II. PRE FEASIBILITY STUDIES

1. REGIONAL MARITIME TRANSPORTATION SAFETY PROJECT PLAN

1.1 Current Conditions

For the Master Plan proposal to be turned into a Maritime Transportation Safety Project Plan, Cebu Harbor and the private beaches within the vicinity in addition to the 2 areas of Danao City and Barangay to the north of Cebu have been studied. (Figure 1.1)

These Current Conditions are as follows.

1.1.1 Tropical Cyclone Countermeasures

The Philippines is in a tropical cyclone belt and is hit by tropical cyclones an average of 15 times per year. Analysis of maritime disasters shows that 108 (39%) of the 279 maritime vessel disasters in 1989 and 181 (43%) of the 421 maritime vessel disasters in 1990 were the result of tropical cyclones. The following outlines tropical storm countermeasures.

1) Cebu Harbor

Cebu Harbor which is the center of coastal sea transportation has suffered great damage from tropical cyclones Nitang (Sept, 1984), Aning (Dec, 1986), Ruping (Nov, 1990), etc. Annex 1.1 shows the tropical cyclone tracks between 1982 and 1990.

Of these, tropical cyclone Ruping in particular caused great damage to shipping with 62 sinkings and capsizings, 20 cases of running aground and 2 cases of damage, a total of 84 vessels, resulting in huge losses for Cebu Harbor the center of interisland shipping. Of these 84 maritime shipping disasters, excluding the 12 vessels for which the gross tonnage is not known, the type of vessel and tonnage class for the remaining 72 vessels are shown in Figure 1.2. In addition, of those vessels that sunk in the tropical cyclone, Pictures 1.1 and 1.2 show the condition of those that have been left as is.

To prevent this kind of maritime accidents resulting from tropical cyclones, at Cebu Harbor the 2nd Coast Guard District (2CGD), Port Management Office (PMO) and the respective shipping companies (including affiliated vessels), etc., are taking the following measures.

(1) 2CGD

2CGD measures in times of tropical cyclones adhere to Memorandum Circular 08-90 (Guidelines on Movement of Vessels during Heavy Weather).

Figure 1.1
Location of Study Area

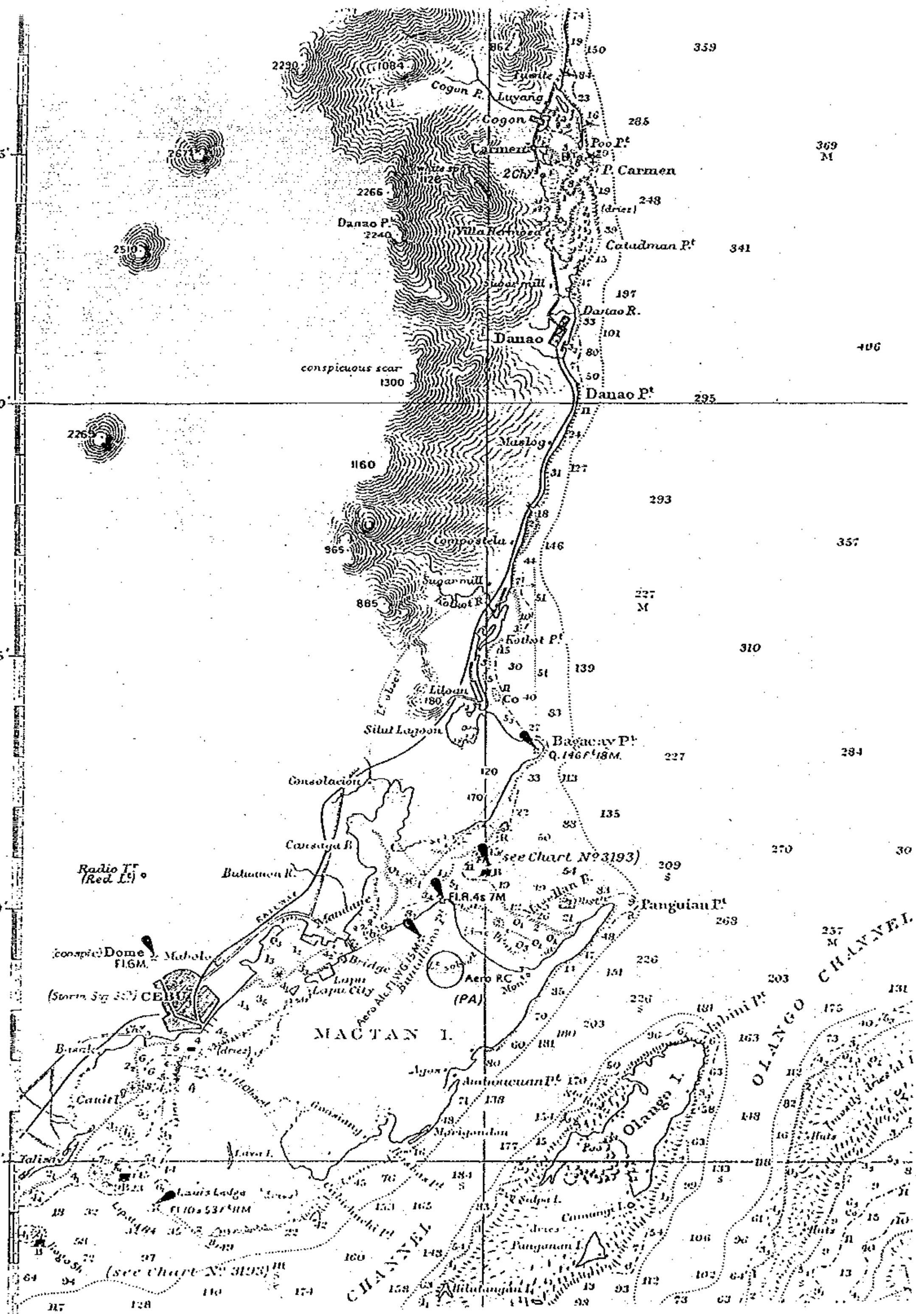
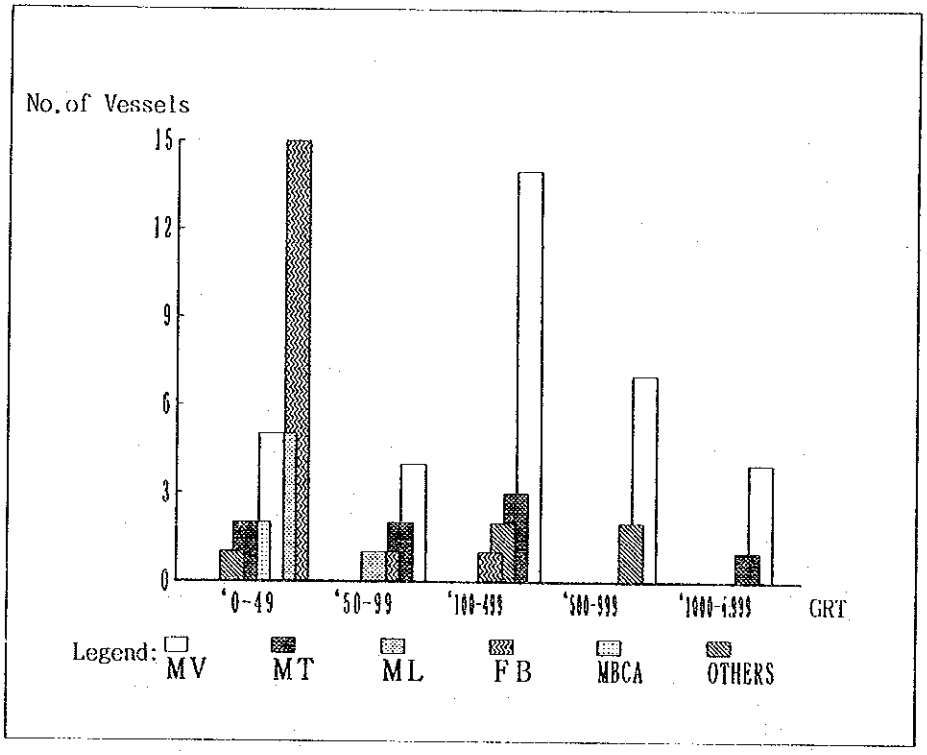


Figure 1.2
Accidents with Type of Vessel, in Cebu Harbor



The objective of this Circular is to prescribe and procedures in order to enhance maritime safety especially during the existence of a tropical depression or typhoon that makes sea travel dangerous.

The specific guidelines of the Circular set out the following countermeasures for each of the Typhoon Signal 1, 2 and 3 stages issued by PAGASA.

1 - No vessel of 250 gross tons or less shall sail if storm signal 1 is hoisted within its point of origin, the route and point of destination.

2 - No vessel of 700 gross tons or below shall sail if signal 2 is hoisted within its point of origin, the route and point of destination.

3 - No vessel shall sail if signal 3 is hoisted within its point of origin, the route and point of destination.

4 - Vessel may be allowed to sail to take shelter or ride out the storm without passengers.

5 - The Boarding Team must advise the vessel on the current weather report and forecast prior issuance of SOLAS departure clearance.

In addition, it is the regulated responsibility of the shipping operators/owners to

1 - ensure that all vessels are properly informed of the weather update to include the areas where typhoon signal are hoisted,

2 - discourage any vessel's movement except for sheltering purposes especially when typhoon signals are hoisted or expected to be hoisted within the area of origin, the route and destination,

3 - keep track of all weather reports for dissemination purposes as well as monitor all vessel's movement until they reach the port safely, and

4 - inform the Coast Guard immediately of any unusual incident involving maritime safety such as missing craft and/or lost of contact with vessel.

2CGD has selected the vicinities of Cebu Harbor and Sandoval Shipyard (south of Bagacay Pt, Cebu) as shelter areas against tropical cyclones. However, even though these kind of shelter areas may be effective safe anchorages to a certain extent, under current conditions they are not absolutely safe tropical cyclone havens. This was made clear by the disasters striking 84 vessels as a result of tropical cyclone Ruping.

As well as obtaining tropical cyclone information from HPCG and PAGASA, 2CGD also obtains information from JMC (Japan Forecasting Stations) and Taiwan (BMB) etc., broad casts and passes on this latest information to 9 Coast Guard Stations including CGS Cebu and 49 Coast Guard Detachments. However, because there are a lot of Coast Guard Detachments that do not have facsimile machines, let alone telephones, there are a lot of cases where the relay of information is likely to be delayed.

(2) PMO

PMO tropical cyclone countermeasures adhere to the PPA Memorandum Order No. 23-88 (Standard Operating Procedures in the Port during Inclement Weather). This order targets all district managers, port managers, harbor managers, harbor pilots, shipping companies, arrastre and stevedoring operators and others concerned.
Section 1. of this order contains the following regulations;

a) Storm Signal 1 (winds of 30-54 knots in expected in the locality within the next 24 hours)

1 - Operations at the anchorage may be suspended on a case to case basis.

2 - All vessels in the port, whether self-propelled, shall be attended to by a sufficient number of crew tugboats should, likewise, be at standby.

b) Storm Signal 2 (winds of 55-74 knots is expected in the locality within the next 24 hours)

1 - The precaution provided for under Storm Signal 1 relative to the necessity of having tugboats and a sufficient number of crew at standby shall still be observed.

2 - All operations at the anchorage shall be suspended.

c) Storm Signal 3 (winds of 75 knots or over is expected in the locality within the next 12 hours)

1 - All precautions for Storm Signal 1 and 2 shall be exercised.

2 - Loading/discharging of containers and other cargoes to/from vessels shall be suspended and the structures secured.

3 - All cargoes, cargo handling equipment and the accessories shall, if possible, be secured.

4 - The piers and slips shall be cleared of vessels of more than 1,000 GRT.

5 - Vessels of not more than 1,000 GRT may be allowed at the anchorage. Those which remain moored and secured at the piers or slips must take all necessary precautions, i.e., double of multiple mooring lines, sufficient officers and crews, stanby engines, etc. Provided, however that any damage caused to the pier shall be borned by the owners of these vessels.

And when Signal 3 is hoisted, all vessels usually proceed to anchorage area.
Besides PAGASA, PMO also obtains tropical cyclone information from PAGASA Cebu Station and other places.

Picture 1.3 shows a photograph of the Cebu Harbor Chart. The 19 circled anchor markings represent anchorages specified by PMO (able to accommodate 28 vessels).

(3) Shipping Companies (including affiliated vessels)

Cebu Harbor is the center of coastal shipping with a concentration of 10 CISO member companies and 16 VAFSO member companies. These companies, aside from tropical cyclone information obtained from PAGASA, also obtain information from JMC and Guam broadcasts etc. Aside from tropical cyclone information from their affiliated companies, vessels also obtain weather maps by facsimile directly from JMC and Guam etc. Some smaller shipping companies even receive tropical cyclone information from their own facsimile equipped vessels.

Shipping company tropical cyclone countermeasures are taken according to directives based on the 2CGD Memorandum Circular and the PMO Memorandum Circular. In examples from surveys of certain shipping companies, as countermeasures for preventing maritime disaster in port, vessels are waiting for the tropical cyclone to pass using two anchorages and 6-8 shackles and the engine operation at standby level. However, because of whirling and dredging, collision between anchored vessels is not uncommon. For this reason, because of prohibition on harbor departure by 2CGD and PMO directives to seek shelter etc., the harbor becomes very congested and many vessels must struggle to combat the tropical cyclone without suitable anchorage.

There are 11 tugs working and based out of Cebu Harbor with 1 of 440 GRT and the rest being 30 to 100 GRT.

(4) PAGASA Cebu Station

The PAGASA Cebu Station is located in the Mactan Island Airport and is responsible for meteorological observation and reporting. There are three residents in the forecasting office and weather forecasts are issued 2 times each day. In times of tropical cyclone this is increased to forecasts and alerts once every 6 hours. Notification recipients are listed separately and notification is given by facsimile and telephone. Those recipients within the area that cannot be contacted by fax or telephone such as remote area agencies and agencies on other islands and contacted by HF SSB Wireless.

Weather bulletins are passed on to broadcasting stations (mid-range and FM broadcasts) and TV stations every day by telephone. The general public and fishermen judge weather conditions for a particular day by listening to broadcasts on that day.

The Cebu Station (Mactan) is an important part of the national observation network and all the observation data from here is passed on to the PAGASA headquarters in Manila. In addition, because it is an international

airport and the air routes between here and the surrounding countries are set, meteorological information relevant to the air routes is passed on to the airline companies and the neighboring countries. Moreover the Cebu Station is equipped with an observation radar for the airport vicinity (WAR-77), a radiosonde for stratospheric observation and chase equipment.

As discussed in the previous section, general shipping listens to broadcasts, inquires directly to a PAGASA Branch Station, PCG or obtains meteorological information directly from a meteorological FAX service or the like. Large shipping vessels and shipping companies often receive information by short wave meteorological FAX and carry out operations according to analysis of this.

2) Private beaches in the vicinity of Cebu (Mactan Island)

Motor Bancas in the vicinity of Maribago Beach on the east coast of Mactan Island are notified of 2CGD and radio broadcast tropical cyclone information either directly from the Barangay Captain or from the Barangay Council organization and this leads to the likelihood of the information being delayed.

According to this tropical cyclone information, small motor bancas (less than 40ft in length and about 2 or 3 tons) take shelter either at the breakwater enclosed beach on the north side of Maribago Beach or the shelter area adjoining the south side of the beach. Picture 1.4 shows the small motor bancas in the vicinity of Maribago Beach and the breakwater enclosed beach on the north side. Picture 1.5 shows motor bancas in the shelter area adjoining the south side of the beach.

Large motor bancas and yachts shelter at the Agus and Santa Rosa shelter areas to the south of Maribago Beach. Because the water depth is shallow at the shelter area to the south of Maribaga Beach and the Agus shelter area, they can only be entered at full tide. There is a case of a 60ft motor banca taking shelter in the Agus shelter area using two 20kg anchors and its engine and enduring tropical cyclone Ruping (the area recorded maximum southerly gusts of 107 knots).

3) A Danao City Barangay

The Coast Guard Detachment Danao is located in Danao city, about 35 km north of Cebu city and is 1 of the 11 detachments affiliated to the CGS Cebu. Picture 1.6 shows the Coast Guard Detachment Danao and Picture 1.7 shows the PCG Mission, Functions, Typhoon Doctrine hanging on the wall of the detachment.

The Coast Guard Detachment Danao receives tropical cyclone information from 2CGD and radio broadcasts and along with passing it on to the captains of Barangays at see such as the Dungo-an Danao and Carmen Danao, also passes it on directly to vessels at anchorage.

The city is made up of 42 Barangays and of these, 8 are situated at sea. The Barangay captains pass on the meteorological information obtained from radio broadcasts and Coast Guard Detachment Danao to fishermen by way of the Barangay Council organization or verbally. However, there are restrictions on the information relay system and the information is not relayed in a smooth manner.

In the Coast Guard Detachment Danao, there is an organized Owners and Operators of Fishing Boats and Motor Bancas Association made up of 19 owners and operators of fishing boats and motor bancas. The owners and operators belonging to this association play an important role in cooperating with the Coast Guard Detachment Danao, which does not have its own vessels, when disasters occur and SAR operations are necessary.

Owners and operators of small motor bancas and fishing boats under 3 to 5 tons that receive tropical cyclone information from the Coast Guard Detachment Danao beach there vessels at nearby beaches (Picture 1.8) while other motor bancas(Picture 1.9) and fishing boats shelter at Carmen Bay. Carmen Bay is used by the Ro-Ro vessel Golden Arrow (499 GRT) (linking Carmen, Cebu - Isabel and Leyte) and motor bancas and fishing boats etc., navigating the coastal area to shelter from bad weather. Picture 1.10 shows the conditions of the harbor entrance and vicinity from the ship dock and Picture 1.11 shows the Ro-Ro vessel Golden Arrow moored at the same dock and small vessels taking shelter from bad weather.

1.1.2 Maritime Accident Measures

1) General Situation

The conduct of maritime search and rescue operations in Cebu area is undertaken by different government agencies with the Philippine Coast Guard (PCG) unit in Cebu, which is referred to as the 2nd Coast Guard District (2CGD), as the lead agency. In addition to these government agencies, there is also one non-government agency called the Philippine Coast Guard Auxiliary (PCGA) which is actively participating in SAR activities within the territorial waterways of Cebu.

2) Organization

The 2CGD is one of the major units of the Philippine Coast Guard. It is composed of District headquarters located at Cebu City and nine (9) Coast Guard Stations (CGS) situated at the different provinces within its area or responsibility. Under the various coast guard stations are 44 coast guard detachments which are also situated at the different secondary ports within the respective designated operational area of each station. (See Figure 1.3 and 1.4)

In command of the whole Coast Guard District is the most senior PCG officer in said area who is referred to as the District Commander. The District Commander is empowered by the Commandant, PCG to carry out the mission and functions of the PCG within his area of responsibility and among of these functions are the enforcement of maritime laws and regulations and the conduct of SAR mission.

Each CGS is headed by a Station Commander who implements all coast guard laws and regulations within his designated area of responsibility on behalf of the District Commander. The Station Commander likewise empowers the Detachment Commanders to implement coast guard laws within the area covered by the detachment.

As of this report, the 2CGD has only one (1) patrol gun boat and four (4) patrol crafts as its floating assets. The patrol gun boat has a complement of four (4) officers and 30 enlisted personnel and is capable for at least one (1) week sustained operations while each of the patrol craft is manned by five (5) enlisted personnel and has the capability to operate for 24-hour duration.

There are no mooring facilities for PCG vessels in Cebu nor a supply and maintenance facility owned by 2CGD. Since mooring facilities in Cebu are for commercial purposes, there is a need for the PCG to request for the availability of berthing space for its vessels from the PPA which controls and operates the Cebu piers and

Figure 1.3
2nd Coast Guard District (2CGD) Organization

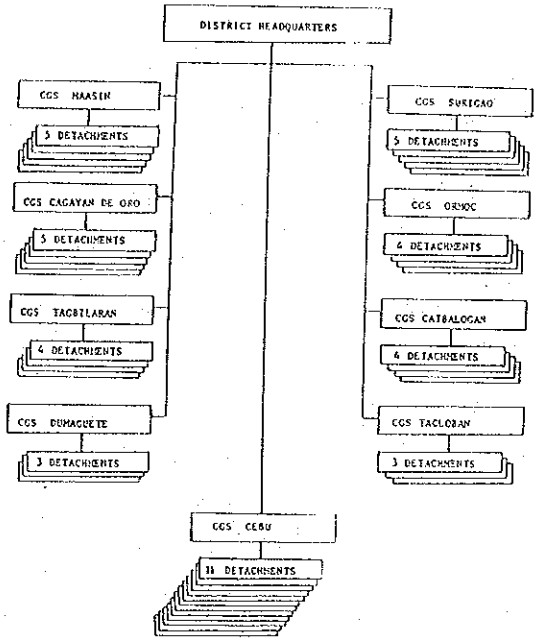
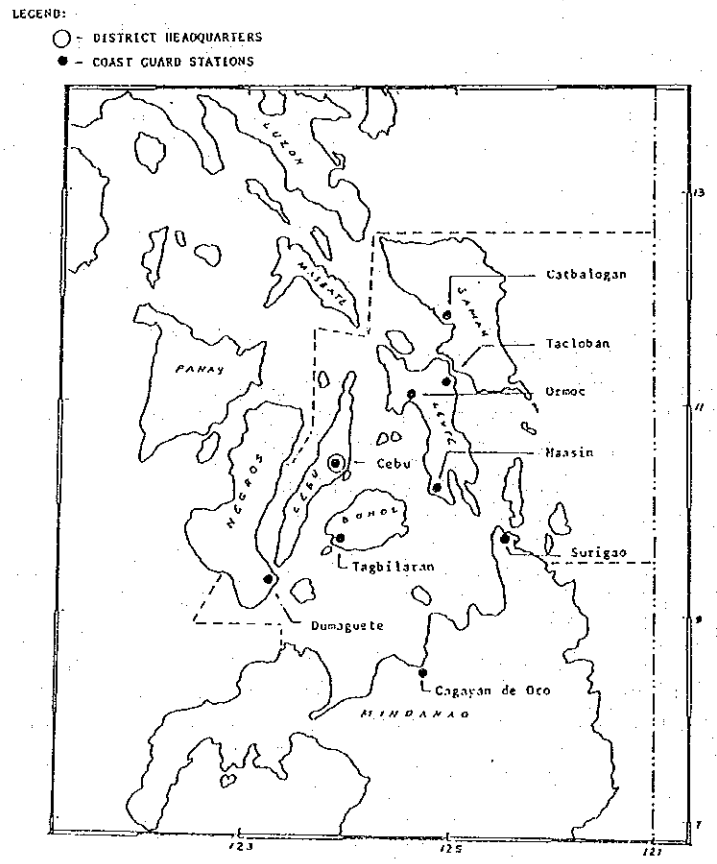


Figure 1.4
2CGD Maritime Area of Responsibility and
Locations of District Headquarters and Stations



wharves.

The 2CGD has a repair and maintenance team composed of six (6) personnel stationed at the district headquarters. This team, however, is capable only to undertake minor repair and maintenance of machineries and other equipments. In the event of major repair works, the vessels are either brought to the Navy shipyard in Cavite City or to any suitable private repair facilities.

The maritime area of responsibility of 2CGD consists of the whole waters of Eastern Visayas, part of Central Visayas and portion of Northern Mindanao. For efficient operational control, this area is subdivided into smaller operational areas and placed under the operational responsibility of the Station Commanders.

(2) CGS CEBU

The implementing arm of 2CGD for the whole province of Cebu and its neighboring islands is the CGS Cebu. It has 11 detachments which are strategically located at various secondary ports around Cebu island and also in nearby islands of Bantayan and Camotes. The station headquarters is based is Cebu City (See Figure 1.5)

(3) CEBU PCGA

The Cebu PCGA is one of the units of the Philippine Coast Guard Auxiliary, a volunteer civilian organization established by the PCG whose primary mission is to assist the PCG. Its specific objectives are as follows:

1 - To assist the PCG in search and rescue activities.

2 - To promote safety in operation of small boats through the use of volunteers interested in the safe operations of yachts and motorboats.

3 - To promote various functions of the PCG through voluntary information and organizational services.

4 - To facilitate other operations of the PCG.

The PCGA organization is national in scope. It is under the overall command and supervision of the Commandant, PCG and such command is delegated to and exercised by the District Commanders of the different coast guard districts. (See Figure 1.6)

The geographical deployment of PCGA is similar to that of the PCG, thus in every coast guard district, there is also a PCGA unit.

Figure 1.5
Locations of Coast Guard Stations and Detachments in Cebu Area

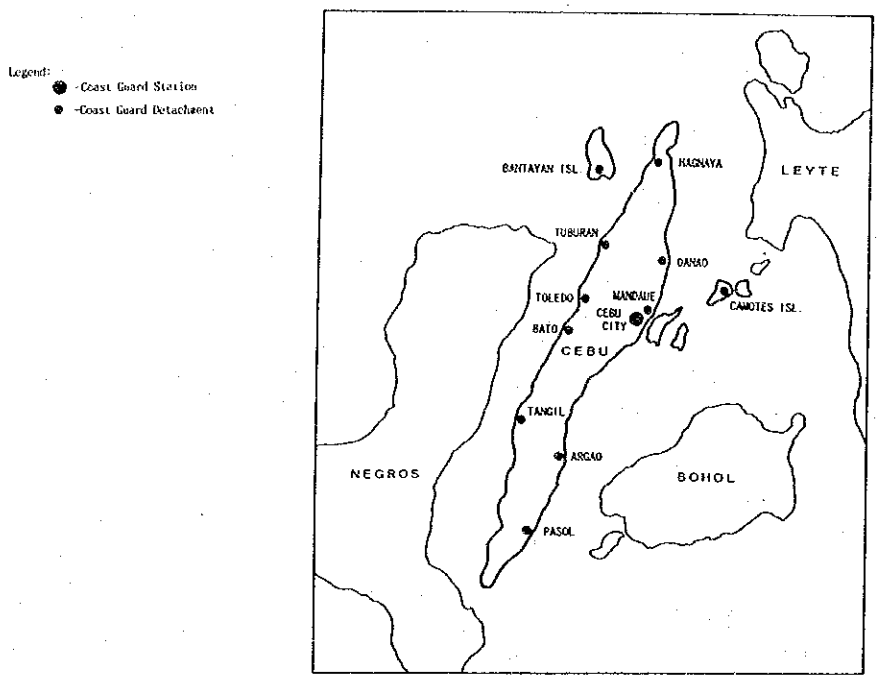
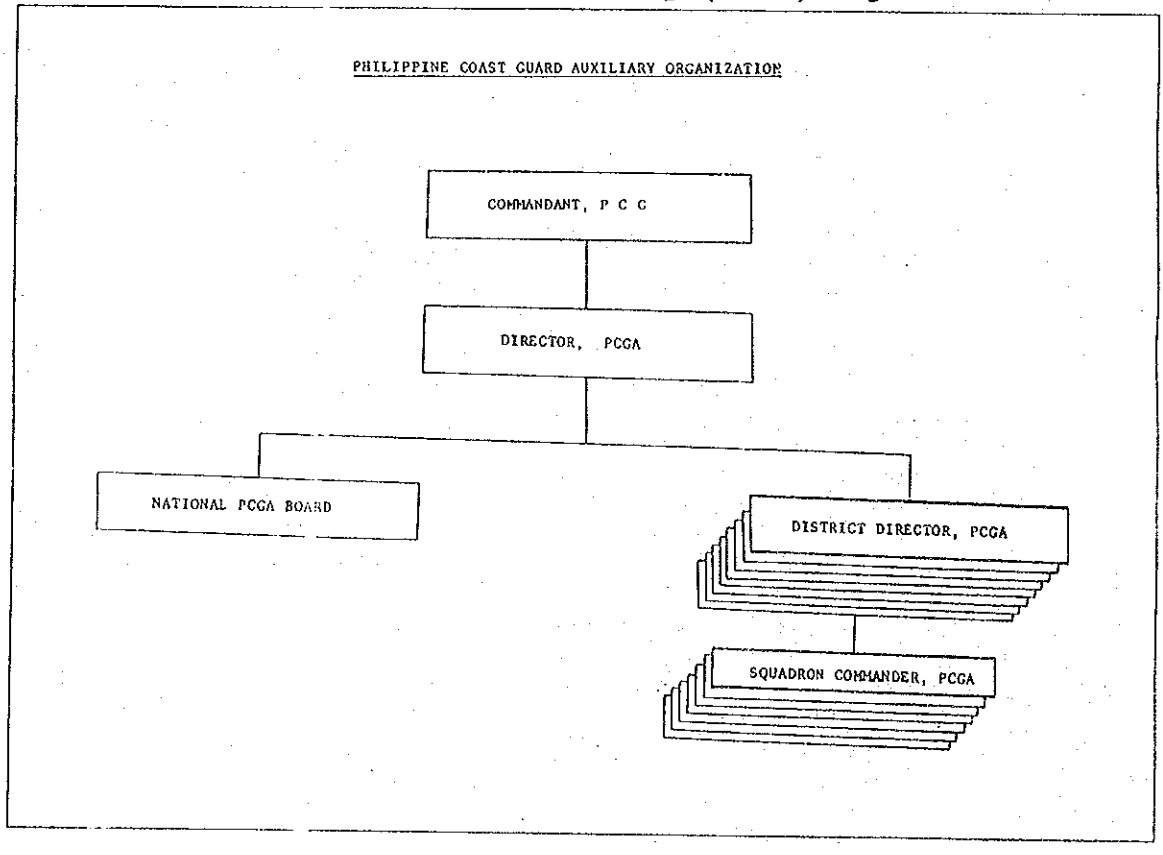


Figure 1.6
Philippine Coast Guard Auxiliary (PCGA) Organization



To become a PCGA members, an applicant should meet the basic requirements as indicated below:

1. He must be at least 17 years old and should own a facility such as a privately-owned motorboat, yacht, air-craft, land or mobile radio stations or in the absence of facility, an aspirant should possess special skill or training (e.g. scuba diver, doctor, engineer, etc.)

2. He maintains primary residence within the area of the District.

Foreign nationals who met the above criteria and interested to join the PCGA are also considered.

The PCGA in Cebu area is known as the 2nd Coast Guard Auxiliary Squadron. It is composed of prominent businessmen, doctors, lawyers, engineers, pilots and scuba divers. Presently, there are 65 registered PCGA officers in Cebu area and hundreds of members. Out of these officers, 19 are yacht owners, three (3) are owners of medium-sized passenger/cargo motor boasts and the rest are either owners of motorized 'bancas' and/or experts on the various fields of profession. (See Figure 1.7 and 1.8)

There are 28 PCGA vessels in Cebu are which could be used for SAR operations and these vessels are positioned in different places within Cebu area. The numbers and locations of these vessels are as follows:

16 - Cebu City
3 - Mandaue City
2 - Talisay, Cebu
2 - Mactan Island
2 - Olango Island
1 - Bogo
1 - Bantayan Island
1 - Badian Island

28

3) Communications Network

2PCGD has an established communications network however, it is not sufficient. The communications link between Manila and Cebu Headquarters is by wireless and the link is carried out every day at set times. The transmitter also has a channel for linking patrol boats active within the district. However the one 125W HF SSB transmitter and one 15W auxiliary transmitter are insufficient. There is a telephone system working within Cebu city and the 2PCGD and government offices are linked by public telephone lines.

The first reports from a disaster scene or a vessel in distress are mostly by wireless (VHF CH16) if the vessels has a wireless communications equipment or from observers either from closeby vessels or onshore in the case of small vessels without such equipment and made to the PCG Station or Detachment. Almost all PCG Detachments are not equipped with either radio communications or telephone and information is passed on by messenger or courier to the concerned agencies. PCG Patrol Boats, PCG Bancas and volunteer vessels affiliated with PCG Auxiliary are dispatched for rescue operations according to the necessity of the conditions and in some cases divers and amateur ham radio operators are called on to assist.

Table 1.1 shows a list of the equipment possessed by the headquarters and 9 station of the 2PCGD. The PCG Auxiliary has an emergency network focusing around the Mactan Island Resort and including amateur radio operators.

The various shipping companies operating ferries have their Cebu headquarters and branch offices equipped with radio stations (coastal stations) enabling direct communications between the company offices and the fleet. In times of emergency, there is a direct link for information and instructions. These companies are operating with combinations of one HF SSB 100W wireless and one VHF 25W transceiver or just one VHF 25W transceiver. In addition there are civilian coastal stations which are used by boats without their own company radio station. The longest route operated by vessels is about 500 km and wireless equipment in use is sufficient for this distance however they are not sufficient for crew or passenger use. Moreover, communications in times of emergency are all routed through the company giving rise to possible delays in communication with PCG. The various shipping companies are operating radio stations and because of this it would be desirable to achieve effective use of the radio frequencies.

Table 1.1
Communications Equipment in 2CGD

UNITS	RF2301	URC187	PRC77	VHF	HANDHELD
H2CGD	2	1	2	1	2
CGS CEBU	NIL	4	2	1	2
CGS CATBALOGAN	1	1	NIL	1	1
CGS CAGAYAN DE ORO	1	2	NIL	1	1
CGS DUMAGUETE	1	1	NIL	1	2
CGS MAASIN	1	3	NIL	2	3
CGS ORMOC	1	1	NIL	1	1
CGS SURIGAO	1	7	NIL	3	1
CGS TACLOBAN	1	1	NIL	NIL	1
CGS TAGBILARAN	1	2	NIL	1	1
TOTAL	10	23	4	12	15

4) Actual SAR Operations

Following are of two (2) actual SAR cases reported by CGS Cebu for reference use.

(1) M/V Tandag Case

On or about 2015 hours, 12 December 1991, CGS Cebu received a distress call via VHF radio from a vessel named M/V Luzille stating that one (1) commercial ship is burning at North channel of Cebu harbor at vicinity of Bantolinao Point, Mactan Island or approximately three (3) miles off Cebu piers. Said burning vessel was later identified as M/V Tandag, a 921.07 GRT passenger/cargo vessel which left Cebu at 1900 hours of the same day for Tandag, Surigao with 42 crewmembers, 36 manifested passengers and undetermined number of unmanifested passengers.

Upon receipt of the message, CGS Cebu immediately dispatched four (4) patrol crafts and one (1) motorboat towards the scene of incident with the Station Commander on board one of the patrol craft to act as the on-scene commander. Simultaneously, CGS Cebu requested the Naval District V (a Philippine Navy Unit in Cebu) for the availability of another patrol craft and special warfare personnel to assist in SAR operations.

While approaching the casualty vessel, the patrol crafts were able to rescue 12 survivors at sea and were immediately transported to Cebu pier by one of the patrol craft for treatment to Cebu hospital.

Due to non-availability of suitable fire fighting equipment on board the patrol crafts, the fire on board M/V Tandag was left unattended for sometime until a Navy patrol ship and two (2) commercial tugboats arrived at the scene and stated combating the fire. Fire fighting operation by the three (3) vessels lasted for about 18 hours.

The above incident resulted to the death of three (3) persons. There were 77 confirmed survivors rescued by the patrol crafts and they were brought ashore for treatment at different medical facilities in Cebu. M/V Tandag sustained heavy damage and all combustible items on board were almost burned out.

(2) M/BCA Michael Case

On or about 1330 hours, 31 December 1991, CGS Cebu received a call from concerned citizen informing that a motorized 'banca' named M/BCA Michael sank which sailed from Talisay, Cebu to Mocaboc Island, Bohol due to big waves and strong winds. The exact location of sinking site and the actual date and time of sinking was not known. CGS Cebu immediately dispatched one (1) patrol gun boat and one (1) patrol craft to conduct SAR operations to the proximate area where the said banca usually passed.

Simultaneously, CGS Cebu requested the Naval District V and the Philippine Air Force unit in Mactan for the availability of helicopters for air reconnaissance flights and SAR operations. The helicopters scoured the area for two (2) hours but reported negative sighting of any survivor. Likewise, the patrol ship and the patrol craft which jointly searched the area for five (5) days reported negative findings.

At the time of incident, there were 25 persons on board M/BCA Michael and it was later reported to Cebu PCG that out of these passengers, 17 were rescued, three (3) were confirmed dead and five (5) were missing. The survivors were rescued at sea by passing fishermen and were brought to nearby municipalities and barangays for medical treatment and proper disposition. The fate of missing passengers is still unknown.

1.1.3 Maritime Disaster Prevention Activities

1) Cebu Harbor

Government agencies concerned with maritime affairs in Cebu Harbor are 2CGD (including CGS Cebu), PMO and MARINA etc., with 2CGD playing a central government role in maritime disaster prevention. Civilian groups concerned with maritime safety include Cebu Ports-Harbors and Sea

Safety Council (CEPHASSCO) and Cebu City SOPI Chapter.

(1) CGD

2CGD authorizes port departure clearance, dispatches boarding teams and the carries out of ORE/SOLAS drills according to Memorandum Circular 04-88 (Responsibilities and Duties of Shipowners, Operators, Charterers and Agents of Domestic Vessels in the Promotion of Safety of Life at Sea) in pursuance of maritime disaster prevention.

The objectives of the Circular are "To define the responsibilities and duties of shipowners, operators, charterers and agents of vessels/watercraft in the maintenance of vessel seaworthiness and promotion of safety of life at sea". It is made up of General Provisions, Special Provisions, Responsibilities and Penal Provisions etc.

The General Provisions regulate the following;

- Vessel owners: maintaining of a vessels seaworthiness, maintenance of life saving equipment, maintaining of qualified seamen, prohibition of the exceeding of passenger and cargo capacities.

- Vessel captains: implementation of regular emergency drills, safe transportation of passengers and cargo to their destinations and the prohibition of the exceeding of passenger and cargo capacities, receiving of weather maps daily, etc.

- PCG: boarding and inspection of vessels inside the harbor and operating vessels.

Special provisions regulate the following;

- The submission of a "Vessel Safety Departure Report" to the nearest PCG Station / Sub-station / Detachment by the captain.

- "Clearance to depart" issued by PCG.

2CGD implements the dispatch of boarding teams for inspection of vessels in port and operating vessels based on the Memorandum Circular. It also implements "operational readiness evaluation" and "administrative readiness evaluation" on all vessels at regular intervals.

The ORE/SOLAS drills cover the following 5 areas.

- Fire underway

- Man overboard

- Collision while the ship is underway

- Steering casualty

- Abandon ship

Apart from this during the Sea Safety Month campaign (every year in June), SAR demonstrations are carried out.

(2) Shipping companies

In the shipping company survey carried out in May, 1991 to establish whether shipping companies were taking sufficient maritime safety measures, 92% said that sufficient measures were being taken. The following is a comment/ analysis of this.

"Most of the surveyed companies who answered yes, indicated that training their crews with safety measures drills and hiring of qualified and competent seafarers are the number one maritime safety measures they had taken followed by good maintenance of their vessels and strict compliance of maritime safety rules and regulations."

However, in actual fact safety measure drills are reliant on 2CGD implementation and because of the loss of skilled seamen to international shipping, it is thought that "the hiring of qualified and competent seafarers" cannot be relied upon.

In order to achieve safe navigation and cargo handling, there are numerous instances of port captains and safety officers being positioned in shipping companies but the system is not established as there are cases where both a port captain and safety officer are resident in a company and cases where only one is resident.

In the first stage Shipping Company Survey implemented in May, 1991, only 29 companies of the 64 surveyed (45.3%) answered that they keep a copy of the Vessel Operation Manual which regulates the safety operation standards of vessels. In this survey all of the 5 surveyed major shipping companies kept copies. The Vessel Operation Manual is a file of the various Memorandum Circulars issued by PCG including M.C. 04-88 and M.C. 98-90.

Table 1.2
Five Shipping Company Examples

Company	Port captain	Safety officer	Vessel operation manual
A	Yes	No	Yes
B	(Yes)	(Yes)	Yes
C	Yes	Yes	Yes (in Manila Office)
D	No(temporary)	Yes	Yes
E	(Yes)	(Yes)	Yes

Note: (Yes) denotes residency of both officers
Source : Shipping Company Survey in MAPMAS

(3) Civilian groups

a) The Cebu Ports-Harbours and Sea Safety Council (CEPHASSCO)

"The Cebu Ports-Harbours and Sea Safety Council is a civic, non-profit, non-political and non-sectarian organization composed of Safety Practitioners and/or individuals interested in the promotion of safety from various agencies, establishments, or institutions who bind themselves together to help the government in promoting Dockwork Safety and Health standards and Sea Safety in their community, specifically in the Port of Cebu".

However, in actual fact, the activities of CEPHASSCO are focused mainly on dockwork safety and health standards and its sea safety is limited to the implementation of special features during the Sea Safety Month in June.

b) Cebu City SOPI Chapter

In Manila there is a Safety Organization of the Philippines which implements the following yearly schedule, carrying out various campaign activities for the realization of safety and accident prevention in each of these areas.

January - General Orientation
February - Air Transportation
March - Fire Prevention
April - Vacation Hazards
May - Land Transportation
June - Sea Transportation
July - School
August - Farms
September - Health and Sanitation
October - Industrial

November - Mines
December - Holiday Hazards and Home

For Sea Safety, June is Sea Safety Month and the Sea Safety Division of SOPI holds the following promotions to boost campaign activities held during Sea Safety Month.

. production of a 10 minute film on safety features of each specific passenger vessel

. safety slogan and poster contests, etc.

However, although there is a SOPI Chapter in Cebu, there is almost no notification of sea safety related activities to the public and they are not dynamic.

c) Others

In the there are various diving organizations which hold lectures and give safety guidance relating to underwater safety and obtaining diving licenses.

2) A Danao City Barangay

At the Coast Guard Detachment Danao Vessels Safety Departure Reports are made up every day for vessels over 3 tons within the district and vessel safety checks are carried out. This Vessel Safety Departure Report is made up based on the PCG Form set out in the existing Memorandum Circular 04-88.

The report cover the ships documents, crew, passenger, fire fighting appliances, communications, navigational equipment and accessories, whether and sea conditions, etc.

Besides passing on 2CGD notifications and instruction to the Dungo-an Danao and Carmen Danao Barangay Captains via the same route as tropical cyclone information, Coast Guard Detachment Danao also passes of information directly to vessels at anchorage. The Barangay Captains pass on information received from Coast Guard Detachment Danao to the fishermen via the Barangay Council Committee of Public Safety.

In addition, Coast Guard Detachment Danao spreads the above mentioned information by way of the Owners/Operators of Fishing Boats and Motor Bancas Association organization.

1.2 Identified Problems

1.2.1 Tropical Cyclone Countermeasures

1) Measures taken by 2CGD, PMO and shipping companies during tropical cyclones

The Philippines is located at the turning point of the tropical cyclone path. Then the forecasting of these paths is extremely difficult 2CGD, PMO and the shipping companies have some doubts about the reliability of PAGASA is weather information. Because of this 2CGD, PMO and the shipping companies also receive meteorological broadcasts independently directly from japan, Taiwan and Guam etc.

2CGD directives based on memorandum Circular 09-90 and PMO directives based on PPA Memorandum Order 23-88 are uniformly based on Storm Signals issued by PAGASA. Moreover, 2CGD and PMO do not communicate or cooperate with regard to tropical cyclone countermeasures for Cebu Harbor, each giving their own directives from their own perspective to the various vessels.

In other words 2CGD acts according to regulations set out for the various Storm Signal levels based on M.C. 08-90 and takes action to prohibit port departure of vessels. On the other hand, PMO acts according to regulations set out for the various Storm Signal levels based on Memorandum Order 23-88 and orders that sufficient crew be on standby and prohibits loading and unloading of cargo and in addition when a Storm Signal 3 alert is issued, orders vessels greater than 1,000 GRT away from the pier. It also states that "Vessels of not more than 1,000 GRT may be allowed at anchorage. Those which remain moored and secured at the piers or slips must take all necessary precautions, i.e. double or multiple mooring lines, sufficient officers and crew, standby engines etc. Provided, however that any damage caused to the pier shall be borne by the owners of these vessels"

However, according to the interview survey with PMO, when a Signal 3 is issued, a directive to all vessels is given to leave the dock "proceed to anchorage". furthermore, according to the results of the Port Traffic Survey of Cebu Harbor, of the vessels entering and leaving the port, 91% are less and 1,000 GRT.

Accordingly, vessels having received directives from 2CGD contact their head offices and case operations or in the case of a few, ride out the storm without passengers. The vessels alongside the dock leave the dock and proceed to anchorage area according to PMO directives.

2) Vessels entering and leaving port

A Port Traffic Survey was conducted from May 13 to 27, 1991 during the hours between 6 a.m. and 6 p.m. The comment/analysis regarding the number and size of vessels is as follows.

(1) Daily traffic volume

The maximum daily incoming volume of 34 vessels were observed twice during the survey and maximum of 22 outgoing vessels. While 17 and 8 vessels were recorded for minimum incoming and outgoing frequency respectively.

(2) Vessels by size

Vessels with Gross Tonnage (GRT) of less 100 tons dominate the Cebu City Port with a percentage of 45.3, followed closely by 100 ‥ 500 GRT at 30.1 and 15.6% for 501 ‥ 1,000 GRT.

According to survey interviews with PMO and the shipping companies, the average number of port entries per day during the peak seasons such as summer holidays and Christmas is 44 with Monday being the peak weekday at about 100 vessels.

3) Inner port anchorage and congestion

2CGD and PMO do not communicate or cooperate regarding tropical cyclone countermeasures, they both give directions to vessels based on PAGASA Storm Signals, as mentioned above, regardless of inner part vessel conditions.

The entry and departure conditions of vessels using Cebu Port are as in (2) with Mondays when traffic is at a peak, being particularly congested. In spite of this, Cebu has only 19 PMO designated anchorages, able to accommodate no more than 28 vessels.

Under special circumstances such as during tropical cyclones, apart from the ships already in port, vessels seeking refuge also enter the port resulting in an insufficient number of designated anchorages and vessels being force to anchor outside designated area leading to disorderly anchorage. The result of this is that vessels are unable to secure whirling area necessary for each anchorage and there are collision leading to the occurrence of maritime disasters. On top of that vessels entering the port late in an effort to seek refuge are unable to find anchorages and because of their movements around the port, the inner port congestion increases and this along with bad weather conditions creates a big risk

of disaster occurring.

These designated anchorages are shown on the Cebu Port chart in the NAMRIA publication but are not listed on any pamphlets etc., giving rise to doubts about whether captains of vessels entering the port have sufficient knowledge regarding the designated anchorages.

Tropical Cyclone Ruping resulted in a total of 84 shipping disasters in the port of which 62 were from capsizing and sinking and 22 were from running aground and considering this, the inner port at that time must have been in a state of extreme congestion. Figure 1.7 shows a sketch of the damage due to Ruping in the vicinity of the Cebu Port docks as was published in the Manila Bulletin, November 24, 1990. It can be assumed from the sketch that most of the vessels that were anchored in the harbor were washed up into the docks.

4) Shelter Areas

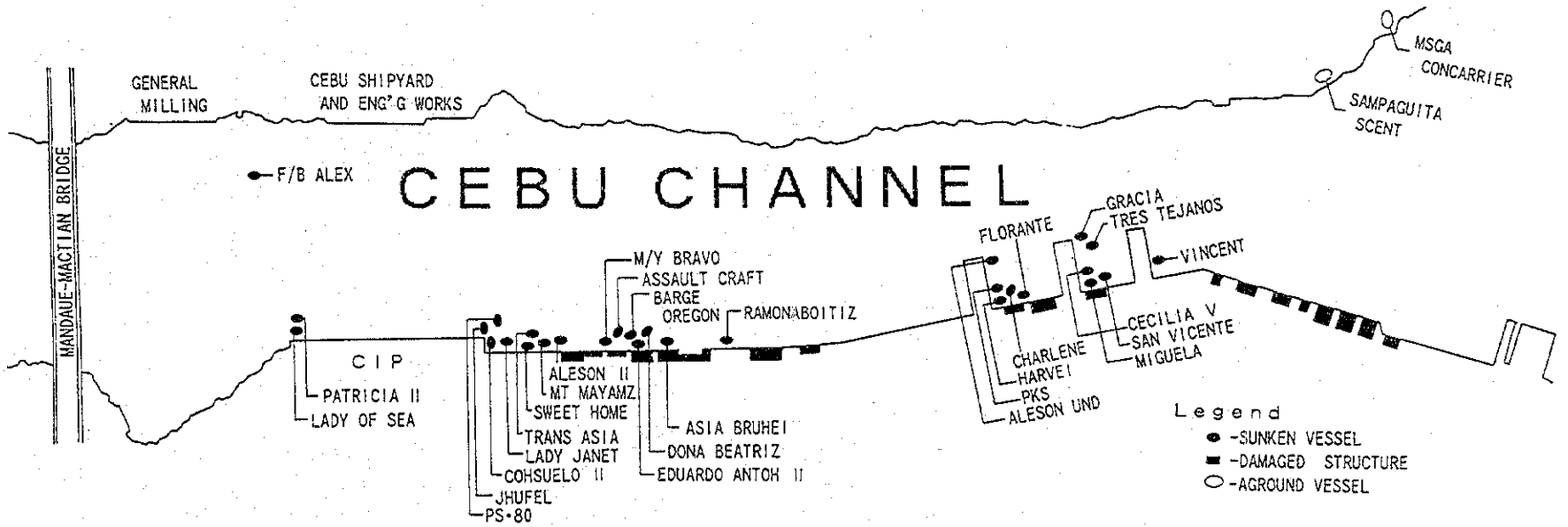
According to the Shipping Company Survey carried out in May, 1991, there is an insufficient number of bad weather shelter areas and of the 64 companies surveyed, 54 (84.3%) called for improvements to be made.

Aside from Cebu Port, 2CGD has designated Sandoval Shipyard (approximately 3 miles north east of Opon-Mandaue Bridge and south of Bagacay Pt) as a shelter area. In addition Coast Guard detachment Danao has designated Carmen Bay (approximately 11 mile north of Bagacay Pt) as a shelter area for small vessels under 500 GRT.

However, the Sandoval Shipyard is at the end of Cansaga Bay and in order to use the shipyard inlet as an anchorage, because there are no large scale marine charts or lighthouses, it is not possible to judge the water depth, shape and substance of the seabed or the effects of anchor slippage due to slight changes in the vessels position when selecting and anchorage.

Carmen Bay is recorded on nautical chart NAMRIA 4465 (Harbors in Cebu) but this chart is based on surveying carried out in 1907. there is a destroyed wooden pier at the entrance to the port and at the end of the port the wharf used by the Ro-Ro vessel Golden Arrow extends out making the chart considerably different from existing conditions. On top of that, because there are no aids to navigation, it is almost impossible to take shelter there in darkness. In order to use Carmen Bay as a shelter area, it is necessary to resurvey the area and publish a large scale nautical chart.

Figure 1.7
Location of the Damage due to Typhoon Ruping



Because of shallow water at low tide at shelter areas at Maribago Beach and other resort areas on Mactan Island, it is not possible to take shelter at low tide and it is necessary to obtain tropical cyclone information early enough to be able to take shelter during high tide times.

Because island resort beaches such as Maribago Beach on mactan Island are not equipped with storm alert signals, there is the fear that vessels in and around these areas might experience delays in receiving storm signals negating the effects of tropical cyclone countermeasures.

It is estimated that Cebu Port in times of tropical cyclones has the capacity to accommodate around 500 to 1,000 ton standard design cargo vessels with sufficient whirling radius, giving a total capability of 35 to 40 vessels. On the other hand if the latter countermeasures are implemented, the area from Cansaga Bay (including the Sandoval Shipyard area) and Mandaue-Mactan Bridge to Bantiano Pt is estimated to have the capability to handle around 500 to 1,000 ton vessels making 10 to 15 vessels in all along with a considerable number of motor bancas and the end of the harbor. Moreover, it is estimated that Carmen Bay would have the capability to accommodate about 40 to 50 vessels, with calculation based on large motor bancas and fishing boats.

Therefore, when a tropical cyclone is forecast to strike, the rapid grasping of inner harbor congestion conditions and diversion of vessels to shelter areas neighboring Cebu Port in order to prevent a build-up of vessels making for Cebu Port should be considered. In addition the early dispersal of large seaworthy vessels to Mindanao for shelter should also be considered.

5) Diffusion of tropical cyclone information

The rapid obtaining of tropical cyclone information and early formation of tropical cyclone countermeasures by vessels and other parties concerned with maritime affairs is extremely important in maritime disaster prevention. However, because the Philippines is located on the turning point of the tropical cyclone path, forecasting the path of the tropical cyclone is extremely difficult and easily mistaken and moreover it takes time for tropical cyclone information to reach the extremities and a lot of companies surveyed indicated that they do not trust PAGASA tropical cyclone information. Because of this a considerable number of shipping companies obtain information by broadcast of facsimile from neighboring countries and use it for reference in tropical cyclone countermeasures. All Coast Guard Stations and shipping companies should, in addition to receiving PAGASA tropical cyclone information, establish suitable tropical cyclone

countermeasures by installing the above mentioned meteorological facsimile receivers.

There is a necessity to a system of passing detailed tropical cyclone information between PAGASA and the broadcasting radio and TV stations, the newspapers and other media along with PAGASA, 2CGD, PMO and the shipping companies to ensure the prompt diffusion of tropical cyclone information to vessels. The vessels receiving this information must then make efforts to make sure that the information is passed along. Moreover, in order to provide reliable tropical cyclone information, it is necessary for the PAGASA Cebu Station to install a meteorological radar and observation equipment and increase the level of observation.

Those vessels obliged to install wireless equipment (Memo. Circular No. 4-09-08) are, relatively speaking, able to obtain tropical cyclone information from PCG and the shipping companies but those vessels without mainly rely on tropical cyclone information from radio broadcasts and other vessels. Apart from this they can rely on observation of the posting of storm signals on storm signal towers.

To ensure the complete diffusion of the latest tropical cyclone information, it is necessary to introduce a system whereby the broadcasting stations interrupt regular programming to give tropical cyclone information on a frequent basis. There are also a lot of cases where the F/B and M/BCA of the fishing villages eight do not have the tropical cyclone information or it is ignored and they go about there work and in these cases it is necessary for the Coast Guard Detachment to contact the Barangay Captain and ensure complete knowledge of the tropical cyclone information.

1.2.2 Measures in Times of Maritime Disaster

1) Cebu PCG

The perennial problems of Cebu PCG with regards to SAR activities are the unavailability of suitable SAR vessels with fire fighting capability and the inadequacy of communication system. In the case of M/V Tandag, it took 18 hours for three vessels to completely extinguish the fire due to the poor quality of fire fighting equipment of the responding vessels. Another problem which the SAR personnel encountered is the absence of night vision device to enable them to see survivors at sea at far distance during night time and the lack of emergency life saving equipment on board SAR vessels.

The case of M/B Michael is clearly attributable to the

non-availability of ship to shore or ship to ship communication system on board said banca during the time of accident. Almost all motorized bancas in Cebu area which are used either for short distance ferry services or for fishing purposes are not equipped with communication equipment. Owners of these bancas claim that they are very much eager to own communication equipment, but they cannot afford to buy even the simplest one because the cost of such communication equipment in the local market is almost similar to the cost of the whole unit of a motorized banca. In most cases, therefore, these bancas are sailing out without any communication equipment, thus, in times of disaster, there is no means wherein the crewmembers could ask for assistance. Based on experiences as related by SAR personnel, incidents involving motorized bancas without communication equipment could only be known thru an informant who happened to witness the actual incident or thru and information relayed by either the living survivor or a member of a family of a crewmember after learning that said banca failed to arrive at her port of destination for a considerable period of time.

The lack of a permanently assigned SAR vessels in Cebu area is the most vital problem of the PCG. Although there are patrol vessel and patrol crafts stationed in Cebu being utilized by 2CGD, yet these vessels are not sufficient to support its continuous patrol requirement along its entire maritime area of responsibility particularly patrol missions with relevance to national security. These vessels are usually deployed to far flung areas not frequented by commercial vessels thus sin times of disaster, it would require long period of time before these patrol vessels could arrive at the scene of incident. Moreover, the patrol vessels which the Cebu PCG presently have are not designed for SAR activities, thus extreme difficulties are being encountered by the rescue personnel during actual SAR operations especially when the casualty vessel caught fire on board as the case of M/V Tandag.

2) Cebu PCGA

The Cebu PCGA likewise is facing similar problem of lack of suitable SAR vessels by their own. Although the Cebu PCGA has a fleet of vessels which could be utilized for SAR activities, yet there is no assurance that all these vessels can be used at all times considering that utilization of these vessels are purely voluntary in nature. Obviously, since all the expenses incurred in the mobilization of PCGA vessels for SAR operations are borne by their respective owners without the benefit of due compensation or refund, it is likely that owners of these vessels should first protect their welfare and interest

before attempting to offer their voluntary services.

3) Communications network

As explained in the Actual Conditions section, there is a major problem with insufficient and dilapidated basic communications equipment. Under these conditions even communications under normal circumstances are lacking let alone communications in times of tropical cyclone or emergency. Generally, most maritime disasters occur within 30 mn of the coastline which is within service range of VHF equipment. Vessels over 350 tons are installed with such equipment and therefore have the capability to communicate however, in the case of small vessels and in particular motor bancas and fishing boasts, most do not have such equipment. Most maritime disasters involve these small vessels. Onshore, PCG coastal stations (9 PCG stations and a few detachments within the district) and PPA VHF stations normally monitor VHF Ch16 in 24 hours.

1.2.3 Maritime Disaster Prevention Countermeasures

1) 2CGD

70 to 80% of maritime disasters are the result of human error. In order to prevent this kind of disaster, along with the tightening of control by ordinance and notification, it is necessary to bring about enhancements in the safety awareness and quality of parties concerned with maritime affairs (including those concerned with the fishing industry). The role of PCG in this area is extremely large.

In other words the PCG is responsible for control by ordinance and notification and those in charge of implementation must submit the following PCG form implementation reports to 2CGD.

- Vessel Safety Departure Report
- Vessel Boarding Report
- Operation Readiness Evaluation
- Administrative Readiness Evaluation

These reports cover a wide range of matters, including one section which requires professional knowledge. With the lack of such professional knowledge by those in charge of implementation, there is the risk that the report will be no more than a report without any substance. It goes without saying that ORE/SOLAS drills are effective in raising the ability of crew members in times of emergency but they are also contributing to the increasing of safety awareness levels and quality of crew members.

2) Shipping companies etc.

Of the 64 shipping companies that replied to the Shipping Company Survey carried out in Manila and Cebu in May, 1990, 25 companies indicated that the were carrying out some kind of intra-company training. The following is a comment/analysis of the survey.

37% of the companies conduct trainings and/or seminars regarding maritime safety and technology and 55% do not have any in-house training and/or seminars due to following reasons.

1. No need of education training.
2. No education facilities in the company.
3. Can't afford financially.
4. Company have such short distance trip.
5. They pass the PCG examination.

However, in spite of this questionnaire, according to the results of interviews conducted in Cebu, there is almost no intra-company training aimed at increasing safety awareness levels and quality of crew members.

The Vessel Operation Manual of which copies are kept by the shipping companies, uses the PCG Memorandum Circulars as its source, if the companies abide by the PCG Memorandum Circulars then it would possible to take an optimistic point of view.

The actual situation is that even the enforcement of these Circulars is not carried out sufficiently and the shipping companies are not working out maritime disaster prevention measures with characteristics to suit the situation. According to the Shipping Company Survey, of the 64 companies, 48 (75%) carry hull insurance and according to interviews conducted with insurance companies the figure is only 30 to 40% and with the classification rate being at 50%, the degree of recognition given to safe operations by ship owners is questionable.

In addition, part from the CEPHASSCO objective of promoting dockwork safety and health standards, activities in the other objective of sea safety are almost non-existent. Sea safety activities for the Cebu City SOPI Chapter are also lagging.

For maritime disaster prevention, it goes with out saying that it is effective to promote the diffusion and enhancement of maritime disaster prevention concepts not just to parties concerned with maritime affairs but to the general public overall. However, excepting the Manila metropolitan area, even the regulations based on the Memorandum Circular put out by PCG, when considering their

current lack of diffusion throughout the region, the autonomous participation of regional residents in maritime disaster prevention diffusion and enhancement is probably still something for the future.

1.3 Countermeasures

1.3.1 Tropical Cyclone Countermeasures

1) Establishment of a Tropical Cyclone Countermeasures Committee

A Tropical Cyclone Countermeasures Committee is to be established made up of the 2CGD commandant as the chairman and representatives from 2CGD, PMO, PAGASA Cebu Station and the shipping companies. The committee will meet when Storm Signal alerts are issued and in addition to discussing the following, will advise the captains of vessels in Cebu Port to take tropical cyclone countermeasures.

a. The taking of suitable tropical cyclone countermeasures for Cebu Port considering the latest meteorological information and tropical cyclone path, conditions of vessels in port and past vessel damage conditions in Cebu Port, etc.

b. Selection of shelter ports and anchorages
Selection of suitable shelter ports and anchorages in the vicinity of Cebu Port according to the path of the tropical cyclone.

c. Countermeasures for small vessels under 20 tons
Small vessels under 20 tons and particularly motor bancas and fishing boats make up the majority of vessels involved in maritime disasters resulting from tropical cyclones and therefore during tropical cyclones these small vessels should be beached or moved to rivers, anchorages and other sheltered areas.

Furthermore, in order to pass on these countermeasures and tropical cyclone information to vessels, it is necessary to study the establishment of committee member information communication routes and ways of spreading information to vessels without communications routes by use of a publicity vehicles etc., before they are required. In addition, 2CGD should make up studies and records of information of tropical cyclones and vessels hit by disaster for Cebu Port and the vicinity for reference in tropical cyclone countermeasures.

2) Improvement to shelter ports and anchorages

In order to alleviate the concentration of vessels in Cebu Port during tropical cyclones as the result of 2CGD and PMO directives, it is necessary to improve shelter harbors and anchorages. In addition, because the are numerous instances where maritime disasters involving small vessels have occurred in bad weather conditions not including tropical cyclones, it is necessary to improve shelter harbors and anchorages so that they can be used by small boats operating along the coast to shelter from bad weather and wait for the weather to improve.

This makes it necessary for the publication of a large scale nautical chart based on hydrographical surveys.

The following outlines shelter port and anchorage improvements for the surveyed area around Carmen bay, Sandoval Shipyard (south of Bagacy Pt) and the private beach resorts on Mactan Island etc.

(1) Implementation of a channel survey and formulation of a large scale nautical chart

Carmen Bay is included in Nautical Chart No. NAMRIA 4465 (Harbors in Cebu, however, this chart has been produced based on surveys carried out 90 years ago and the chart conditions and geography and considerably different from current conditions. It is necessary to publish a large scale marine chart to suit current conditions.

It is necessary to implement a hydrographical survey and produce a large scale marine chart for use in anchorage for Canasaga Bay (including the Sandoval Shipyard vicinity) which is used as a shelter area.

Furthermore, PMO is to distribute pamphlets with information on designated anchorages for vessels using Cebu Port in order to make common knowledge of the designated anchorages. In addition, if necessary also use the "Notice to Mariners" published by NAMRIA to facilitate this diffusion of information.

(2) Installation of aids to navigation

There is no lighthouse at the entrance of Carmen Bay and there are also no buoys to guide the vessels to the end of the harbor. Because of this it is impossible to take shelter in the harbor during darkness. 2 lighthouses and a number of lightbuoys are to be installed.

A lighthouse is to be installed and the harbor entrance in order for the vessels sheltering in Cansaga (including Sandoval Shipyard) and the vicinity to check their positions and a number of lightbuoys are to be installed to guide the vessels to the end of the harbor.

(3) Installation of storm alert signals

Storm alert signals (with a height of about 10m) will be installed at Carmen Bay and the Mactan Island resort beaches, visual aids during daylight and lighthouses during night hours providing early warning of tropical cyclones in the vicinity to vessels operating nearby as well as fishing boats. The regional Barangay Captains will keep the visual aids and lighthouses in good working order.

3) Diffusion of tropical cyclone information

It is extremely important for the prevention of maritime accidents that vessels) including fishing boats) and parties concerned with maritime affairs are able to quickly obtain and understand the latest tropical cyclone information (tropical cyclone position, size, direction of movement and forecast position, etc.) and rapidly formulate tropical cyclone countermeasures. The following measures are to be implemented for the diffusion of tropical cyclone information.

1. Confirmation of tropical cyclone location

- Installation of a equipment to directly receive weather maps from weather satellite at weather stations

- Installation of a meteorological HF radio fax receivers in weather stations, Coast Guard Station/ Detachments and shipping companies

- Installation (if possible) of meteorological radars in weather stations and in addition replacement of observation equipment

2. Establishment of a tropical cyclone information communications system

- Establishment of communication system a detailed tropical cyclone information notification system among 2CGD, PMO, Cebu Weather Station, broadcasting stations and newspaper companies

- Thorough diffusion of tropical cyclone information by way of the above mentioned organizations

- Establishment of a communications system between CG Detachments and Barangay Captains

- Establishment of an emergency broadcasting system for tropical cyclone information using radio and

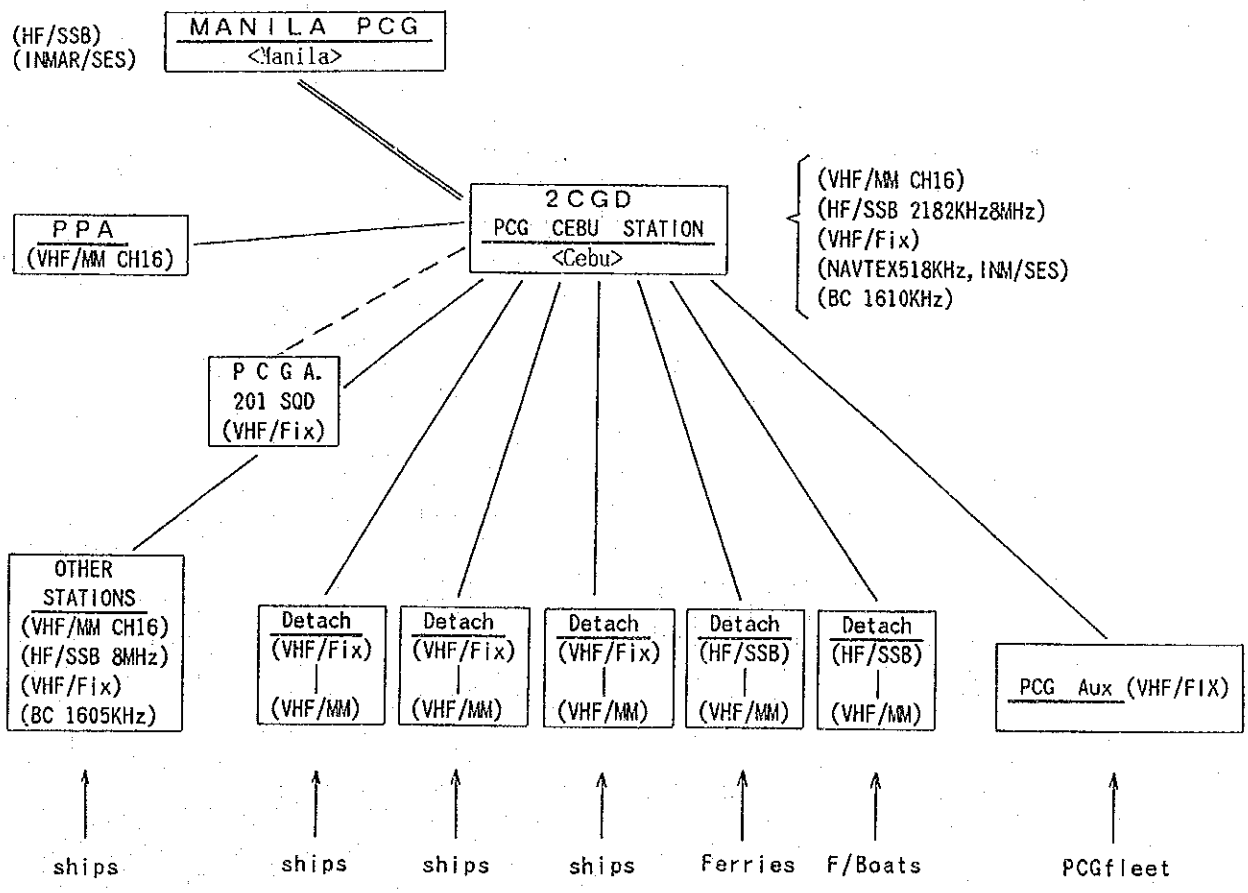
televisions

- Installation of storm alert signals in all fishing villages and a publicity vehicle at all CG Detachments

3. Radio communications

A VHF network, as shown in Fig. 1.8, is under consideration as a radio communications system. This radio communications system will not be limited to use during tropical cyclones but be for general use. Furthermore, when there are cooperative activities involving PCGA and PCG, the loaning of radio units is being considered. In addition, it is suggested that in general ship to be equipped with radio units.

Figure 1.8
Proposed Telecommunication System



1.3.2 Maritime Disasters

In order to effectively carry out its SAR functions, notwithstanding the limited resources and capabilities, the Cebu PCG commonly resorted to the following means:

1. Utilize all available PCG vessels regardless of size and type during SAR operations.

2. Request assistance from other government agencies in Cebu, such as the Philippine Navy or the Philippine Air Force for the availability of vessels, personnel or aircraft for SAR operations.

3. Tap the services of Cebu PCGA for the availability of vessels and personnel.

4. Request shipping companies based in Cebu for necessary assistance as the need arises.

On the contrary, the Cebu PCGA solely used their own assets in conducting SAR activities. The procedures being adopted is that the Squadron Commander has to request owners of PCGA vessels as well as other members to render necessary assistance every time a maritime accident within Cebu area occurs. Usually, PCGA vessels and personnel nearest to the scene of incident were the once dispatched to conduct SAR operations and in the event there is a need for additional vessels, thence the Squadron Commander has to request augmentation force from other members.

CEBU Regional SAR System shall be established through reinforcing of co-operative system between 2CGD and 2CGA. Especially during a certain period of time before the complete improvement of 2CGD SAR system it is of great importance to help upgrading SAR activities by means of developing SAR organization in private sector to meet urgent needs.

The following two(2) measures are proposed to be taken for the improvement of CEBU Regional SAR System.

(1) Regional SAR Vessel Improvement

High-and-moderate-speeded / small-sized SAR vessels shall be respectively located in 2CGD and 2CGA. The former vessel shall be used for 2CGD SAR activities, while 2CGA shall use the latter vessels to help.

a) The high speed vessel is designed to have seaworthiness which makes SAR activities possible under bad weather conditions, shallow draftline providing for SAR activities in coral reef areas, and easiness of maintenance. The vessel has to run so

fast that it can convey the weather information on approaching tropical cyclones to fishing boats out in the sea.

It is not uncommon that the vessel is provided with fire-fighting and SAR equipment.

b) The moderate speed vessel with a diesel engine is to be located to help SAR activities even in the bad weather conditions out of the port areas in place of yachts and Motor bancas which the member of 2CGA possess. 2CGD shall lend out the SAR vessel to 2CGA. 2CGA shall operate it under its responsibility.

Those two SAR vessels must be large enough to have a mobile fire extinguisher and necessary rescue equipment on board.

(2) Upgrading of 2CGA

In addition to the provision of the SAR vessel to 2CGA as stated above, the following measures must be taken for upgrading of SAR activities of 2CGA.

a) Facsimile machine for weather information to be lent to 2CGA.

b) The following SAR equipment to be lent to 2CGA.

1 - Wireless set for communication between 2CGD and 2CGA.

2 - Mobile fire extinguisher

3 - Projector, portable generator and snooper scope

c) System of bounty for SAR activities and compensation for accidents for the members of 2CGA.

1.3.3 Maritime Disaster Prevention Countermeasures

The following are given to prevent maritime disasters and ensure maritime transportation safety

a. enforcement of laws and communiques relating to maritime disaster prevention countermeasures

b. development of safety education and training systems

c. improvement of navigation conditions

However, considering the level of society maturity and the chances of realizing these measures, it is inevitable that the main focus of regional maritime disaster prevention countermeasures will be placed "a." which can be

implemented rapidly. 2CGD is mainly responsible for this area.

1) Enforcement of laws and communiques relating to maritime disaster prevention countermeasures

Along with efforts to enforce laws and communiques relating to maritime disaster prevention countermeasures by 2CGD, in particular, increase the number of vessels targeted for

1. Boarding team dispatch

2. ORE/SOLAS drill implementation

In order to increase the effectiveness of Memorandum Circulars 08-90 and 04-88, it is desirable to obtain the cooperation of the vessel captains and the shipping companies to which they are affiliated.

For the implementation of "1." and "3.", prior departmental training of the dispatched 2CGD officers responsible should be carried out to provide a complete understanding of the main implementation points.

2) Safety education and training

With 2CGD taking the lead, the people responsible for safety and vessel captains of the shipping companies affiliated to CISO and VAFSO should gather at 2CGD for training to include the following.

1. Maritime Disaster conditions and factors of occurrence

2. The objectives and contents of Memorandum Circulars 08-90 and 04-88 etc.

3. Case study of a vessel hit by a maritime disaster

Detachment commanders and Barangay captains are to gather at 2CGD prior to the tropical cyclone and Christmas seasons for discussions to include the following in order to strengthen maritime disaster prevention at the Barangay level.

1. Important areas for maritime disaster prevention for each Barangay

2. The objectives and contents of Memorandum Circulars 08-90 and 04-88 etc.

1.4 Evaluation

1.4.1 Approach to Evaluation

The objective of this study is to embody the regional maritime safety system, particularly in Cebu, as the urgent counter measures to prevent maritime accidents. In this section, a study will be carried out to estimate the damage of maritime accidents themselves and the influence on regional maritime transportation. Especially typhoon Ruping which attacked Cebu area on November 199, is suitable for a case study. Because this disaster is still fresh in our memories and a lot of data is available to analyze the size of damage.

And the proposed measures to prevent maritime accidents will be evaluated with the expected benefits which are assumed through the case study of typhoon Ruping.

1.4.2 Estimated Damage by Typhoon Ruping

1) Methodology

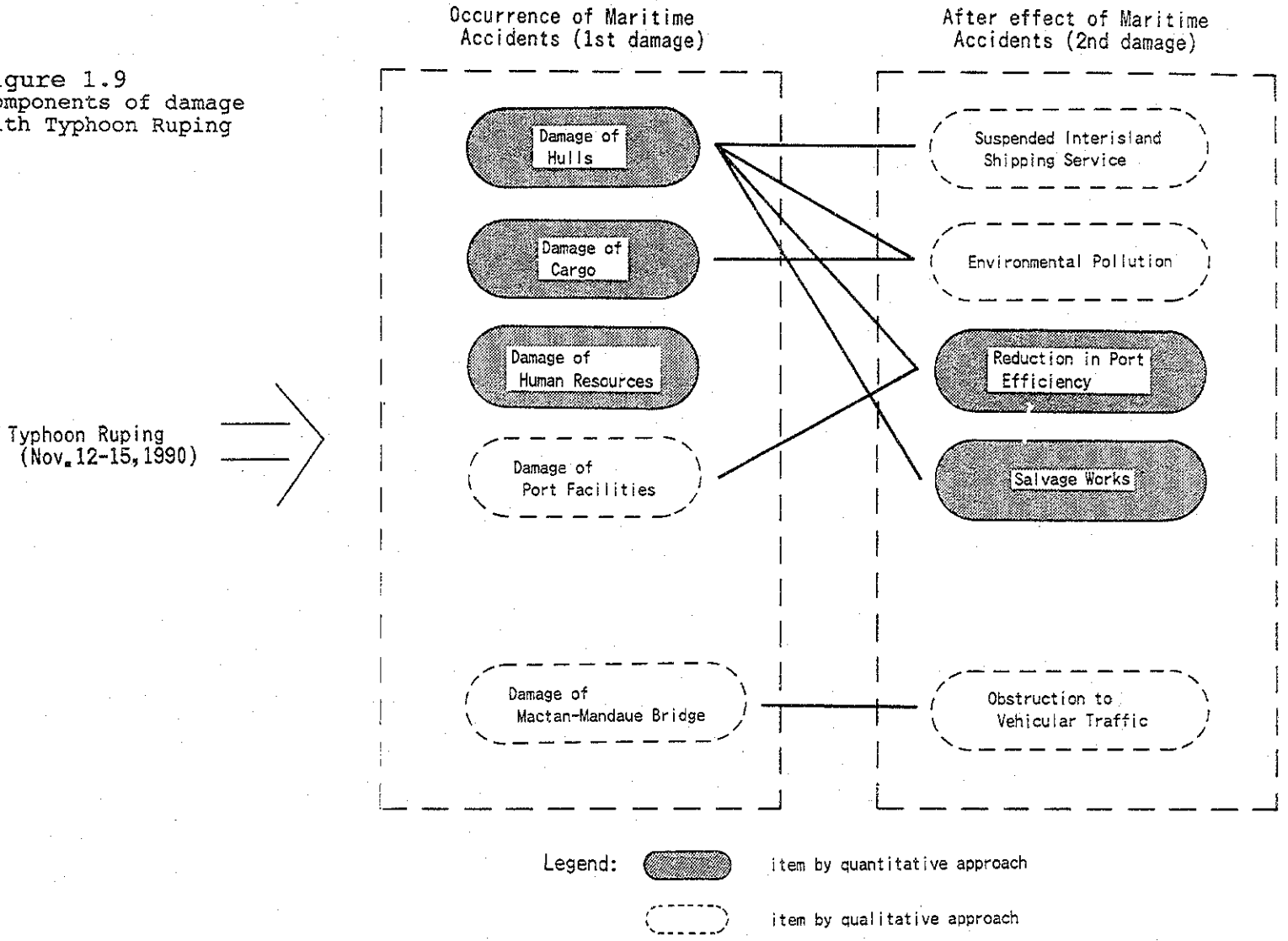
The damage by Typhoon Ruping can be divided into two phases. The first is the damage which occurred when typhoon Ruping attacked in an around Cebu Port. And the second is the damage which has occurred after typhoon Ruping attacked.

In this section, the damage is calculated from both two phases in view of a socio-economic aspect. However, the aim of these estimation is to analyze the elements and relationship of each kind of damage.

The components of the damage are considered as shown in Figure 1-9.

Some damages will be estimated by quantitative approach and others will be described their conditions.

Figure 1.9
Components of damage
with Typhoon Ruping



2) Estimation of 1st Damage

(1) Damage of Hulls

Report from PCG indicates total 62 vessels were sunken or capsized at Cebu Harbor due to typhoon Ruping (Refer to Annex 1.2). The hull value of these vessels was estimated at 598.7 million pesos by reference to hull value lists (Refer to Table 7.2 in Main Report).

(2) Damage of Cargo

The average GRT of 62 vessels was 333 tons. Then the total amount of cargo was estimated 11,577 tons. And the average cargo value per ton was 7,189 in region VII in 1988 based on NSO data. therefore the loss of cargo was estimated at 83.2 million pesos.

(3) Damage of human resources

According to the PCG report, nine (9) persons were missing and one (1) was dead due to typhoon Ruping. These figures were comparatively low for the number of sunken vessels since maritime accidents occurred in and around Cebu Port.

As a method of estimating the economic value for human resources, the most common use way is to forecast the total per capita GAP over economic life period with discounted present value (refer to Main Report, Chapter 7). From this method, the value of human life is calculated at 352 thousand pesos. Then the damage of human resources were:

9(persons) x 352(thousand pesos) = 3,168(thousand pesos)

(4) Damage of Port Facilities

Damaged structures in Cebu Port were counted seventeen (17) by 2CGD due to typhoon Ruping. At that time many vessels crushed against wharves because of its strong wing and high sea level. Broken port facilities and deserted sunken vessels have been serious obstacles to port traffic.

(5) Damage of Mactan-Mandaue Bridge

The m/v Sanko Elegance which carried wheat for the nearby General Milling Company struck the Mandaue-Mactan bridge at the height of the typhoon. It was a obvious human error so that the personnel who were in charge of this vessel were arrested by PCG. This accident made service of bridge stopped for approximately one month.

2) Estimation of 2nd damage

(1) Suspended interisland shipping service

Annex 1.2 indicates that 62 vessels sunken or capsized and 25 vessels were either damaged or ran aground due to typhoon Ruping. As a result, movement of goods and passengers in the region were severely disrupted. For example, Cebu-Ormoc and Leyte-Cebu as well as Cebu-Talibon and Bohol-Cebu were left totally unserviced.

The sinking of M/V Floranto and the damage incurred by M/V Pink Rose left Cebu-Hilongos, Leyte-Cebu and Cebu-Baybay routes unserviced. Other routes including Cebu-Cagayan do Oro-Cebu and Cebu-Surigao-Cebu were also left unserviced.

These called off or suspended interisland shipping service brought negative influence on regional development to a great extent.

(2) Environmental Pollution

Environmental pollution seemed to be occurred by the sunken vessels which were not only tankers also every other vessel. Because all vessels kept fuel for their operations and almost all vessels didn't equip with the oil/water separation system to prevent oil leakage from vessels.

But it didn't become the social problem in view of environmental aspect for the following reasons;

- Since typhoon Ruping caused floods on land, a large quantity of water mixed with earth and sand flew into Cebu Channel, and

- There was no large tanker in sunken vessels.

However, two sunken vessels, M/V Sweet Home (GRT 987) and M/V Trans Asia (GRT 884) had a lot of fuel. Then Coast Guard divers, along with salvagers, made efforts to float the two liners without spilling their fuel.

(3) Reduction in port efficiency

(Definition of port efficiency)

It's easy to understand that the vessels which were sunken and left in Cebu Port for a long time made port efficiency reduced. But it's difficult to assess the volume of reduction. PPA, PMO in Cebu answered to the questionnaire from this study as follows;
"(After typhoon Ruping,) port traffic decreased resulting in slight decrease in port revenue. Berth traffic was

also affected but only minimal."

Despite of this answer, our question remained unsolved. Then MAPMAS indicates degree of port efficiency by the following formula for the sake of convenience.

$$\text{Port Efficiency (m.t./hr)} = \frac{\text{Volume of Cargo Throughput (metric tons)}}{\text{Service Time for handling Cargo (hrs.)}}$$

(Estimated saving time)

According to shipping statistic in PPA as shown in Table 1.3, the port efficiency slightly decreased after typhoon Ruping. In the concrete, the port efficiencies before and after, from December 1989 to June 1990 and from December 1990 to June 1991, were 12.93 and 10.12 respectively, although volume of cargo throughput was almost same all the time.

Table 1.3
Shipping Statistics
(Base Port Cebu at Berth)

	1989 DEC	1990 JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
Total Cargo Throughput(A,m.t.)	445,011	307,623	365,390	353,991	331,090	381,346	309,475	361,755	355,933	385,261
Service Time (B,hrs.)	30,690	26,484	26,455	23,671	25,941	28,522	31,169	29,677	31,030	29,268
Port Efficiency (A/B)	14.5	11.6	13.8	15.0	12.8	13.4	9.9	12.2	11.5	13.2

	OCT	NOV	1990 DEC	1991 JAN	FEB	MAR	APR	MAY	JUN
Total Cargo Throughput(A,m.t.)	414,593	414,856	405,750	280,483	389,551	337,045	384,174	405,955	412,611
Service time (B,hrs.)	33,532	26,516	29,664	23,193	34,620	63,479	31,376	41.060	35,072
Port Efficiency (A/B)	12.4	10.8	13.7	12.1	11.3	5.3	12.2	9.9	11.8

Source : PPA

If the level of the port efficiency before typhoon Ruping had kept all the time, the service time from December 1990 to June 1991 could have saved 56,177 hours. On other words, 2,341 days' running cost per vessel could have been saved.

(Daily Running Cost)

Daily running cost means all vessel expenses not directly related to voyage. Interisland Liner Shipping Rate Rationalization Study (SRRS) estimated average daily running cost from the operating reports which were submitted to MARINA from ship owners/operators as shown in Table 1.4.

Table 1.4
Average Daily Running Costs, by Vessel Type by DWT
(in thousand pesos)

Deadweight (tons)	Pure Breakbulk	Cargo-RORO	Pure Container	Pure Passenger	Passenger Breakbulk	Passenger-RORO	Passenger-Container
250	—	—	—	70	—	—	
500	—	—	—	90	5	60	60
1,000	15	—	30	—	10	115	110
1,500	—	—	—	—	15	—	
2,000	25	—	50	—	20	230	170
3,000	40	—	70	—	—	230	210
4,000	50	—	90	—	—	220	250
5,000	65	—	110	—	—	200	290
6,000	—	—	135	—	—	—	
7,000	—	—	165	—	—	—	
8,000	—	—	180	—	—	—	
9,000	—	—	200	—	—	—	
10,000	—	—	225	—	—	—	

Note: Dashes indicate not applicable.
Source : SRRS

Based on the above list, if the deadweight of a pure container vessel is, say, 5,000 tons, the average daily running cost may be assumed to be ₱110,000. On this basis, if the number of days of avoidable delays for the whole container fleet in a given year amounts to, say, 1,000, the savings would be ₱110 million.

(Estimated reduction in port efficiency)

The port traffic survey in MAPMAS indicates the following conditions;

- The average deadweight of vessels in Cebu ranges from 500 to 1,000 GRT, and

- Passenger/Cargo vessels accounts for 82% of total traffic, but containerized rate is unknown.

Taking into consideration of the characteristics of port traffic in Cebu, the average daily running cost may be assumed at 50,000 pesos.

After all, the reduction in port efficiency due to typhoon Ruping can be estimated as follows;

2,341 (days) x 50,000 (pesos) = 117 million pesos

(4) Salvage works

Generally sunken vessels generate salvage works with shipowners' responsibility. But in this case, the salvage works have been conducted by the PCG and local small salvors on the following background;

1. Most of all vessels didn't have insurance such as hull insurance and P&I insurance;

2. Major salvors didn't undertake operations because they judged these vessels unprofitable in terms of salvage value, and

3. 2CGD ordered local salvors to salvage within the costs of scrap value.

Table 1.5 shows the profile and salvage period of the sunken vessels above 500 GRT.

Table 1.5
Salvaged Vessels above 500 GRT
(as of January, 1992)

Name	Type	GRT	Salvage Period
ASIA BRUNEI	C/P	964.15	3 months
RAMON ABOITIZ	C/P	1,038.76	3-1/2 months
DON FELIPE	C/P	798.54	2 months
TRANS ASIA	C/P	3,234.27	1-1/2 months
SWEET HOME	C/P	987.73	3 months
JHUFEL	C/P	690.14	On-going
LADY OF THE SEA	Yacht	601	1-1/2 months
ALESON II	C/P	601	On-going

Based on above table, salvage works take from one and half months to three and half months. Surprisingly, there are still two vessels which are being subjected to salvage operation as of January 1992.

Consequently all sunken vessels will be salvaged and total salvage cost may be equal to their scrap value. Nowadays the scrap value per ton is assumed to be 3,000 pesos. On the other hand, the number of sunken vessel is 51 and total GRT is estimated approximately 17,000 (Refer to Annex 1.1). Then, total salvage cost may be estimated as follows;

17,000 (GRT) x 3,000 (pesos/ton) = 51 (million pesos)

(5) Obstruction to vehicular traffic

The process of rehabilitation of the Mandaue-Mactan bridge shows below;

- After the accident which m/v Sanko Elegance struck the bridge, it was served as usual for the time being.
- But the engineering study about rehabilitation resulted in warning its disintegration in future.
- Then full-scale rehabilitation started and vehicular traffic along the bridge completely banned.
- Ferries were used temporarily to carry the vehicular traffic during one month.

From the traffic survey by MCDP (Metro Cebu Development Council), the number of 14,753 vehicles were recorded along the bridge in 1989. Eventually this accident forced confusion and loss of time on local traffic extremely.

4) Summary of Estimation

Consequently, the intensive damage by typhoon Ruping is estimated at 853.1 million pesos. This figure is considered to be still underestimated because of abovementioned reasons.

This study makes clear the volume and mechanism of the maritime accidents. Even partial estimates, the indirect damage accounts for 20% of total.

Table 1.6
Summary of Estimated Damage by Typhoon Ruping
(in million pesos)

1st damage:	Hulls	598.7
	Cargoes	83.2
	Human lives	3.2
	Sub-total	685.1
2nd damage:	Reduction in port efficiency	117.0
	Salvage works	51.0
	Sub-total	168.0
	TOTAL	853.1

1.4.3 Components of Proposed Countermeasures

In this study, some countermeasures are proposed variously as follows:

- Establishment of the local association for preventing typhoon disaster at sea
- Construction of a shelter port and an anchorage area for emergency use
- Aids to navigations to guide to shelter area
- A sign tower for storm warning
- Development of local information network
- Search and rescue services, and
- Diffusion of maritime accident preventing philosophy and preparation of related rules and regulations

Cost estimation of the proposed countermeasures would involve the following difficulties;

- Related charts are too old to decide the location of shelter port and to estimate the necessary dredging cost.
- Then, it is also impossible to settle the position of aids to navigations and a sign tower.
- Organizational proposal and encouragement to use existing facilities are difficult to estimate costs.

1.4.4 Conclusion

This pre feasibility study analyzes the characteristics of maritime accidents in Cebu and attempts to identify and define the most pressing problems and issues. Based on these works, the countermeasures to prevent the repetition of the same disaster are proposed. Accordingly these countermeasures will contribute to reduce maritime accidents to a great extent. Therefore the estimated damage due to typhoon Ruping would be assumed to be a part of the expected benefits of proposed countermeasures.

On the other hand, it is impossible to estimate these costs at present. Conversely taking consideration of the following points, the proposed countermeasures should be given shape in near future.

- Regarding to the construction of shelter port, the location should be determined in the light of term and cost.

- Geographic features of the archipelago such as many islands, long and changeable coastal lines, will be utilized effectively.

- Existing facilities will be made best use in harmony with related ones.

The necessity of proposed countermeasures is to implement with urgency and with cost-effectiveness. As for benefit, it will be expected a great deal. Therefore, the viability of this plan can be judged to be high.

Further study will make it possible to confirm what countermeasures discussed in this study will cost in order to prevent tropical cyclone damage. Considering this study to date, we think that from the point of view of tropical cyclone damage, the costs for preventing tropical cyclone damage are extremely small.

This can also be said for other regions. By way of the proposed F/S, the result of passing on suitable technology will be that the Philippines will be able to implement similar countermeasures on its own for other regions.

From this point of view, we propose the conduct a Feasibility Study centering around the discussed countermeasures in this study.

The expected results of this study are:

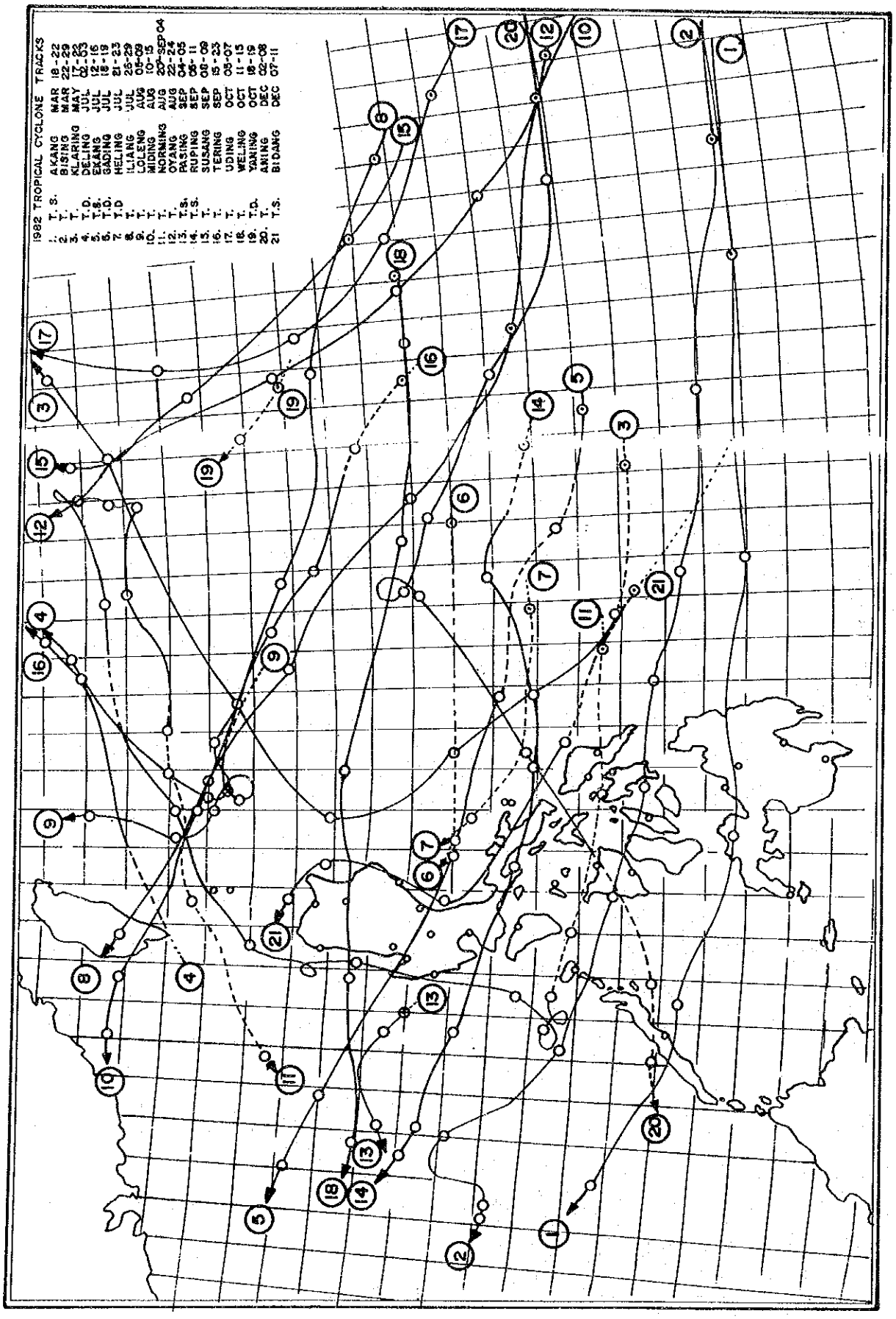
1. Establishment of a concept for shelter area improvements for the Cebu region

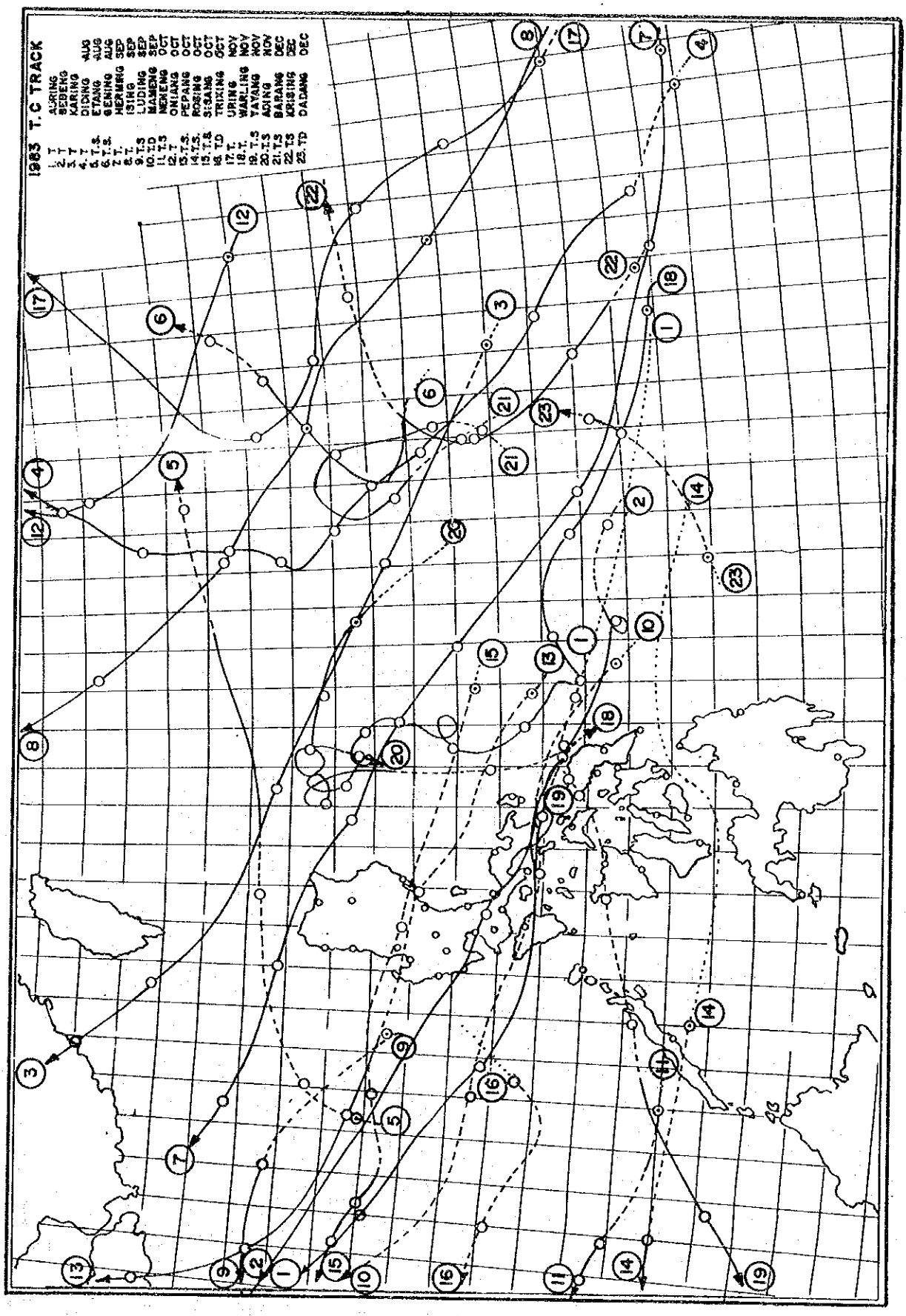
2. Specific concepts for countermeasures for vessels in bad weather conditions in the Cebu region

3. Clarification of maritime transportation safety planning areas (shipping, education, channels, signals, harbors, meteorology, communications, search and rescue, others)

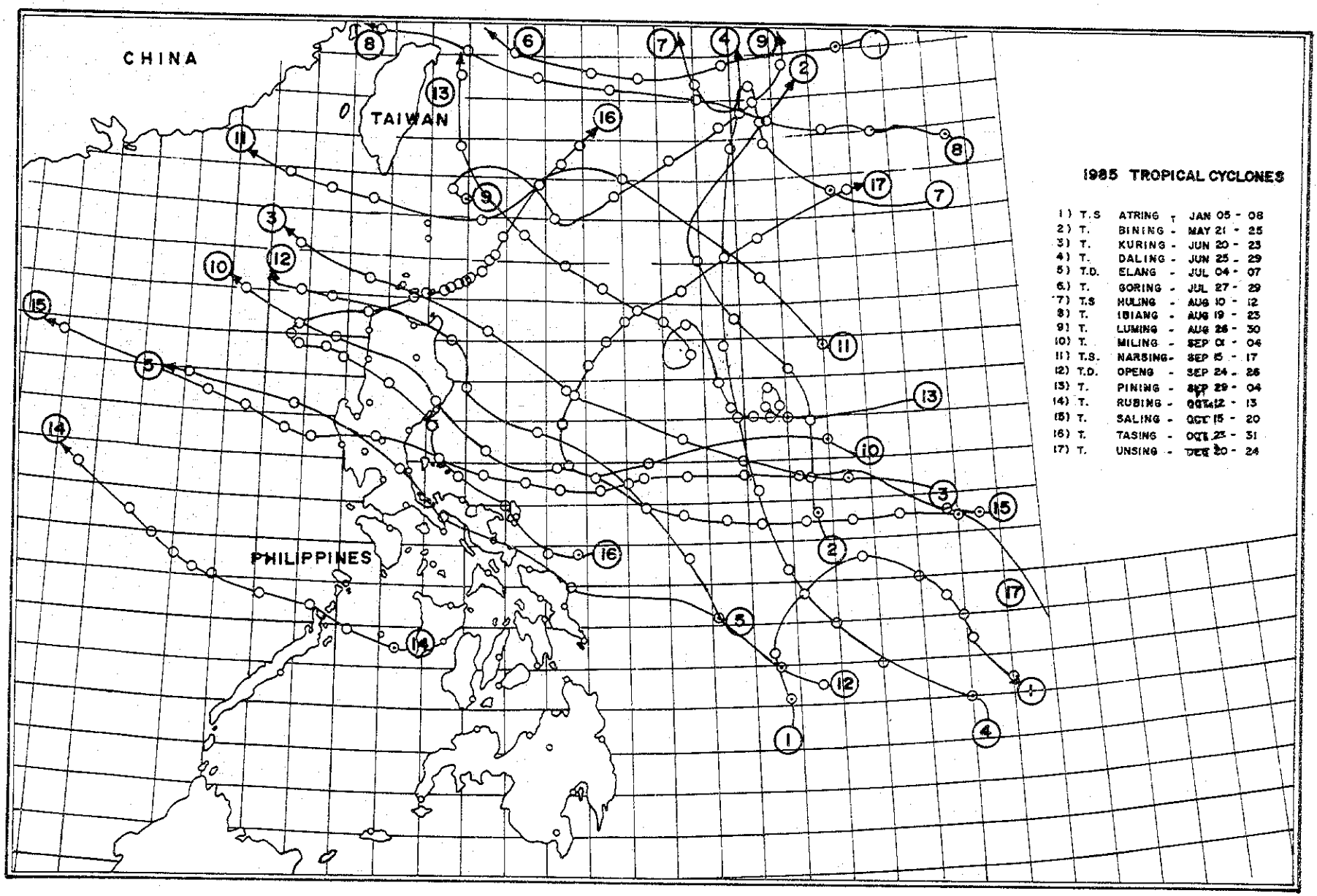
4. Transfer of planning technology for bad weather handling concepts

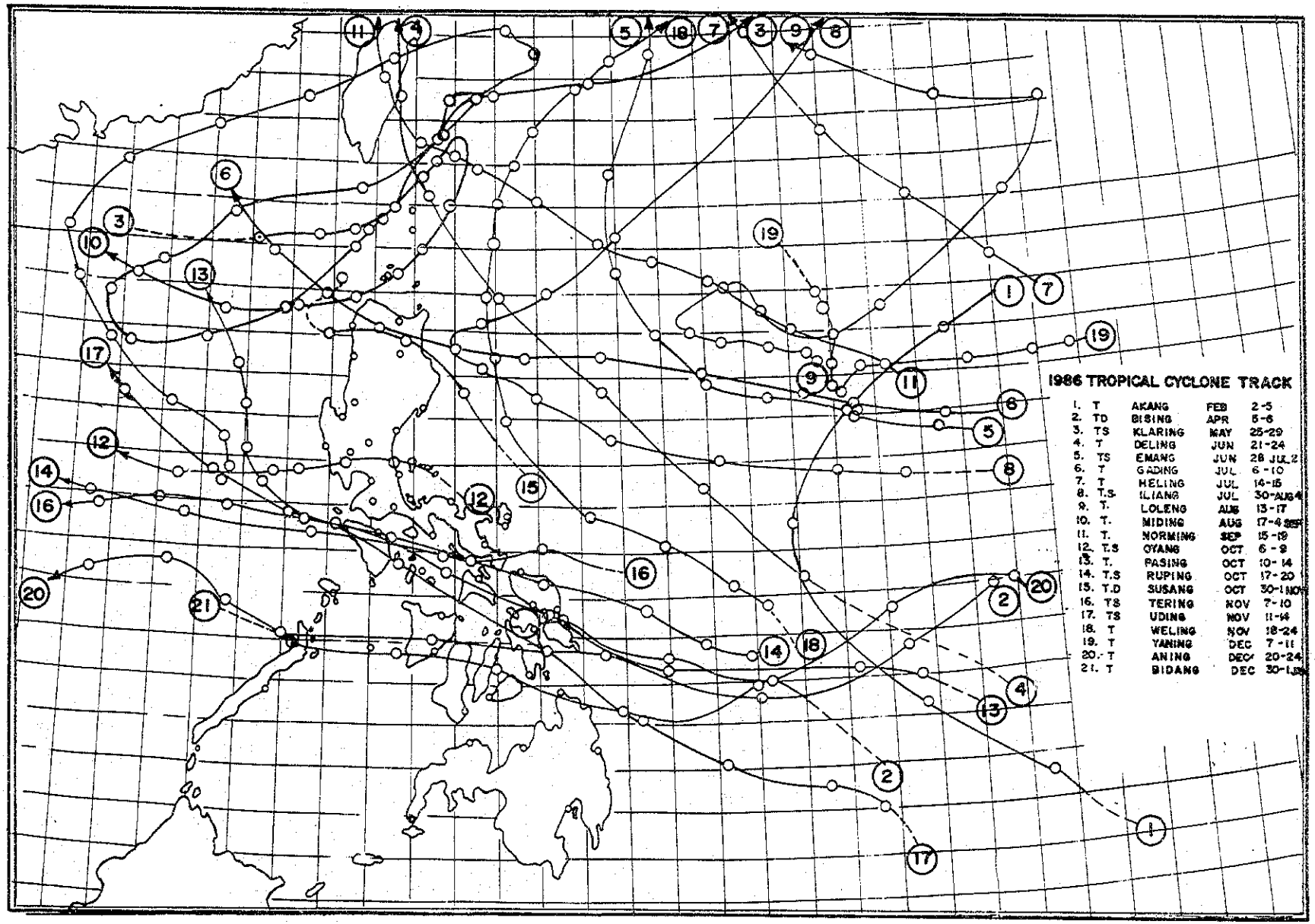
Annex 1.1
Tropical Cyclone Tracks between 1982 and 1990

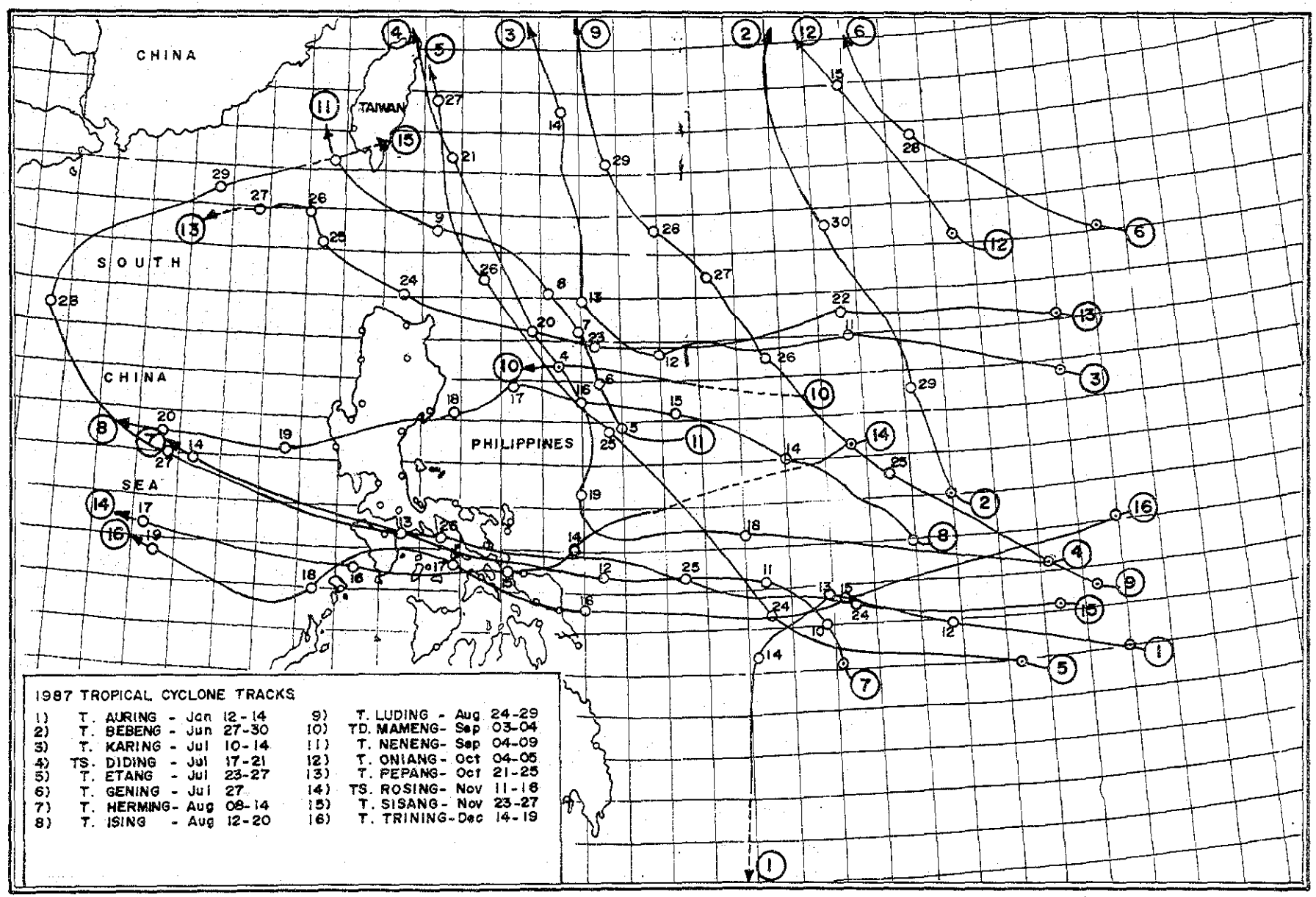


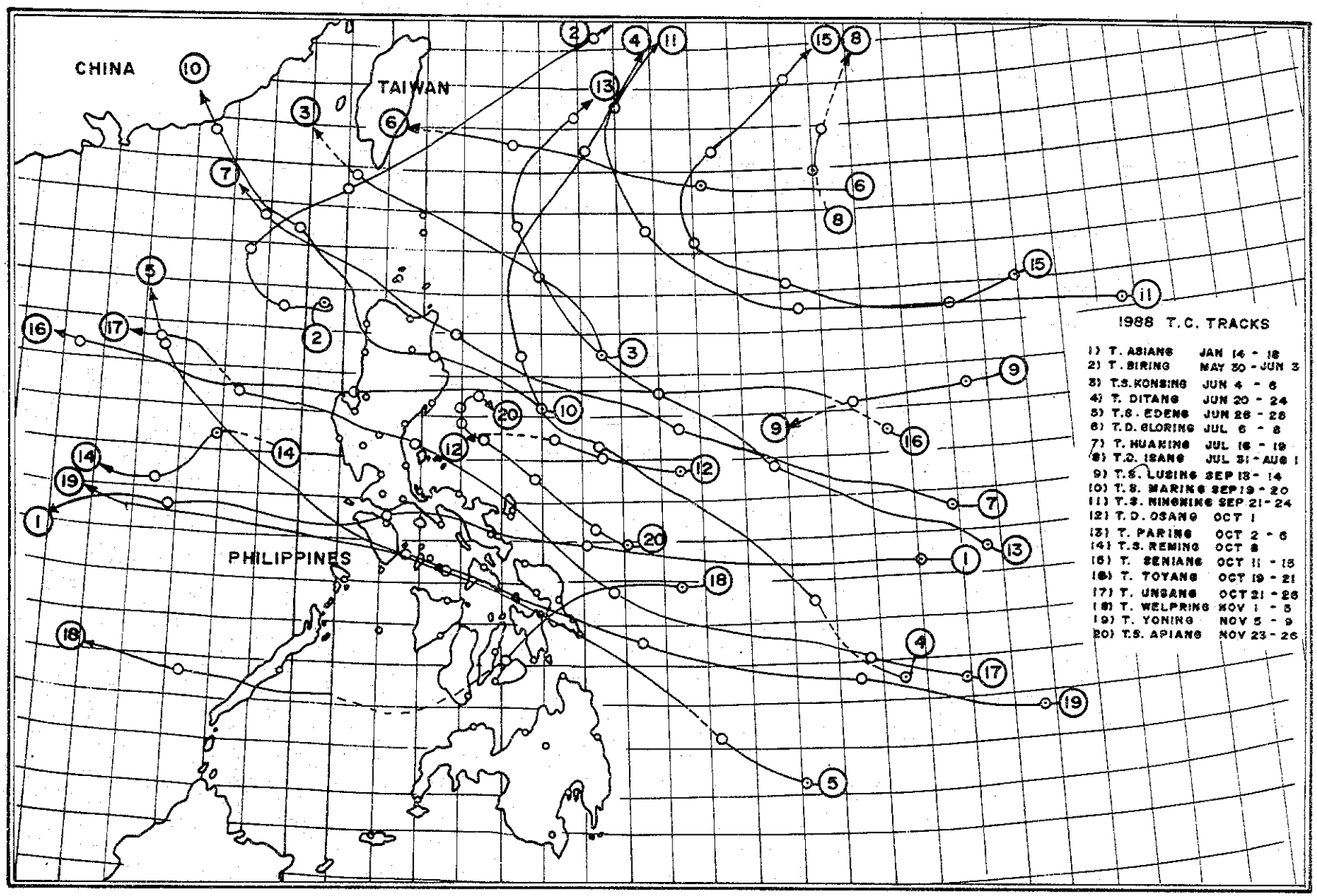

1983 T.C TRACK
1. T AURING
2. T BEBENG
3. T KARING
4. T DIDING
5. T.S. ETANG
6. T.S. GENING
7. T. HERMING
8. T. ISING
9. T.S LUDING
10. T.D MAMONG
11. T.S NEKENG
12. T ONIANG
13. T.S. PEPANG
14. T.S. ROSING
15. T.S. SISANG
16. T.D TRINING
17. T. URING
18. T. WARLING
19. T.S YAYANG
20. T.S ADING
21. T.S BARANG
22. T.S KRISING
23. T.D DADANG
JUNE
JUNE
JULY
AUG
AUG
AUG
SEP
SEP
SEP
SEP
OCT
OCT
OCT
OCT
OCT
OCT
NOV
NOV
NOV
DEC
DEC
DEC

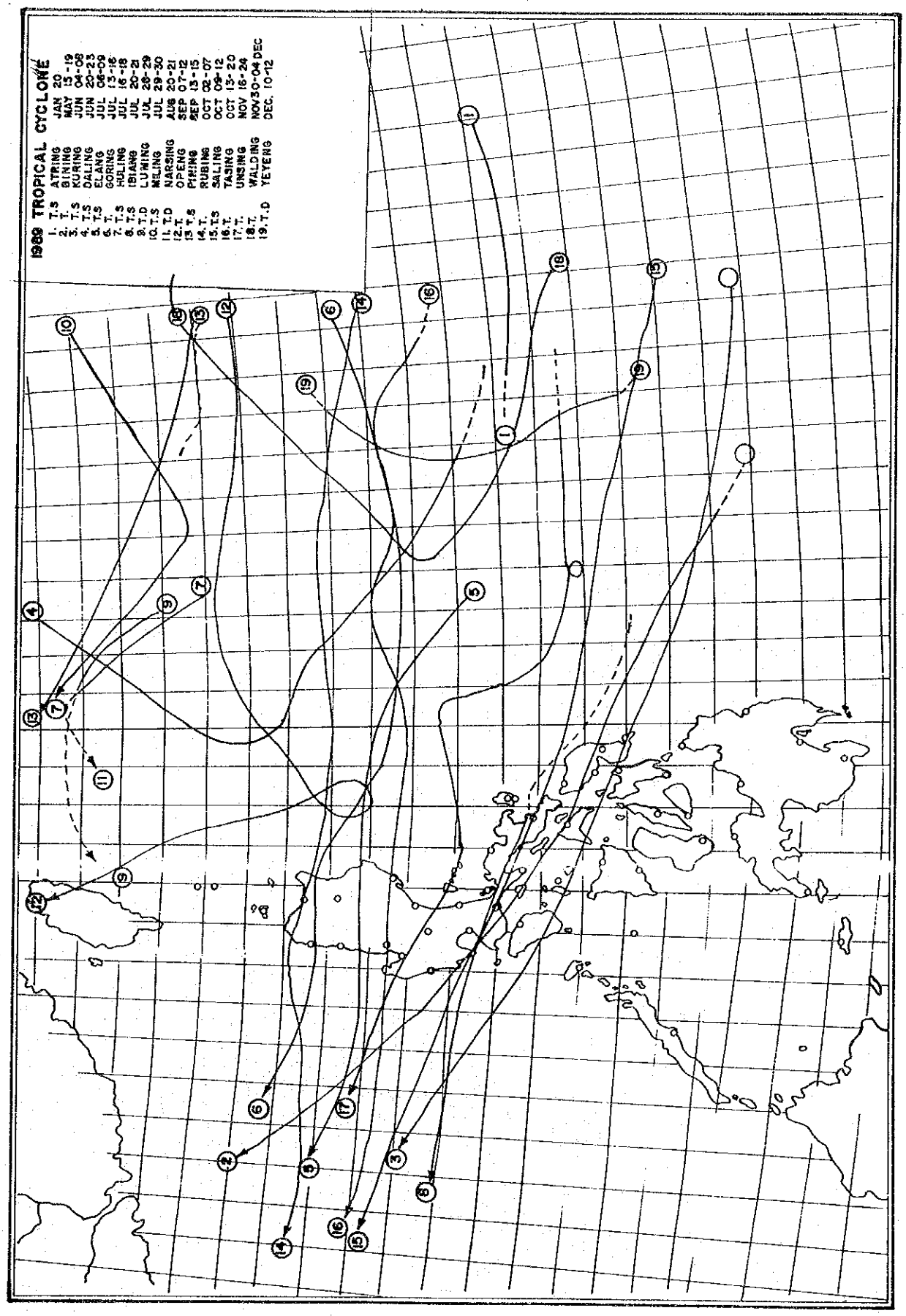
1964 TROPICAL CYCLONE TRACKS
1. T. S. ABIANG JUN 19 - 24
2. TY. BIRING JUN 0 - 03
3. TY. KONSING JUL 06 - 07
4. TY. DITANG AUG 04 - 07
5. TY. EDENG AUG 11 - 13
6. TY. GLORING AUG 14 - 15
7. TY. HUANING AUG 15 - 16
8. TY. ISANG AUG 16 - 19
9. TY. LUSING AUG 25 - 30
10. TY. MARING AUG 27 - 30
11. TY. NITANG AUG 31 - 04 SEP
12. TY. OSANG SEP 20
13. TY. PARING OCT 19 - 20
14. TY. REMING OCT 23-25,28-30
15. TY. SENIANG OCT 25-26
16. TY. TOYANG OCT 26 - 29
17. TY. UNDANG NOV 03 - 05
18. TY. WELPRING NOV 14 - 23
19. TY. YONING NOV 18 - 20
20. TY. ARING DEC 05 - 11


CHINA
TAIWAN
PHILIPPINES
1985 TROPICAL CYCLONES
1) T.S ATRING - JAN 05 - 08
2) T. BINING - MAY 21 - 25
3) T. KURING - JUN 20 - 23
4) T. DALING - JUN 25 - 29
5) T.D. ELANG - JUL 04 - 07
6) T. GORING - JUL 27 - 29
7) T.S HULING - AUG 10 - 12
8) T. IBIANG - AUG 19 - 23
9) T. LUMING - AUG 28 - 30
10) T. MILING - SEP 01 - 04
11) T.S. NARSING - SEP 15 - 17
12) T.D. OPENG - SEP 24 - 26
13) T. PINING - SEP 29 - 04
14) T. RUBING - OCT 12 - 13
15) T. SALING - OCT 15 - 20
16) T. TASING - OCT 25 - 31
17) T. UNSING - DEC 20 - 24


1986 TROPICAL CYCLONE TRACK
1. T AKANG FEB 2-5
2. TD BISING APR 5-6
3. TS KLARING MAY 25-29
4. T DELING JUN 21-24
5. TS EMANG JUN 28 JUL 2
6. T GADING JUL 6-10
7. T HELING JUL 14-15
8. T.S- ILIANG JUL 30-AUG 4
9. T. LOLENG AUG 13-17
10. T. MIDING AUG 17-4 SEP
11. T. NORMING SEP 15-19
12. T.S OYANG OCT 6-9
13. T. PASING OCT 10-14
14. T.S RUPING OCT 17-20
15. T.D SUSANG OCT 30-1 NOV
16. TS TERING NOV 7-10
17. TS UDING NOV 11-14
18. T WELING NOV 18-24
19. T YANING DEC 7-11
20. T ANING DEC 20-24
21. T BIDANG DEC 30-1 JAN


CHINA
TAIWAN
SOUTH
CHINA
SEA
PHILIPPINES
1987 TROPICAL CYCLONE TRACKS
1) T. AURING - Jan 12-14
2) T. BEBENG - Jun 27-30
3) T. KARING - Jul 10-14
4) TS. DIDING - Jul 17-21
5) T. ETANG - Jul 23-27
6) T. GENING - Jul 27
7) T. HERMING - Aug 08-14
8) T. ISING - Aug 12-20
9) T. LUDING - Aug 24-29
10) TD. MAMENG - Sep 03-04
11) T. NENENG - Sep 04-09
12) T. ONIANG - Oct 04-05
13) T. PEPANG - Oct 21-25
14) TS. ROSING - Nov 11-16
15) T. SISANG - Nov 23-27
16) T. TRINING - Dec 14-19


CHINA
TAIWAN
PHILIPPINES
1988 T.C. TRACKS
1) T. ASIANG JAN 14 - 16
2) T. BIRING MAY 30 - JUN 3
3) T.S. KONSING JUN 4 - 6
4) T. DITANG JUN 20 - 24
5) T.S. EDENG JUN 26 - 28
6) T.D. GLORING JUL 6 - 8
7) T. HUAKING JUL 16 - 19
8) T.D. ISANG JUL 31 - AUG 1
9) T.S. LUSING SEP 13 - 14
10) T.S. MARING SEP 19 - 20
11) T.S. NINGNING SEP 21 - 24
12) T.D. OSANG OCT 1
13) T. PARING OCT 2 - 6
14) T.S. REMING OCT 8
15) T. SENIANG OCT 11 - 15
16) T. TOYANG OCT 19 - 21
17) T. UNSANG OCT 21 - 26
18) T. WELPRING NOV 1 - 5
19) T. YONING NOV 5 - 9
20) T.S. APIANG NOV 23 - 26


1989 TROPICAL CYCLONE
1. T.S ATRING JAN 20
2. T. BINING MAY 13-19
3. T.S KURING JUN 04-08
4. T.S DALING JUN 20-23
5. T.S ELANG JUL 06-09
6. T. GORING JUL 13-16
7. T.S HULING JUL 16-18
8. T.S IBIANG JUL 20-21
9. T.D LUMING JUL 28-29
10. T.S MELING JUL 29-30
11. T.D NARSING AUG 20-21
12. T. OPENG SEP 07-12
13 T.S PINING SEP 13-15
14. T. RUBING OCT 02-07
15. T.S SALING OCT 09-12
16. T. TASING OCT 13-20
17. T. UNSING NOV 16-24
18. T. WALDING NOV30-04 DEC
19. T.D YEYENG DEC. 10-12

1990 TROPICAL CYCLONE TRACKS
1. T.D. MAY 19
2. T.D. MAY 22 - 23
3. T.S. MAY 30 - JUN 01
4. T.S. AKANG JUN 13 - 15
5. T.S. BISING JUN 17 - 23
6. T.S. KLARING JUN 24 - 28
7. T.S. DELING JUL 06 - 10
8. T.S. EMANG JUL 27 - 28
9. T.S. HEDING AUG 14 - 20
10. T.S. ILIANG AUG 24 - 27
11. T.S. LOLENG AUG 28 - SEP 05
12. T.S. MIDING SEP 05 - 08
13. T.S. NORMING SEP 12 - 15
14. T.S. OYANG SEP 15 - 17
15. T.S. PASING SEP 24 - 27
16. T.D. OCT 03 - 05
17. T.S. RUPING OCT 10 - 14
18. T.S. SUSANG NOV 16 - 19
19. T.S. TERING NOV 23 - 29
20. T.S. UDING DEC 02 - 05
CHINA
TAIWAN
PHILIPPINES

Annex 1.2
INVESTIGATION ON THE CASUALTIES DUE TO TYPHOON RUPING, AS OF 17 NOVEMBER 1990

Seq. No.	Vessel's Name As Per PCG List	Owner/ Operator	Year Built	GRT
	— Vessels sunken/capsized at Cebu Harbor —			
1.	MT PANAMA 13	SULPICIO LINES	n.a.	69.78
2.	MT PANAMA 14	SULPICIO LINES	n.a.	69.78
3.	MV KALAYAN EXPLORER	DOMINADOR MEDINA	1986	34.28
4.	MV RAMON ABOITIZ	ABOITIZ SHIPPING LINES	1955	1,038.76
5.	MV ASIA BRUNEI	TRANS ASIA SHIPPING LINES	1969	964.15
6.	MV TRANS ASIA	TRADERS LTD. INC.	1945	3,234.27
7.	MV DONA BEATRIZ	ROBLES SHIPPING	n.a.	429.10
8.	MV EDUARD ANTONIO	JONES CARRIER	n.a.	484.10
9.	MT BRAVO	n.a.	n.a.	218.00
10.	MV SUBIC BAY	ALBERTO GOTHONG LINES	n.a.	n.a.
11.	MV SWEET HOME	HAYASHI MARINE CO.	1969	987.73
12.	MV LADY JANET	ELIZABETH POMALISAN	n.a.	49.48
13.	MV JUFEL	GEOREE & PETER LINES	n.a.	690.14
14.	MV DONA CONSUELO II	CONSULELO SHIPPING	1980	362.34
15.	MV LADY SEA	GLORIA MARIS ADV. INC.	1952	235.49
16.	MV PATRICIA	CANDANO SHIPPING	1982	998.05
17.	MV DON ALVINO	SULPICIO LINES	1973	86.52
18.	FB JACQUELEN	WILLY DE ASIA	1979	40.55
19.	FB CARMELITA XII	CARLOS CASCABLE	1983	29.34
20.	MBCA MOBETTE II	n.a.	n.a.	n.a.
21.	ML MARJA ALMEDA II	n.a.	n.a.	n.a.
22.	MV ALESON I	ALESON SHIPPING	1975	721.36
23.	MV HARVEY	MILLANES SHIPPING	n.a.	252.69
24.	MV CHARLENE	- DO -	n.a.	93.09
25.	MV FLORANTE	GABISAN SHIPPING	1982	158.14
26.	MT PKS WILLY	PKS SHIPPING	1967	22.40
27.	ML TRES TRIJANOS	n.a.	n.a.	n.a.
28.	ML GRACIA	Z&C FISHING VENTURE	n.a.	21.26
29.	MV CECILLA V	ATILAND PORMIDA	n.a.	261.13
30.	MV SAN VICENTE II	SAN VICENTE SHIPING	1966	88.65
31.	MV MIGUELLA	GABISAN SHIPPING	1967	248.07
32.	MV VINCENT	VISMIN SHIPPING	n.a.	247.00
33.	MV ALESON II	ALESON SHIPPING	1970	601.00

(Continued)

Seq. No.	Vessel's Name As Per PCG List	Owner/ Operator	Year Built	GRT
34.	MV FELIPE	SABINA ANDIT TIU	1986	125.70
35.	MV ERZA	n.a.	n.a.	78.55
36.	ML FREDERICK	n.a.	n.a.	n.a.
37.	ML STA. ROSA VII	ADRES SUNGAL I	n.a.	54.1
38.	ML ALISTAR II	ROMEO CORTEZ	n.a.	34.46
39.	FB TUNA BAY	PHILIPPINE TUNA VENTURES	n.a.	93.63
40.	LCM MARON VII	NARY DUANO	n.a.	10.08
41.	MV SALVACION II	MANUEL SIA	1981	14.80
42.	BRP NUEVA VISCAYA	PHILIPPINE NAVY VESSEL	n.a.	800.00
43.	LCM 260	- DO -	n.a.	n.a.
44.	MB 571	PHILIPPINE NAVY VESSEL	n.a.	n.a.
45.	MT MAYAPIS	UNITED MARINE TRANS. COPR.	n.a.	30.18
46.	mt subic bay	n.a.	n.a.	n.a.
47.	MBCA MEROSIE 4	JESUS CANETTE	n.a.	14.72
48.	MBCA DELSA	DELFIN CARACAS	n.a.	n.a.
49.	MB CANCERIAN PRINCESS	n.a.	n.a.	n.a.
50.	TWELVE (12) FISHING BOATS	n.a.	n.a.	n.a.
62.	FB ALEX-Abeam Shell Depot, Cebu	PEDRO ZAMORA	1981	17.36

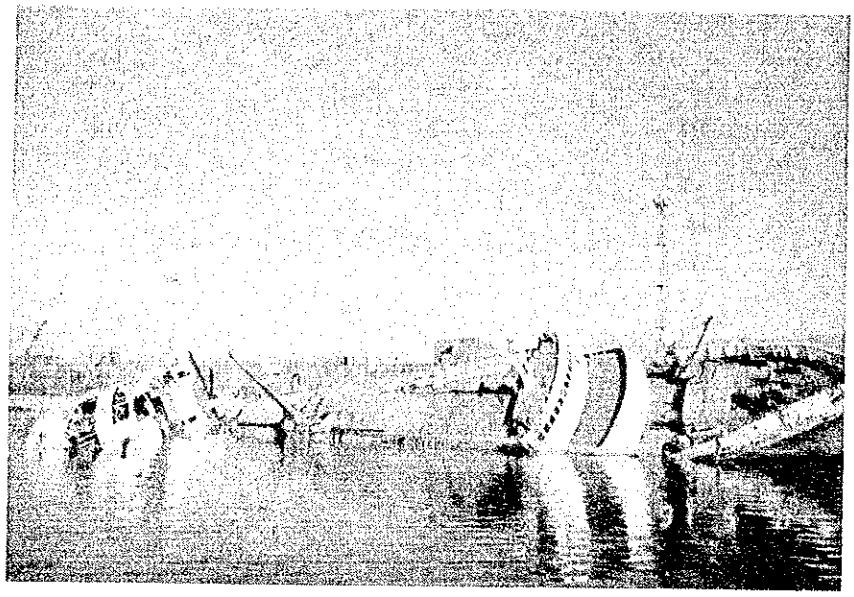
— Vessels run aground at Cebu City —

63.	MV EMILIA III	EASTERN PACIFIC LINES	n.a.	248.39
64.	MV SWEET PEARL	SWEET LINES	n.a.	1,493.00
65.	MV OZAMIS CITY	WILLIAM LINES	n.a.	2,739.52
66.	MV SULCON	SULPICIO LINES	n.a.	n.a.
67.	MV DONA CRISTINA	CARLOS A. GOTHONG LINES	n.a.	821.19
68.	LCT MAKAR TRNSPORT	CEBU OXYGEN ACETELYNE CO INC.	1983	437.65
69.	FB LOURDES C V	LOURDES FISHING CO., INC	1971	157.75
70.	BARGE KABANGALAN	n.a.	n.a.	2,670.00
71.	MT SHORELINE	n.a.	n.a.	189.00
72.	MV DONA TRINIDAD	CANDANO SHIPPING LINES, INC.	1968	241.96
73.	MT NEN HRIZON	n.a.	n.a.	294.00
74.	mt robrta	JULIUS DUANO	n.a.	218.00
75.	MV MARK I	MAYPALAO SHIPPING LINES	1969	496.52
76.	LCT AMPARITO	MICHEL J. LHUILLER	n.a.	6.03
77.	ML JOHN II	NICOLAS DOXI	1979	47.64
78.	DF 338	n.a.	n.a.	n.a.

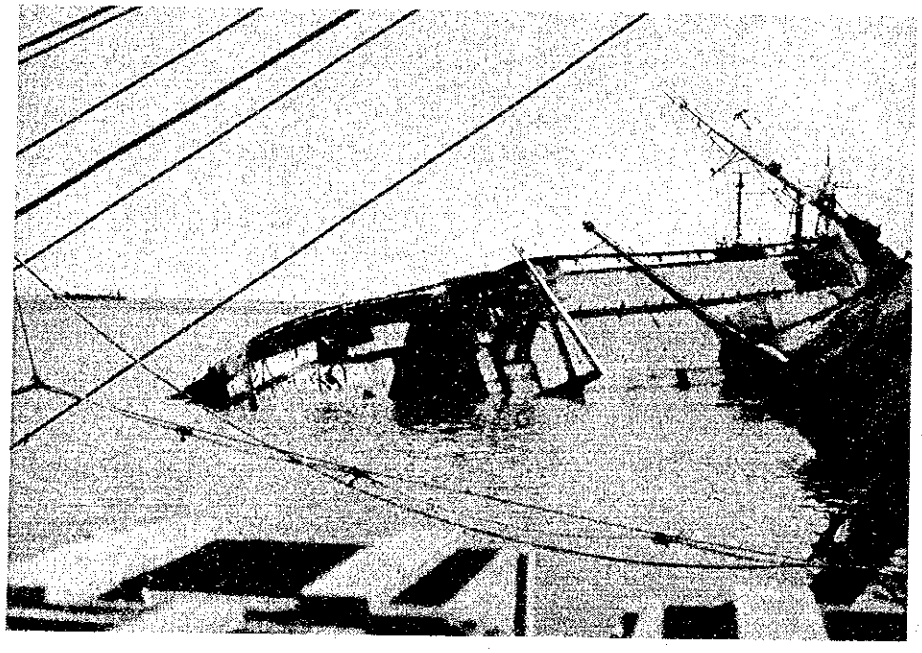
(Continued)

Seq. No.	Vessel's Name As Per PCG List	Owner/ Operator	Year Built	GRT
79.	DF 336	n.a.	n.a.	n.a.
80.	MV QUEEN OF PEACE	FKS SHIPPING CO.	1978	584.98
81.	ML STA. MARIA	JEFREN PASES	n.a.	32.68
82.	ML TANA	PAOLO RODRIGUER	n.a.	34.66
	— Vessels partially damage/Allision at Cebu City —			
83.	MV KATRINA	ROSITA FERMIN	n.a.	14.23
84.	MV QUEEN ELEONORA	DBP	n.a.	191.37
	— Missing Vessels at Cebu City —			
85.	VU 471	PHILIPPINE NAVY CRAFT	n.a.	n.a.
86.	MB 202	PCG CRAFT	n.a.	n.a.
87.	MB 01	- DO -	n.a.	n.a.

Source : Philippine Navy Outgoing Dispatch, and MARINA 1989 Domestic Fleet Inventory

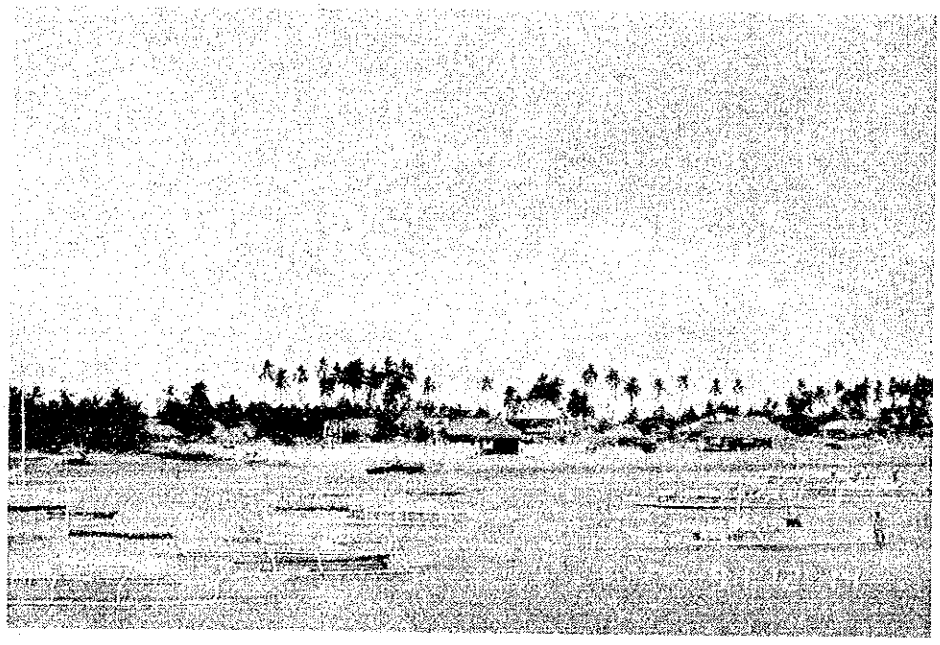


Picture 1.1

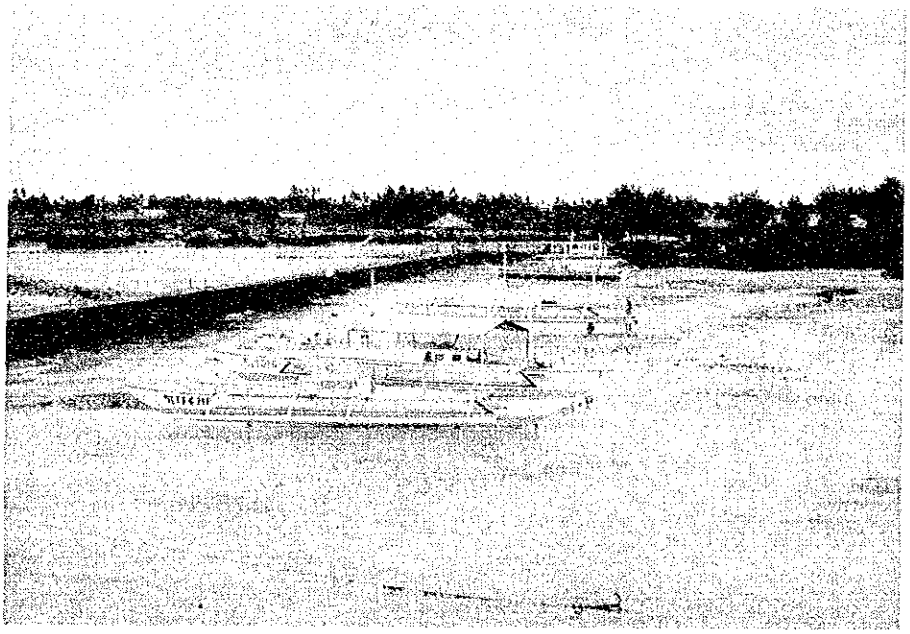


Picture 1.2

Picture 1.3

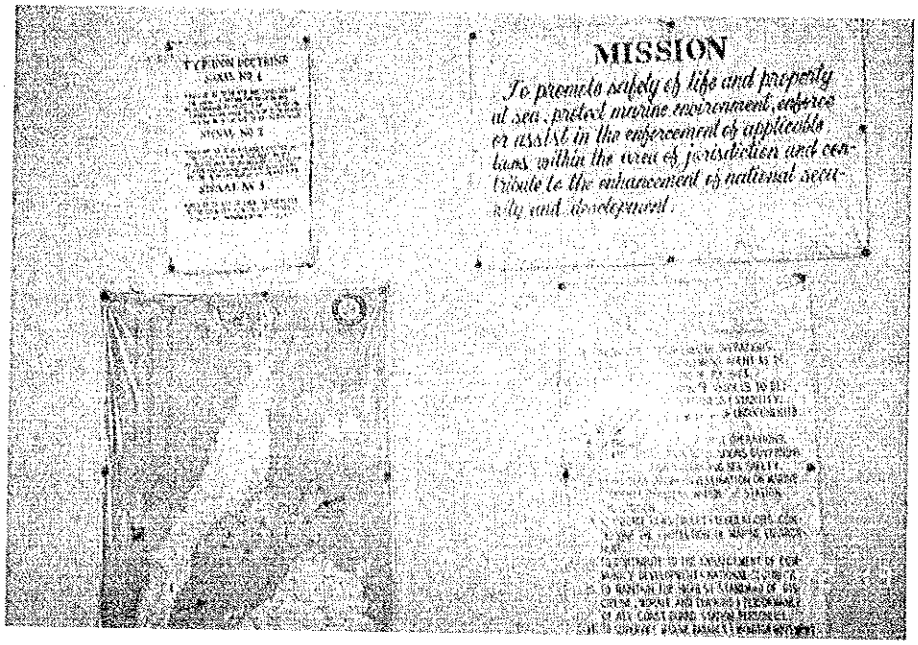


Picture 1.4



Picture 1.5

Picture 1.6



Picture 1.7

Picture 1.8