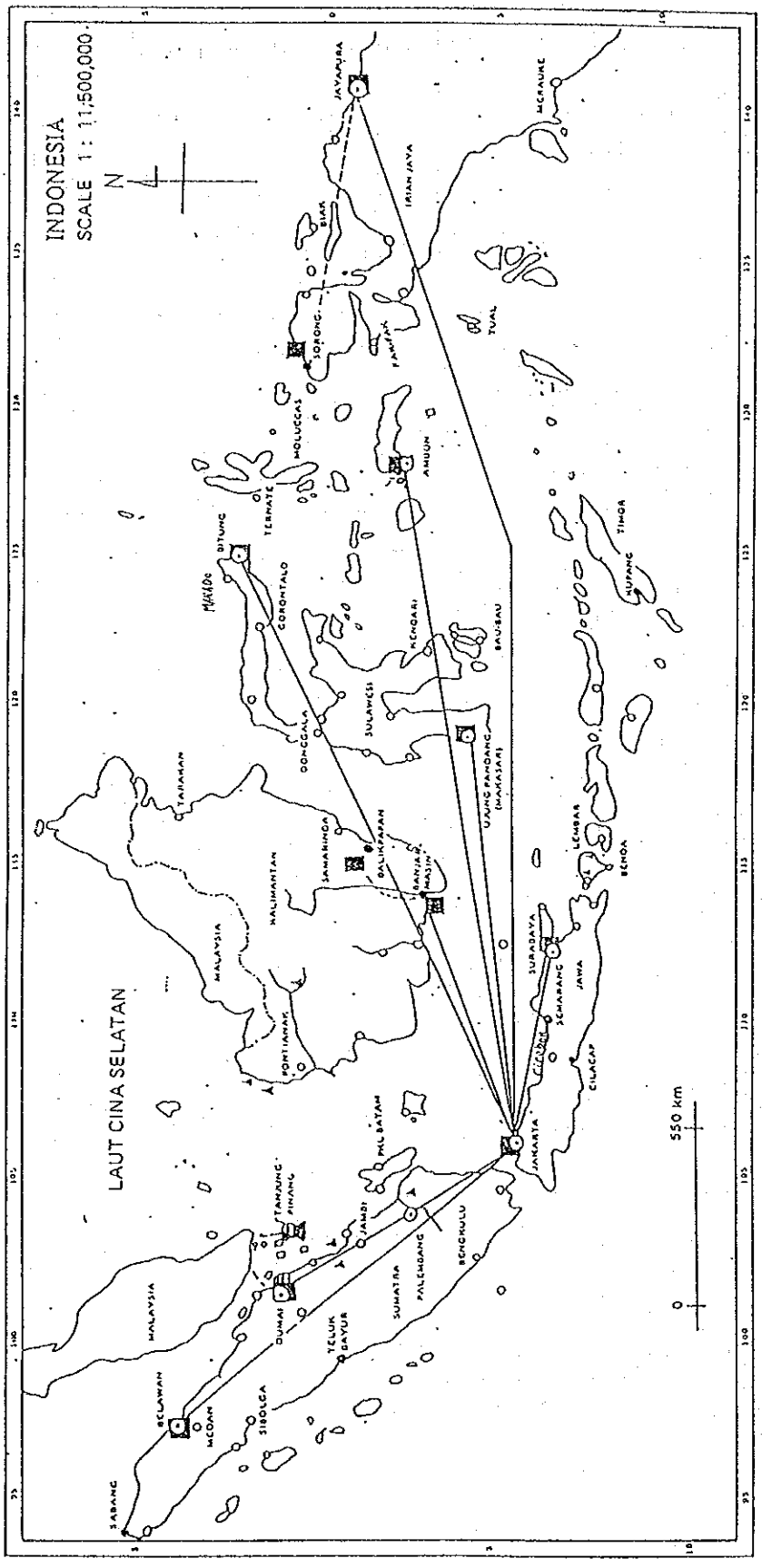
( ): Bases and ships belonging to KPLP fleet



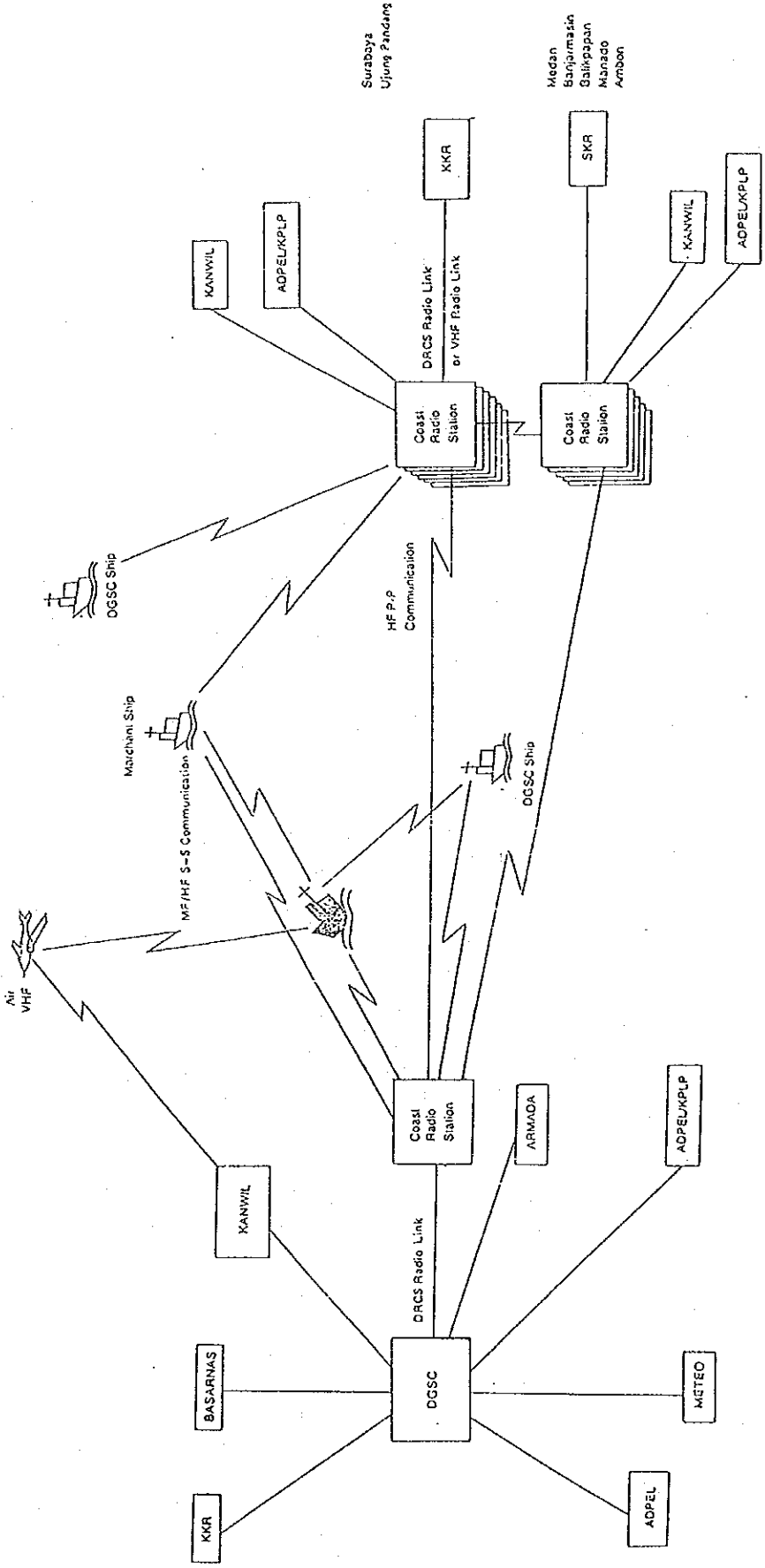
Appendix 9-2 List of Main Rescue Equipments of the Special Rescue Teams

No	Name of an article	equipment	JAKARTA	TGUBAN	SURABAYA	AMBON	BITUNG
A	Diving equipments						
1	Mask in water		21				
2	Snorkel		27	3	〃	〃	〃
3	Fins		22				
4	Knife in water		17				
5	Wet suits	set	18	3	〃	〃	〃
6	Weight belt		17				
7	Diving gloves		18				
8	Diving boots		12				
9	Regulator		15				
10	Under water light		18	3	〃	〃	〃
11	Bag		12				
12	air cylinder		24				
13	Harness		24				
14	Bouy		10				
15	Bouyancy compensator		10				
16	Depth guage		6				
17	Compass in water		18				
18	Chemical light		70	10	〃	〃	〃
19	Compresor for air cylinder	set	1				
20	Diving table slide rule		13				
B	Rescue equipments						
1	Pulley		10				
2	Helmet		25	3	〃	〃	〃
3	Ranger Rope	coil	6	60m	〃	〃	〃
4	Nylon Rope	〃	1				
5	Carabiner		51	4	〃	〃	〃
6	Chilhole	set	2				
7	Stretcher	〃	1				
8	Training tower constructing by pipe		1				
	Ranger gloves	set	50	3	〃	〃	〃

Appendix 9-3 Overall SAR System Configuration



Appendix 9-4 Basic Configuration of Maritime SAR Telecommunication System



Appendix 10-1 Classification of Maritime Courses

1) Academic Stream

	Courses offered			
	Nautical	Engineering	Port & Shipping Management	CoC
a. Rating I Program (Pelayaran Dasar I)	X	X		SKPD
b. Rating II Program (Pelayaran Dasar II)	X	X		MPT or AMK-PT
c. Rating III Program (Pelayaran Dasar III)	X	X		MPI or AMK-PI
d. Merchant Marine Officers Program III (STRATA A / D-III)	X	X	X	MPB-III AMK-A
e. Merchant Marine Officers Program II (STRATA B / S-I)	X	X		MPB-II, AMK-B
f. Merchant Marine Officer Program I (STRATA C/Specialist I)	X	X		MPB-I, AMK-C

2) Professional (Non-Academic) Stream coordinated by BP3IP

Courses offered	
a. Education, Training & Refreshing program	N & E for Rating
b. Education, Training & Refreshing program	MPT/AMK-PT
c. Education, Training & Refreshing program	MPI/AMK-PI
d. Education, Training & Refreshing program	MPB-III/AMK-A
e. Education, Training & Refreshing program	MPB-II/AMK-B
f. Education, Training & Refreshing program	MPB-I/AMK-C

Appendix 10-2 Maritime Related Technical and Investment Foreign Assistance

1. Survey on Rating Schools Plan in the Republic of Indonesia in 1975 by JICA. This plan recommended the establishment of four (4) rating schools for the country to be situated in Ujung Pandang, Belawan, Ambon, and Surabaya.

2. The establishment of Barombong (Ujung Pandang) Rating School by a Japanese grant aid in 1979.

3. The improvement of Barombong Rating School by a Japanese grant aid in 1988.

4. The Maritime Sector Training Program (MSTP) which was started under joint financing of World Bank (WB, Netherlands) and Overseas Economic Cooperation Fund (OECF, Japan). The masterplan of this program was formulated by the World Bank in 1985 and includes the following projects:

   (i) Equipment supply for four merchant marine academies under the OECF loan which was completed in 1991 except for the merchant marine academy (MMA) in Surabaya.

   (ii) Technical assistance under the Dutch loan for the upgrading of the present maritime education system. This started in 1990 but was suspended in 1992.

   (iii) Establishment of two rating schools in Ambon and Bengkulu. This was planned under the World Bank loan but was cancelled because the bank withdrew from the program.

   (iv) Establishment of a maritime institute planned under the Dutch loan for multi-purpose training in the fields of port management, dredging, pilotage, coast guard, maritime safety, maritime services, etc. This is suspended for the time being.

5. Improvement of Surabaya Rating School. This school was originally a maritime academy but was changed into a maritime rating school in 1990 with the objectives of developing the ratings to meet the national and international standards and to meet the demand for ratings. This improvement was planned under the OECF loan in 1991 as one of the sub- sector of the Shipping Sector Loan for the formulation of the Integrated Modernization Plan for Sea Transportation in Eastern Indonesia.

6. Scholarships/Fellowships. Many Indonesian maritime personnel have been sent abroad for Seafarers Training under the fellowship/scholarship plans of foreign aids such as Japan/Colombo Plan, Japan/MICC Sea Project, Belgium, UNDP, Netherlands, West Germany, World Bank, Norway, Asean MEE, etc.

7. Maritime Experts despatched to Indonesia from Japan and International Maritime Organization (IMO).

8. Equipment supply in small scale under aids from IMO and other international institutions as well as from developed countries such as Japan, Belgium, Netherlands, West Germany and Norway.

Appendix 10-3 Types of Certificates Issued to Seafarers

(a) Sertifikat Ketrampilan Pelaut Dasar (SKPD) or Rating Certificate for Deck, Engine, and Radio Operator.

(b) Sertifikat Perwira Pelayaran Lokal or Officer's Certificate for Local Service (Local Navigation Zone) for the following officers:

(i) Mualim Pelayaran Terbatas (MPT) or Mate for Local Trade; and
(ii) Ahli Mesin Kapal Pelayaran Terbatas (AMK-PT) or Engineer for Local Trade.

(c) Sertifikat Perwira Pelayaran Interinsuler (MPI) or Officer's Certificate for Inter-island Service (Near Coastal Navigation Zone) for the following:

(i) Mualim Pelayaran Interinsuler (MPI) for Mate Inter-island; and
(ii) Ahli Mesin Kapal Pelayaran Interinsuler (AMK-PI) for Engineer Inter-island.

(d) Sertifikat Perwira Pelayaran Besar or Officer's Certificate for Ocean-going Vessels (Unrestricted Navigational Zone) for the following:

(i) Mualim Pelayaran Besar III (MPB III) for Third Grade Deck Officers (ocean-going second mate);
(ii) Ahli Mesin Kapal A (AMK-A) for Third Grade Engineers (ocean-going second engineer);
(iii) Mualim Pelayaran Besar II (MPB II) for Second Grade Deck Officers (ocean-going first mate);
(iv) Ahli Mesin Kapal B (AMK-B) for Second Grade Engineers (ocean-going first engineer);
(v) Mualim Pelayaran Besar I (MPB I) for First Grade Deck Officers (ocean-going master); and
(vi) Ahli Mesin Kapal C (AMK-C) for First Grade Engineers (ocean-going chief engineer).

(e) Certificates for Ship Radio Operator for the following:

(i) Restricted Operator's Certificate (ORT);
(ii) General Operato's Certificate (ORU);
(iii) Second Class Radio Electronic Certificate (PRE-II); and
(iv) First Class Radio Electronic Certificate (PRE-I);

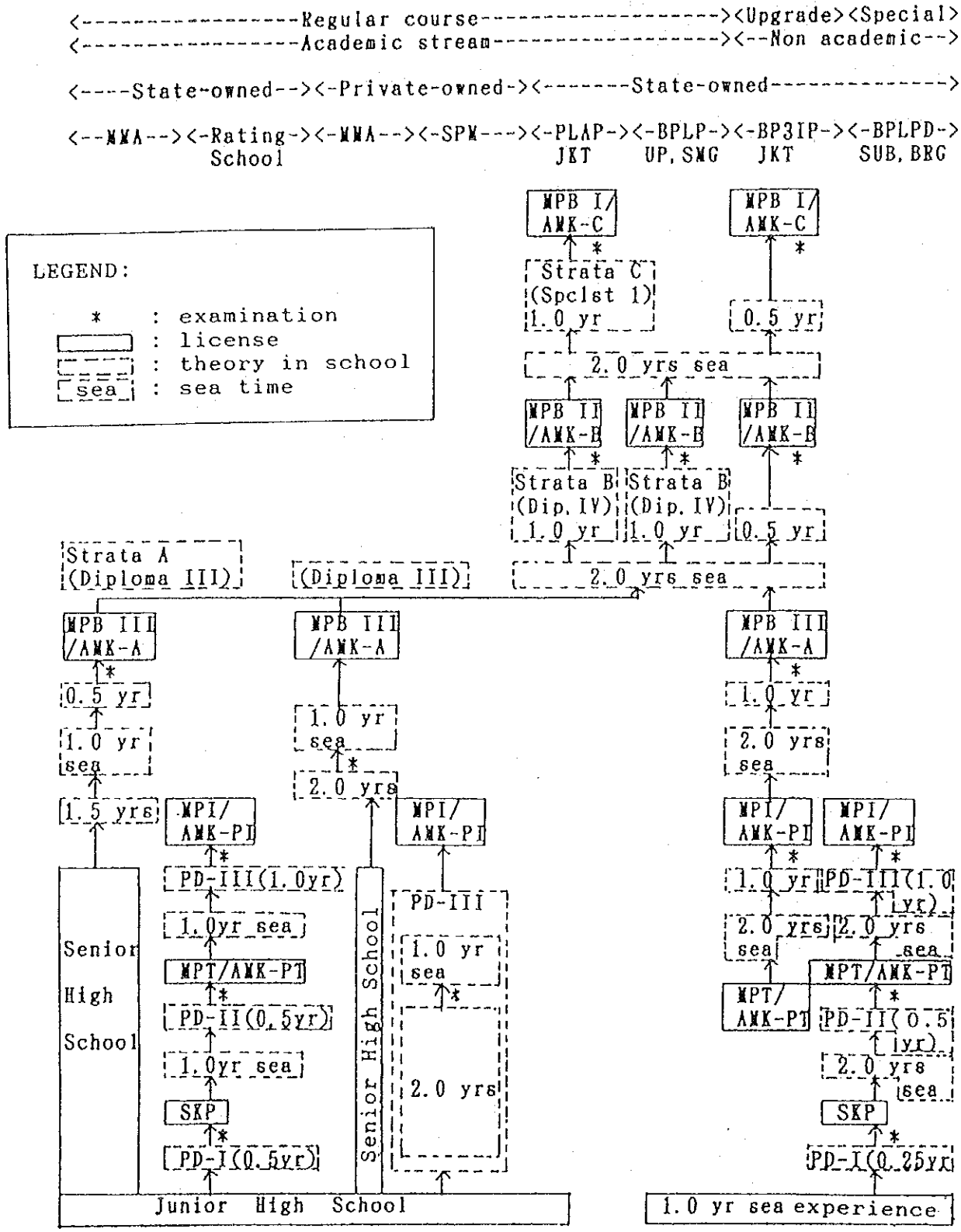
Note: ORT = Operator Radio Terbatas
ORU = Operator Radio Umum
PRE = Perwira Radio Elektronik

(f) Sertifikat Ketrampilan Khusus Pelaut or Special Certificates for Seamen which entails the certificates required by the STCW 1978 Convention for all Indonesian Seamen, consisting of the following:

(i) Fire Fighting
(ii) Sea Survival
(iii) Ship Medical Officer
(iv) First Aid

(v) Radar Observer
(vi) Radar Simulation
(vii) Survival Craft/Lifeboat Man
(viii) Marine Pollution Prevention
(ix) Crude Oil Washing
(x) Inert Gas System
(xi) Tanker Safety
(xii) Other special certificates regulated and required in line with the development in technology and ship management.

Appendix 10-4 Procedure of Certificate Issuance by Maritime School Types



APPENDIX

(PART II)

CONTENTS (APPENDIX)

PART II INTEGRATED MASTER PLAN FOR SEA TRANSPORTATION

CHAPTER 3 SHIPPING SUB-SECTOR DEVELOPMENT PLAN

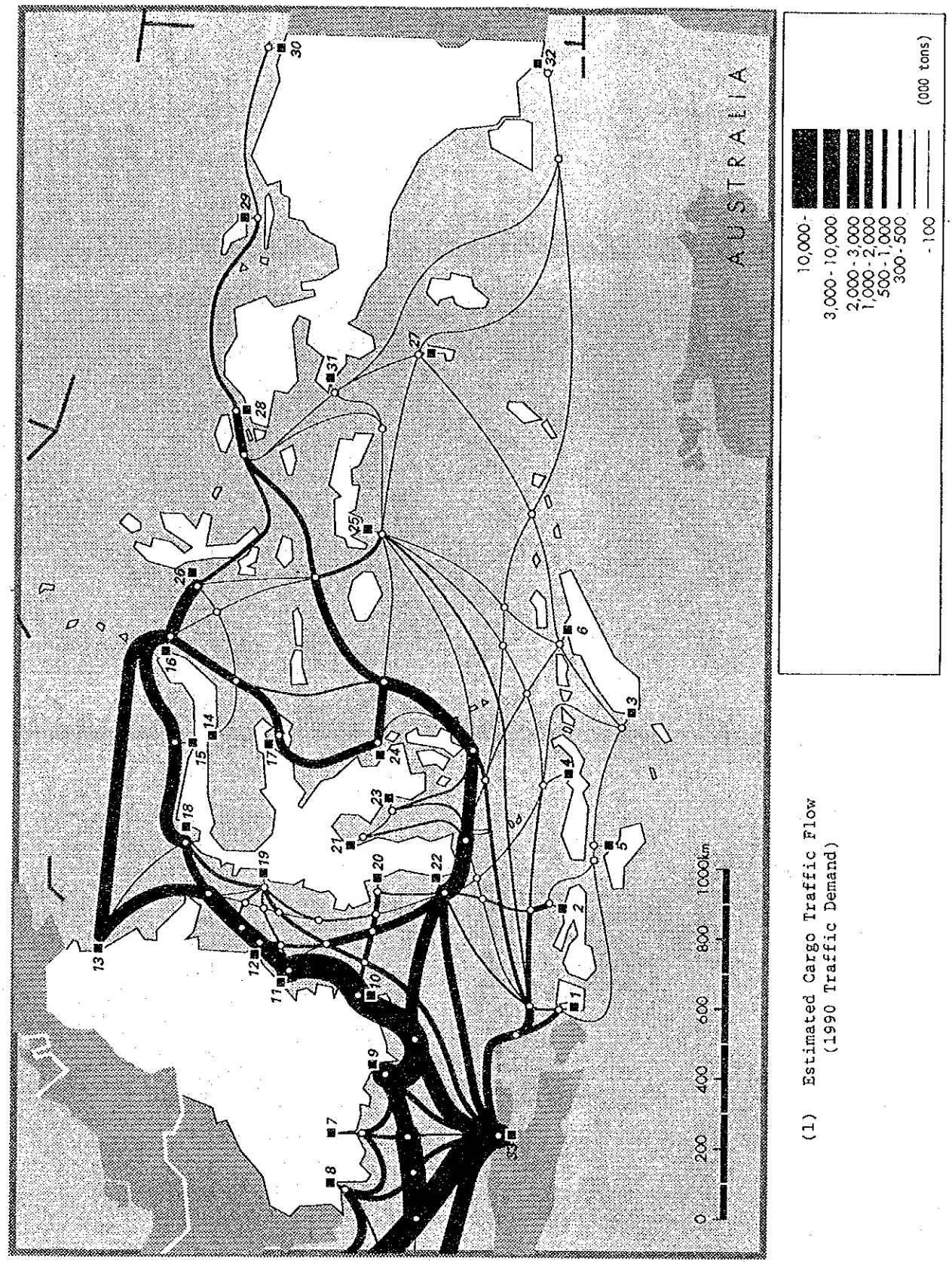
Chapter 4 SHIPBUILDING AND SHIP INSPECTION SUB-SECTOR DEVELOPMENT PLAN

Chapter 5 PORT SUB-SECTOR DEVELOPMENT PLAN

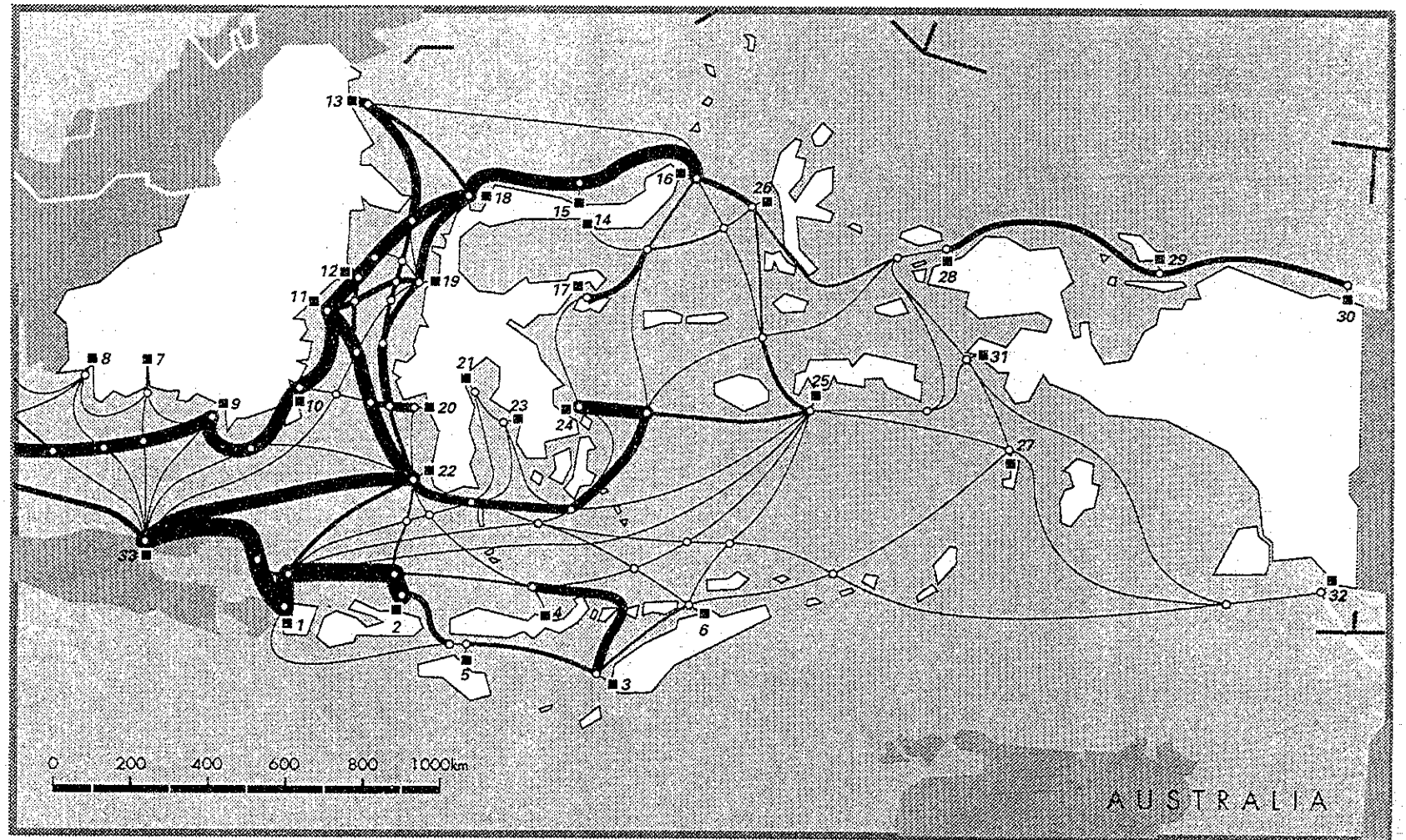
Chapter 6 MARITIME SAFETY SUB-SECTOR DEVELOPMENT PLAN

Chapter 7 SEAFARERS EDUCATION SUB-SECTOR DEVELOPMENT PLAN

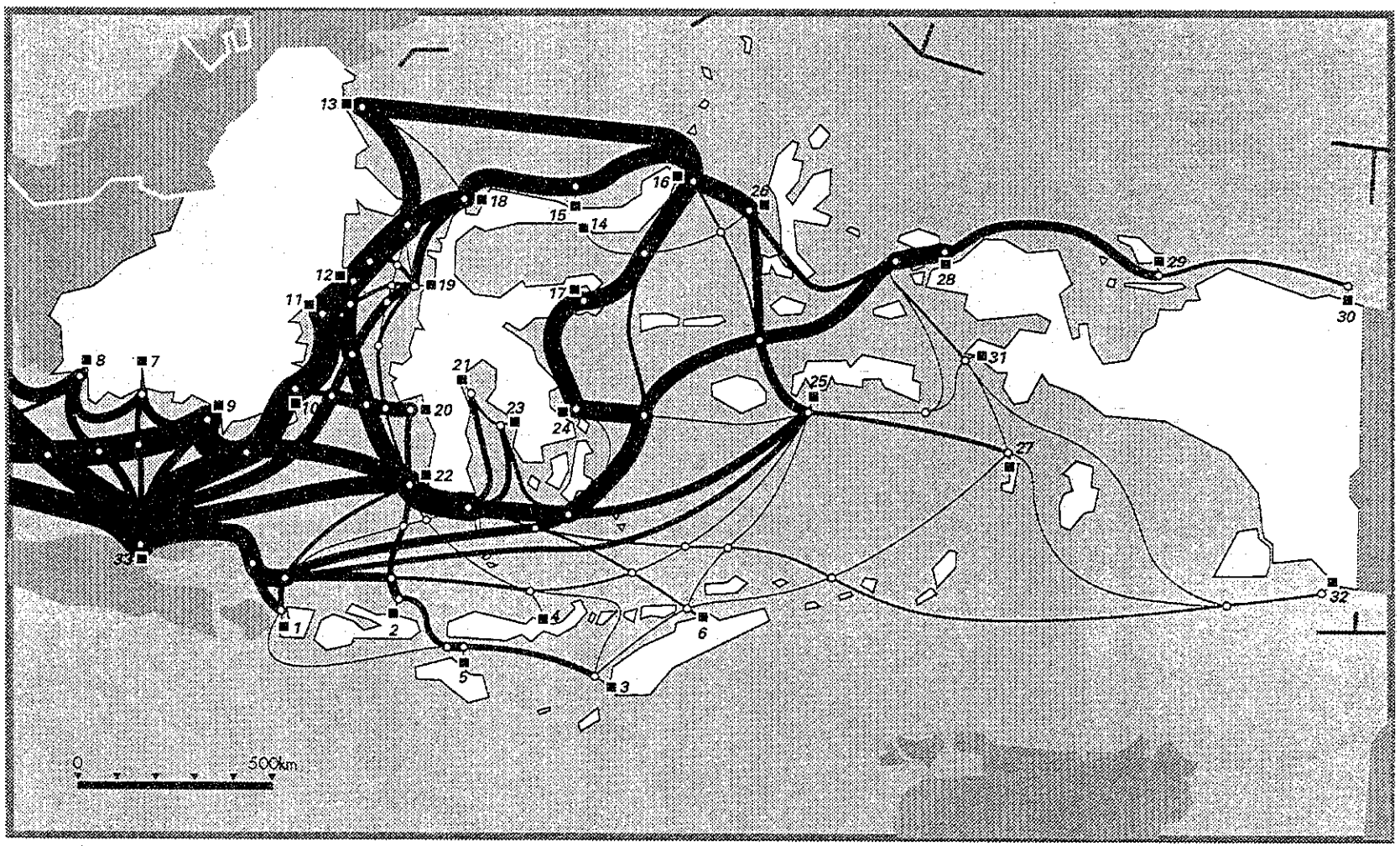
Appendix 3-1 Traffic Flow Estimation in Eastern Indonesia



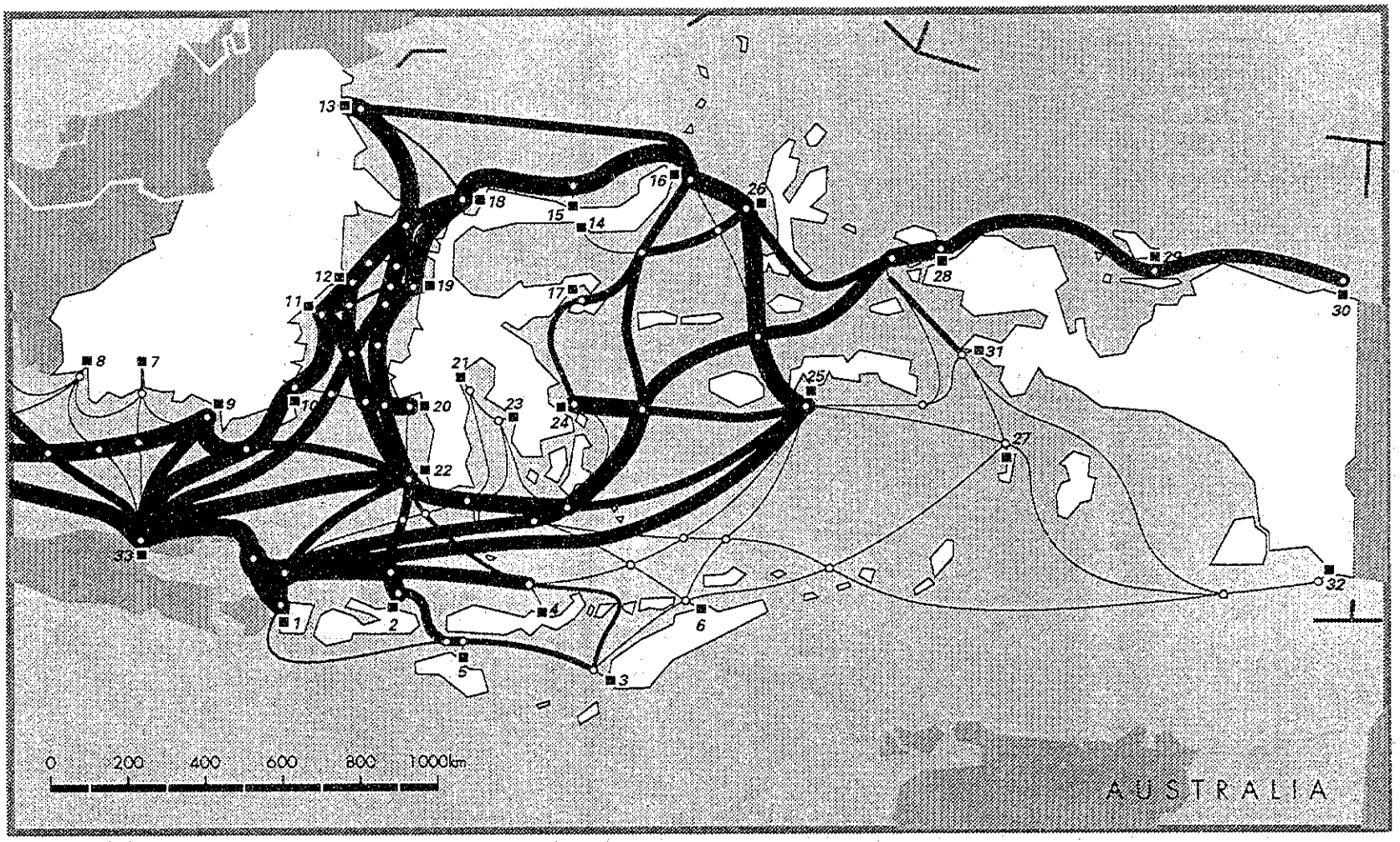
(1) Estimated Cargo Traffic Flow
(1990 Traffic Demand)



(2) Estimated Passenger Traffic Flow
(1990 Traffic Demand)



(3) Estimated Cargo Traffic Flow
(2005 Traffic Demand)



(4) Estimated Passenger Traffic Flow
(2005 Traffic Demand)

Appendix 3-2 Data for Operation Analysis

Type of Vessel	S-type	M-type	L-type
PRINCIPAL DIMENSIONS			
DWT	1,000	2,500	5,000
GT	1,000	2,500	4,200
Service speed (knot)	11.0	11.5	12.0
Bale capacity (M^3)	1,800	4,000	7,400
OPERATING CONDITIONS			
Working Ratio	95% (345 days)	95% (345 days)	95% (345 days)
Route	SUB - UPG v.v (916 miles)	JKT - UPG v.v (1,588 miles)	JKT - IJY v.v (4,600 miles)
Days per Round Voyage			
at sea	4 days	6.5 days	17 days
in ports	4 days	7.5 days	17 days
total	8 days	14 days	34 days
Days in port are calculated based on:			
tons/hrs/gang	20 tons	20 tons	JKT 20 IJY 16
no. of gangs	2 gangs	3 gangs	3 gangs
working time	21 hours(3 shift)	21 hours(3 shift)	21 hours(3 shift)
No. of Voyage p.a.	43	24	10
Annual Loading Quantity (Ton/M^3)			
E.B.	40,850	57,600	48,000
W.B.	32,250 (Average L/F 75%)	44,400 (Average L/F 75%)	37,000 (Average L/F 75%)
Freight Rate	SUB-UPG Rp 14,000 UPG-SUB Rp 13,000	JKT-UPG Rp 18,500 UPG-JKT Rp 15,000	JKT-IJY Rp 41,150 IJY-JKT Rp 17,500
OPERATING EXPENSES			
Port charge	Rp 650,000 per port	Rp 1,000,000 per port	Rp 1,500,000 per port
Stevedorage	overtime	overtime	overtime
Fuel Oil	Rp 380,000 / ton consumption sea 5.0 port 0.25	Rp 380,000 / ton consumption sea 7.0 port 0.3	Rp 380,000 / ton consumption sea 11.5 port 0.3
Lubricating Oil	Rp 3,600 per liter	Rp 3,600 per liter	Rp 3,600 per liter
Agency Fee	Rp 500,000 per call	Rp 500,000 per call	Rp 500,000 per call
Others	0.25% of revenue	0.25% of revenue	0.25% of revenue

Type of Vessel	S-type	M-type	L-type
VESSEL EXPENSES			
Crew Cost			
No. of crew	12	18	21
Cost per day	Rp 15,000	Rp 15,000	Rp 15,000
Docking & MRS (Maintenance, Repairs & Supplies)	Rp250/DWT/Day	Rp250/DWT/Day	Rp250/DWT/Day
Insurance	1% of ship price	1% of ship price	1% of ship price
Administration	10% of crew cost, docking & MRS, & Insurance	10% of crew cost, docking & MRS, & Insurance	10% of crew cost, docking & MRS, & Insurance
SHIP ACQUISITION COST(AVERAGE)	Rp 13.69 billion	Rp 19.65 billion	Rp 25.2 billion

NOTE) JKT : Jakarta, SUB : Surabaya, UPG : Ujung Pandang, IJY : Irian Jaya

Appendix 3-3 Concept of the By-Laws for Prosecution of New Rules/Regulations

(1) The items to be stipulated in the operation management manual by passenger ship liner operators/ferry operators shall be as follows:

(a) Organization and structure of management system for safe operation.
(b) Job description of operation manager and operation staff.
(c) Qualification of operation manager.
(d) Procedures of assignment, resignation of operation manager, and duties and liabilities of operation manager.
(e) Procedures of revision of operation manual.
(f) Confirmation of safety in preparation, revision and irregular change of voyage schedule, fleet operation and crew manning.
(g) Definition and direction of weather and marine meteorological conditions in which the ship's departure should be avoided.
(h) Collection and convey of the necessary information for operation management such as number of passengers, weather condition, etc.
(i) Preparation and keeping on board of standard navigation chart showing the necessary items to ensure the safe navigation such as navigation routes, navigation speed, etc.
(j) Handling methods of such as dangerous/hazardous goods which will affect the safety of passengers.
(k) Working procedures to ensure the safety during embarkation and disembarkation of passengers or during loading and unloading of vehicles or during berthing and unberthing of ship.
(l) Inspection and survey of ships and other transportation facilities.
(m) Guidance of necessary regulations/rules which should be observed by passengers.
(n) Emergency procedures to cope with the extraordinary situations such as maritime accident, oil pollution, etc.
(o) Education/training of the workers at office/terminal who are engaged in ship operation, accepting/guiding of vehicles and passengers to ensure the safety of working.
(p) Education/training of ship's officers/crew to ensure the safety of transportation.

(2) Qualification of ship operation manager shall be as follows:

(a) a person whose age is over 30 years old, and
(b) a person who has a career of Master of Passenger Ship at least 3 years or Deck Officer at least 5 years, or
(c) a person who has a career of Ship Operation Manager at least 3 years, or
(d) a person who is admitted as qualified by the Chief of DGSC or DGLT, and
(e) excluding a person who was dismissed from the ship operation manager.

(3) A person who shall prepare or revise their operation management manual should submit the notification of issue (revision) of operation management manual in duplicate to the chief of DGSC or DGLT filling up the following items:

(a) Address and name.
(b) Operation Management Manual which to be filed (in case of

revision, revised items should be compared with the former ones).

(c) Time when the operation will start (in case of revision, time when the revision will be applied).

(d) In case of revision, the reason why the revision is necessary.

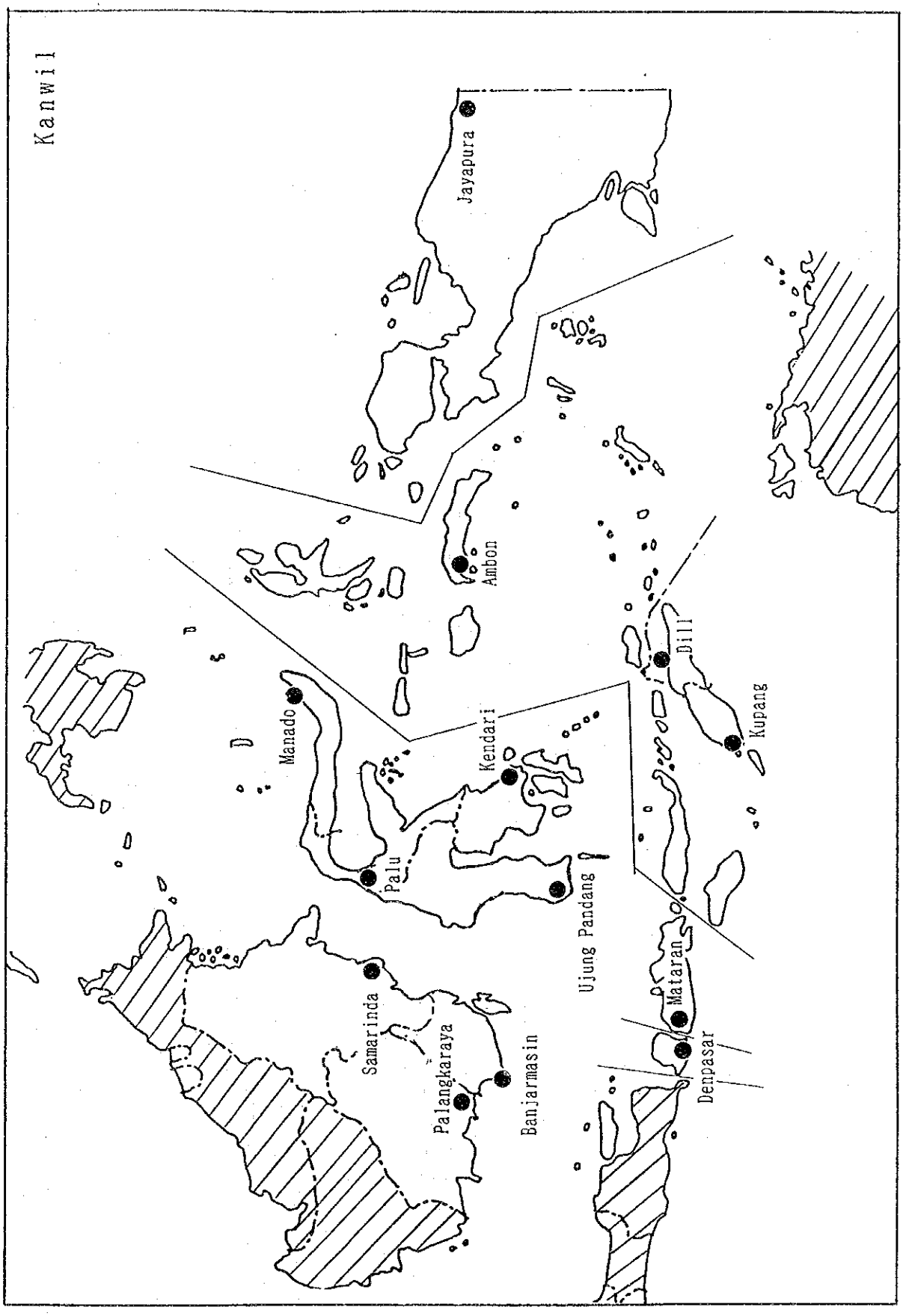
(4) A person who shall designate or dismiss the operation manager should submit the notification of designation (dismissal) of operation manager in duplicate to the chief of DGSC or DGLT filling up the following items:

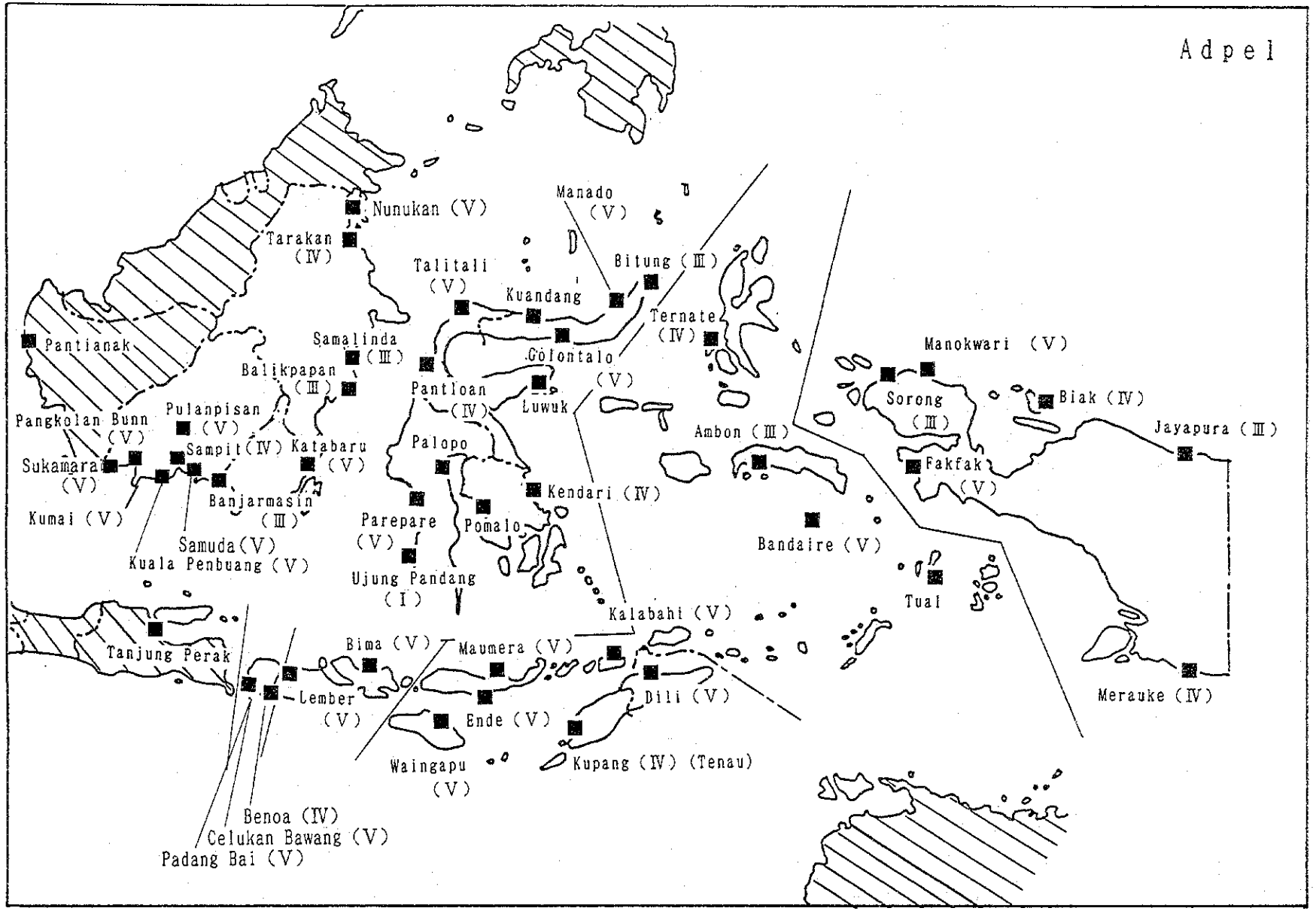
(a) Address and name.

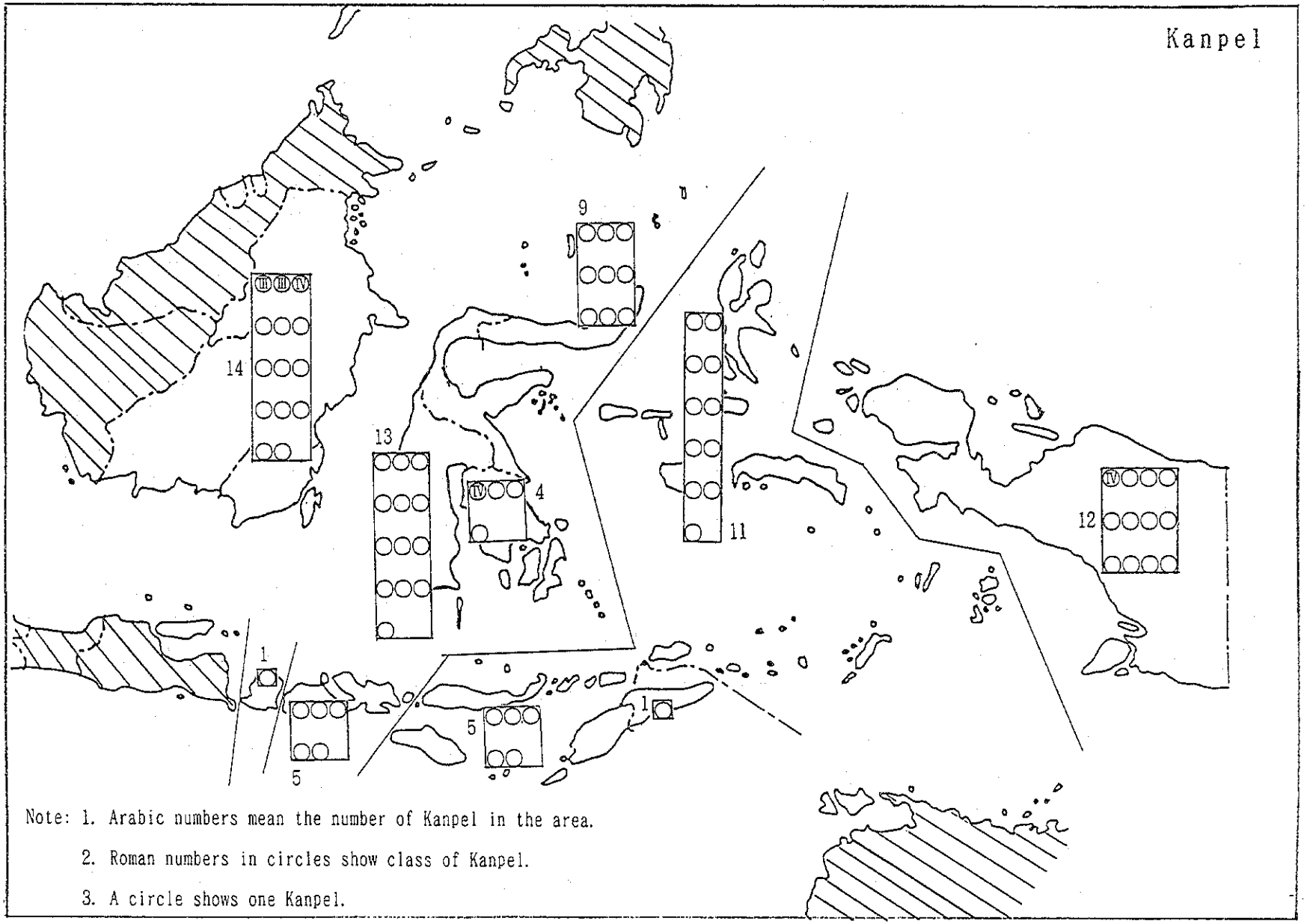
(b) Name and birthday of the designated (dismissed) operation manager.

(c) Date and reason of the designation (dismissal).

Appendix 4-1 Location of Related Offices




Adpel
Nunukan (V)
Tarakan (IV)
Manado (V)
Talitali (V)
Kuandang
Bitung (III)
Ternate (IV)
Pantianak
Samalinda (III)
Balikpapan (III)
Colontalo (V)
Pantloan (IV)
Luwuk
Manokwari (V)
Sorong (III)
Biak (IV)
Jayapura (III)
Pangkolan Bunn (V)
Pulanpisan (V)
Sampit (IV)
Katabaru (V)
Sukamara (V)
Palopo
Ambon (III)
Fakfak (V)
Kendari (IV)
Kumai (V)
Banjarmasin (III)
Parepare (V)
Pomalo
Bandaire (V)
Samuda (V)
Kuala Penbuang (V)
Ujung Pandang (I)
Tual
Kalabahi (V)
Tanjung Perak
Bima (V)
Maumera (V)
Merauke (IV)
Lember (V)
Dili (V)
Ende (V)
Waingapu (V)
Kupang (IV) (Tenau)
Benoa (IV)
Celukan Bawang (V)
Padang Bai (V)



Note: 1. Arabic numbers mean the number of Kanpel in the area.

2. Roman numbers in circles show class of Kanpel.

3. A circle shows one Kanpel.

Appendix 4-2 Deployment of ship Inspectors