4.2.2 Cargo Handling Equipment

(1) OPASCOR (Oriental Port & Allied Services Corporation)

Most of the container (cargo) handling equipment, utilized at CIP belongs to the private sector except for the equipment for port supporting service and maintenance. Oriental Port and Allied Service Corporation (OPASCOR) owns the largest share of this container handling equipment. "OPASCOR" operates foreign conventional and container vessels at the CIP berths.

Table 4.2.2-1 OPASCOR (Oriental Port & Allied Service Corporation)

Kind of Equipment	Numbers	Capacity	Manufacturing
Quay-side Gantry Crane	2 Units	35.5 T	Mitsubishi Heavy Ind,
Transfer Crane (RTGs)	10 Units	30.5 T	Hitachi Heavy Ind,
Reach Stacker	1 Unit	45.0T	Kalmar
Top-Lift (Forklift)	1 Unit	25.0T	
Prime Mover(Tractor)	20 Units	---	Various Makers
Trailer (Chassis)	24 Units	20/40/45	Various Makers
Small fork lift	Quantity	---	Various Makers

Table 4.2.2-2 MECASSI (Metro Cebu Arrastre & Stevedoring Service Incorporation)

Kind of Equipment	Numbers	Capacity	Remarks
Mobile Crane(Truck Crane)	1 Unit	25 T	
Fork Lift	3 Units	3.5t-4.0T	
Pay-Loader	1 Unit	For Bucket	

Table 4.2.2-3 USDI (United South Dock-handlers Inc,)

Kind of Equipment	Numbers	Capacity	Remarks
Medium Fork Lift	11 Units	5.0 T	
Small fork Lift	16 Units	3.5 T	

Table 4.2.2-4 CASSCOR (Cebu Arrastre & Stevedoring Service Corporation)

Kind of Equipment	Numbers	Capacity	Remarks
Mobile Crane (Truck)	2 Units	15 T	
Heavy Fork Lift	3 Units	25 T	1 units lease from CPA
Small Fork Lift	Quantity	2.5T-3.5T	

Table 4.2.2-5 Owned by CPA (Cebu Port Authority)

Kind of Equipment	Numbers	Capacity	Remarks
Level Luffing Crane	2 Units	25T/35T	MHI

4.2.3 Conditions of the Port facilities

(1) Cebu Baseport

1) Container Terminal

The Container terminal with length of 690 m and a water depth along side wharf of - 6 to 8.5 m were constructed in 1985 by the IBRD World Bank finance, 3rd IBRD project.

The quay wall is not damaged, concrete pavement in the container stock yard are still in good condition. There are height level difference between the apron part and yard pavement parts, which cause inconvenient and inefficient trucks movement in transferring containers in the terminals. It is observed that some upheavals of concrete block pavement in the stock yard area which were considered to be caused by the excessive wheel loads of trucks and container handling operation by folk lift trucks. The original fender system were damaged.

The north corner of the terminal is located at the mouth of the river and becomes shallow depth with the sedimentary material from the river.

Two quay container cranes were installed in 1998 and 6 units of RTG type yard cranes were operated from 1999.

2) General Purpose Berth

At the RORO ferry ships berthing area of 350 m long as parts of the 1,265 m long of general purpose berth, the construction works of widening the apron for 30 m from the existing apron are carried out due to narrow width of the apron area and shortage of cargo operation space as first phase from 2000-2001. CPA plans to continue subsequent widening works as Phase 2 and 3 to complete the entire length of this berth. The existing apron parts are paved with concrete.

Out of 30 m widening works, 14 m width parts is concrete slab pier structure supported by concrete square pile (40 cm x 40 cm) and 16 m width parts is a reclaimed parts protected by concrete sheet piles.

The concrete square pile length of 24 m is selected without soil investigation but its bearing capacity was estimated based on the soil data from the container terminal area. The existing sea bed depth is -6 m and penetrated in the soil about 15 to 16 m (the pile tip is reaching to - 20 to -22 m depth). It is advised to conduct minimum soil investigation to get actual soil data at the exact construction site so as to determine the proper length of pile and to construct facilities with a long service life of reasonable quality and bearing capacity of structures.

The used rubber tiers were installed by chain hanging from anchor in the quay wall. The chain diameter appeared to be smaller against the horizontal sharing force caused by berthing

action of cargo ships. It is advised to reinforce the chain to keep rubber fenders along the quay wall. There are three pontoons extended from the berthing alignment and passenger waiting hall with parking area as fast craft berthing facilities. The fast crafts are operating for transporting passengers from Mindanao to Leyte through the Cebu Base port. There are out flow of city drainage ducts near this terminal, which caused the sedimentation and got shallow depth of sea bed.

3) Pier 1, 2 and 3 Area

About 1000 m from the Fort of San Pedro to the general purpose berth and there are three piers with length of 165 m and 32.8 m width each. It was constructed in 1930s with support of concrete square piles. The large parts of upper structures from the pile head connection with beam and slabs in all three piers are heavily deteriorated and damaged substantially along the quay wall area. One unit of the warehouse is constructed on each pier and used for storage of cargoes.

These piers are used for cargo handling and for passenger terminal to embark/disembark of short distance passenger traffic.

The space between the edge and warehouse is not wide enough to pass a large truck. The surface of the pier is paved with asphalt, which is damaged. The warehouse of each pier built with steel frame member and is observed that its wall, ceiling and floor and damaged.

CPA plans to demolish the upper structure of pier No. 2 including the warehouse on the slab and construct a new structure built on the existing concrete piles from 2001-2002.

There are three slopes of fixed concrete type of RORO ferry berthing in the south parts from the Pier No.1. The cargo berthing area which was previously planned for waterfront development area are heavily damaged. CPA constructed 5 dolphins with used rubber fenders in front of the berth for protection of the existing damaged structures.

4) Findings by Damaged Conditions Survey of Pier No.1, 2, and 3

The damaged conditions survey of the pier No.1, 2 and 3 were carried out in February, 2001 under the following specification.

a. Visual inspection of pier structure to record the major damages and deterioration of structural members, and to identify dimensions of damaged conditions of beams and piles.
b. 4 samples from each pier were taken.
c. Chloride test on the incremental dust samples collected at depth of 0-25mm, 25-50mm, and 50-75mm in 2 spots of beams, piles and pile head connection in each pier were carried out applying phenolphthalein indicator and depth of the carbonization were recorded.

d. Carbonization analysis were carried out in the drill holes formed in obtaining dust samples for chloride analysis by spraying phenolphthalein indicator solution into the freshly broken concrete surface.

The degree of damages and deterioration based on the results of the Chloride tests and carbonization analysis are graded according to the criteria.

The findings by the investigation of each pier are as follows

Pier 1 The degree of deterioration is substantial throughout.
Remedial works have been carried out in the past in the form of the application of sprayed concrete. However, most of this concrete is coming off, exposing heavily corroded reinforcement bars on beams, deck slabs, piles and pile heads.
Beams along the periphery of the pier, namely grid line A-B and J-K (both longitudinal lines) are particularly badly damaged. Additionally there are a number of badly damaged / deteriorated piles on the perimeter of the pier. A large mount of repair/reconstruction and reinforcement is necessary to rectify the damaged conditions.

Pier 2 The degree of deterioration is substantial throughout.
Remedial works have been carried out in the past in the form of the application of sprayed concrete. However, most of this concrete is coming off, exposing heavily corroded reinforcement bars on beams, deck slabs, piles and pile heads.
Beams along the periphery of the pier, namely grid line A-B and J-K (both longitudinal lines) are particularly badly damaged.
A large mount of repair/reconstruction and reinforcement is necessary to rectify the damaged conditions.

Pier 3 The degree of deterioration is substantial throughout.
Remedial works have been carried out in the past in the form of the application of sprayed concrete. However, most of this concrete is coming off, exposing heavily corroded reinforcement bars on beams, deck slabs, piles and pile heads.
Beams along the periphery of the pier, namely grid line A-B and J-K (both longitudinal lines of the pier) are particularly badly damaged.
A large mount of repair/reconstruction and reinforcement is necessary to rectify the damaged conditions.

e. Dimensions of piers and beams are measured and found as follows

Pile dimensions are, in general, 500 mm x 520 mm in section. Beam spans are found to range from 2.5 m to 2.9 m and are 300 mm to 340 mm in width. The beam height, excluding pile head is generally 220 mm to 250 mm.

f. Chemical analysis summary

Chemical analysis summary is shown in Table 4.2.3-1.

It was informed from CPA that CPA plans to demolish the upper structure of Pier 2 and reconstruct the slab and beam on the existing piles. CPA requested to test pile conditions. Accordingly the chemical analysis of pier 2 was carried out on piles only. The chloride content should be around 60-70% and in case of less than 15 %, the concrete mix is considered corroded.

5) Proposal for Rehabilitation of Piers Structure

Based on the visual inspection and chemical analysis results, it is found out that the beams and slabs of all three piers are heavily damaged and deteriorated. It is difficult to measure the sustainable service period with the present conditions. It is proposed to demolish all the upper structure and to reconstruct similar structure on the existing concrete piles.

It is observed that concrete square piles supporting the upper structure except those along the periphery of the pier are appeared sustainable for service of some times with the present conditions. Particularly those located around the central parts of the pier structure are less damaged, but those located along the side of the pier are more damaged at splashed zones of HWL and LWL of piles, connection parts with beams which are cracked on pile and exposed heavily corroded reinforced bars by the lost concrete surface.

In case of using these concrete piles for cargo/passenger ships berth, it is suggested to drive additional piles to the substantially damaged piles, particularly along the periphery of the pier. The cracked piles and pile heads shall be repaired and reinforced by placing additional fresh concrete reinforcement bars.

Table 4.2.3-1 Chemical Analysis Summary

Location	Element	Chloride Content (%)		
		Depth 0-25mm	25-50mm	50-75mm
Pier 1				
Area 1	Pile	0.77	0.38	0.31
	Pile head	0.27	0.27	0.44
	Beam	0.22	0.15	0.11
	Deck slab	0.15	0.12	0.09
Area 2	Pile	0.69	0.29	0.53
	Pile head	0.28	0.26	0.22
	Beam	0.21	0.10	0.08
	Deck slab	0.19	0.13	0.09
Area 3	Pile	0.62	0.41	0.29
	Pile head	0.30	0.09	0.04
	Beam	0.51	0.31	0.16
	Deck slab	0.19	0.12	0.05
Pier 2				
Area 1	Pile	0.54	0.36	0.26
Area 2	Pile	0.54	0.30	0.26
Area 3	Pile	0.64	0.23	0.20
Pier 3				
Area 1	Pile	0.64	0.48	0.39
	Pile head	0.26	0.12	0.18
	Beam	0.20	0.13	0.08
	Deck slab	0.12	0.07	0.06
Area 2	Pile	0.94	0.85	0.85
	Pile head	0.77	0.86	0.73
	Beam	0.70	0.61	0.92
	Deck slab	0.08	0.08	0.05
Area 3	Pile	0.94	0.57	0.44
	Pile head	0.90	0.83	0.58
	Beam	0.28	0.32	0.29
	Deck slab	0.28	0.17	0.08

(2) Outport of Province

As ferry port connection in the Cebu Province;
The general observations of the port facilities of the major out ports are described as follows;

There are 12 ferry routes connecting through the Cebu Island to neighbor islands. These ferry routes are connecting the Cebu island and neighbor islands in the shortest distance. The Cebu provincial government office prepared the "Provincial Physical Framework/Comprehensive Provincial Land Use Plan for 1993 to 2002." In this Report the Roll-on Roll-off type of infrastructures for Visayas region which is considered as the most practical means of communications for the regional economy and cargo/passenger movement

is recommended to be developed.

The observations of port facilities of the major out ports from the site reconnaissance survey are described as follows;

- The berthing facilities of the major ports which are pier type of structure constructed with reinforced concrete slab supported by concrete square piles are damaged in general its fenders of berth and beam and slabs of the pier mainly due to roughly ship berthing operation, and
- The access road, berthing facilities are worn out for long time service without periodical rehabilitation and maintenance, and
- They are located at the shallower water depth area which can only accommodate limited size of ships and required a long distance of access by causeway.
- Due to strong demands from the region particularly in the southern parts of the Island, RORO service and fast ferry for passengers had operated services without berthing facilities but by using the sand beach for ship ramp placement.

Under such recommendation and recognition of the function of Roll on-Roll off transport services in the region, the existing port facilities of the major out ports at least shall be improved and upgraded their function of RORO ferry services for transporting vehicles with cargo to meet the minimum required function for regional economy and direct communications and delivery of goods and passengers.

The following improvements of the port facilities are proposed:

- Construction of landing stage with reinforced concrete structures for RORO ferry safely berthing operation and
- Rock mound causeway used as the access between the land to waterfront area to be rehabilitated with the placement of armour stones with the protection sheet on the slopes to stopping the leakage of underneath foundation soil by wave and current turbulent action and
- Construction of land reclamation along the causeway near the beach area as port service area for vehicle parking area, passenger waiting area, and port offices with utility supply.

The conditions of the port facilities of the major outports are described as follows.

Table 4.2.3-2 Condition of the Port Facilities

Out Ports	Condition of Port Facilities
1. Toledo Port	• The port is located on the western side of the Island and recognized as an industries supporting port of the region. The port has 228 m long and 12 m wide and supported with R.C piles. Both sides of the pier were damaged by ferry ship berthing some of which were already repaired.

	• In order to protect the pier from the damages caused by RORO ferry berthing, 12 mooring dolphins with R.C concrete piles with rubber tier as fender system were constructed along the pier in 2000 by CPA own budget. • The RORO ferry landing stage is located at the tip of the Pier with water depth of -4.0 m. The area of landing stage is not wide enough to accommodate a big bus coming from the ferry circle. • CPA plans to extend the Pier and to construct additional landing stage and to allow speed boats to berth for passenger transport from San Carlos in Negros Occidental. A new port operation office is required. • A land reclamation is recommended along the pier near the beach to have vehicle parking, passenger waiting building with utility supply so as to minimize the traffic congestion caused by ferry users and city public market area around the entrance of the pier. • The Toledo port have played the function of gate way of Cebu Island for RORO transport system of cargo and passenger movement from the Panay Island -Negros- Cebu and Ormoc in the Leyte route, and Bohol Island to Mindanao Island. This route is the major trunk route of Visayas region and forming the nationwide RORO network system. • In the Study on the Cebu Integrated Area Development Master Plan of 1994, the development of the above ferry link is proposed to be implemented as first priority project which will play to support for integration of natural resource development and contribute to form the basic frame of infrastructures.
2. Santa Fe Port	• The port is located at the southeast tip of the Bantayan Island. There are two terminals at Santa Fe area (one for handling industrial cargo by private and other having two berths for handling general cargo and RORO ferry service by CPA management). • The cargo berth at the Santa Fe port is located at the tip of the pier about 120 m long and 12 m wide supported with concrete piles. The cargo berth was heavily damaged particularly the concrete slab, beams and concrete pile connection. It is not allowed to use vehicles for cargo loading /unloading from ships on the berth. • The RORO berth of 50 m long and 7 m wide was newly constructed at the water depth of 3 to 4.5 m by extending to southeast direction from the pier. • There is a passenger waiting house along the pier about 50 m from the entrance. A new passenger waiting hall and port operation office combined with utility supply shall be developed with public vehicle parking area at the entrance of the pier area. • The cargo berth shall be rehabilitated with sufficient reinforcement to accommodate large cargo ships coming from Cebu city.
3. Hagnaya Port/ San Remigio Port	• The Hagnaya port which is terminal port of Santa Fe in Bantayan Island is located deep inside of the Hagnaya bay. • The access channel from Santa Fe has very shallow water depth around -1.0m at LW and at HWL about -2.0m. During the LW a large ship can not come to the port, passengers have to sail with shallow draft ship to a big ferry waiting at the entrance of the channel for changing the ship to Santa Fe.

	• The sea conditions during southwest monsoon (Sept. to Dec.) got rough weather with strong wind and waves. • The area of public vehicle parking and landing deck is limited. The berthing deck which has 18 m long x 8 m wide is heavily damaged particularly its concrete slab and piles. The existing berth is just enough for one ship to berth and congested with cargo and passengers. • From the view point of efficient and safe operation, the port requires improvement of facility. • CPA plan to construct new berthing facilities instead of Hagnaya around the entrance of the access channel called Punta so as to provide regular and all weather ferry services. • A new site which with flat topographic condition and higher from the sea level is located at the tip of the same peninsula. The new site is observed better location than the present port site.
4. Bantayan port	• The port is located at the west side of the Bantayan Island. • The road of about 11 km from the Santa Fe is paved with concrete. • The port function as gate way to neighbor islands and Negros for exporting eggs to Negros Island. • The port has 300m long and 7 m wide of rock mound type causeway from the public market on the land to connect the concrete pile supported jetty of 20 m long and 7 m wide at the water depth of 1.6 m. The jetty is used for cargo ships from Cadiz in Negros and passenger pump boats. Along the causeway number of fishery pump boats are using for anchorage. • The port is under the management of Bantayan municipality. They plan to develop a new port at Bantige close to the city, where there is proper water depth for cargo ships sailing from Negros. A new site requires reclamation for a new port facility development from the beach and a new access road from the city.
5. Danao port	• The port managed by CPA is a gate port to the Poro Island of Camotes Islands. The berthing facility is located at the shallow water depth and connected with the rock mound type cause way of 100m long x10 m wide from the national road, which is very narrow for passing a large truck, and pick-up trucks. The slope of causeway was protected with mortar cover. • One side of the road on the causeway is occupied by the private tenants which cause additional congestion. As a result of such congested conditions cargo ships are rarely calling the port, thus, mainly passenger pump boats use the port. • The RORO ramp was repaired. Step landing along the causeway was constructed in 1998. • CPA extended the causeway by constructing the wooden pile supported jetty of 30 m long x 10 m wide from the tip of the concrete blocks of the causeway. But the upper structure of jetty was up lifted and damaged by high waves caused by one of typhoon. CPA plan to construct a new CPA office combined with a passenger terminal at the entrance of the causeway in 2001.
6. Carmen port	• There are private owned jetty for cargo ship, RORO jetty, dock for speed boat facilities and ship yard in Carmen beside of the CPA terminal. The CPA owned berthing facilities which is located about 232m away connected by the 6 m wide of rock mound causeway which is constructed

	with concrete pile support concrete slab of 28.9 m x 15.9m. Some parts of which are damaged and with holes. • The sloped RORO ramp is under construction and damaged parts of the landing deck are repaired. CPA plans to pave the gravel surface of causeway with concrete since the portion of the road on the causeway is paved with concrete. • The landing facilities are narrow and dangerous for cargo handling and passengers passing. The damaged parts shall be rehabilitated. The passenger's pump boats and cargo ships are anchored in parallel due to the shortage of the berthing length of the present landing jetty.
7. Tuburan Port	• The port which is located about 45 km north from Toledo port has 97.5 m long x 7.5 m wide of rock mound causeway. RORO ferry landing facilities of 33 m x 11 m long was constructed in 1998. • CPA plans to repair the existing road pavement by concrete pavement in 2001. CPA also plans to extend berthing facilities of 15 m x 6 m for cargo ships. • This terminal serves for the gate of passengers, vehicles and passengers by RORO transport from Escalante in Negros Occidental. • The present facility is in reasonable conditions and necessary berthing facility is planned to be developed. In addition some facilities like passenger terminal, public transport service area should also be developed.
8. Tabuelan Port	• There is a 5 m long x 5 m wide of landing stage and passenger waiting hall at the tip of the rock mound causeway extending from the beach to the Bay, located at north from the Tabuelan city. It serves RORO vessels in transporting vehicles with cargo, passengers between the Escalante in Negros and this port. • Inside of the Bay it is very calm being protected by both sides of the peninsula. • The water depth around the berthing area is - 5.0m. The sea bed soil is observed as sand and gravel. The natural environmental conditions surround the port is very good. The berthing facilities are not deteriorated.
9. Balamban Port	• The port and city is located 16km north from the Toledo and defined as industrial supporting port of the region where a private owned ship repair yard is also located. • There is a 100 m long x 6 m wide of rock mound causeway extending from the beach at Pondol in the Balamban city use for loading rock and sands on RORO type barges, which was constructed by the city government, but operated by private company. • The road on the causeway is partly concrete paved and other parts are gravel paved. The city government plans to construct a new port facility along the beach at Nangka about 3 km north from the Balamban city or at Buanoy. • Present rock mound causeway in which foundation rocks was disintegrated and spread around the causeway and is not in adequate shape now and in capable to be as public port service facilities. It needs to develop adequate berthing facilities for cargo ships and passenger ships. • Alternative sites for a new port are planned along the sandy beach, which will cause sedimentation or changing beach alignment by the reclamation for port development.

10. Argao Port	• There is a landing jetty constructed with concrete pile supported slab of 9.5 m x 21 m and 93 m long x 7 m wide of rock mound causeway. Out of 93 m 45 m from the sea side is protected with armor stones placed along the sloe of causeway to function as breakwater. • This landing jetty is under the management of CPA and not be used by RORO services due to shallow depth and fast current speed around the berthing area. • The RORO service are operated at the private owned land without berthing facility but using natural beach for ship ramp landing. There is a rock mound causeway for speed boats berthing operated by private companies. • This terminal is functioning as the port gate of RORO to Tagbilaran in Bohol, Siquijor Island and Dapitan in Mindanao.
11. Oslob Port	• There is no landing facility of CPA or of municipality. • Due to the demands of RORO services from the southern region of the Cebu Island, a private company started operation of RORO service at Tanawan of Oslob municipality to Dumaguete in Negros, to Tagbilaran in Bohol by using the natural beach for Land Craft type (LCT) RORO ferry without landing facility and passenger services by speed boat to Siquijor in Siquijor Island with the causeway jetty for speed boat berthing. • This terminal play as the port gate of RORO transport coming from Iloilo, Negros Islands through the Bais in Negros and Marbuyo in west side of Cebu to Siquijor and Mindanao. • Considering the regional requirements of this terminal, the present facilities used for RORO ferry ticketing and temporary house for passenger waiting hall are container vans, which are not properly arranged. The adequate berthing facility shall be developed either by the CPA or municipality for accommodating safe and regular RORO ferry service with land reclamation for public vehicle parking, passenger terminal with utility supply.
12. Poro Port	• The port is located at the entrance of the Poro city. The port facility is a rock mound causeway for pump boat berthing coming from the Danao port.
13. Santander Port	• There is no landing facility of CPA or of Municipality of Santander located at the most southern tip of Cebu Island. • Upon the demands of the local residents for sea transport going to Dumaguete, and some cities in the north along the coast of Negros Oriental, a private company constructed a landing jetty with concrete slab of 16 m long x 6 m wide at Talisay area and started sea transport service of cargo and passengers by cargo ships between Tampi of Negros Oriental. • Passengers from Negros go to Cebu city, Bohol Island, Siquijor Island by ferry and land transport. The proper berthing facility and on land facility shall be developed by CPA or municipality to provide safe services to users of sea transport.

4.2.4 Maintenance and Development Program of Cebu Baseport and Out ports

(1) Maintenance Works of Ports in the Cebu Province

CPA has been carrying out the rehabilitation and maintenance of some major works since 1996 as listed in Table 4.2.4-1.

The pavement of apron including the road of the general-purpose berth area and entrance parts of Pier 1, 2,and 3 in the Cebu Baseport were rehabilitated and paved with concrete during 1997-2000.

This concrete pavement works on the apron have contributed to smooth running and efficient handling operation and movement of large containers by trucks and large forklift operation.

CPA might advise the terminal operators of the port from the safe operational point of view the following points beside the presently programmed and on-going rehabilitation works:

- Replacing concrete blocks for safe running of Rubber Tired Gantry (RTG) cranes and loading/unloading containers on/from trucks shall be undertaken as well as the repair of the upheavals of the surface of pavement in the container stockyard area of the container terminal.

- The height difference between the road and container stock yard area shall be minimized or made a slope providing reasonable angle for safe and efficient cargo handling equipment movement, particularly for container transport between the yards and apron of the container terminal wharf.

(2) Maintenance dredging Works by CPA

The CPA have conducted the maintenance dredging works at the Cebu Base Port and Out ports of the province as shown in Table 4.2.4-2.

(3) Construction works planned for 2001

The CPA intends to carry out the construction works and equipment supply at the Cebu Base Port and out ports during the fiscal year of 2001 as shown in Table 4.2.4-3.

Table 4.2.4-1. Maintenance Works of Cebu Base Port and Outports from 1996 to 2000

Year	Location	Scope of Works
1996	Maintenance works of road area	Concrete pavement at
	16th street (portion) & 17th avenue	20 cm thick, 11,022 sqm
	16thstreet(from Admin. Bldg. to WG&A Bldg.)	25 cm thick, 9,240 sqm
	3rd Lane (at the back of CFS)	20 cm thick, 3,000 sqm
1997	5th street (Gen. Maxilon)	25 cm thick, 2,532 sqm
	Between 1st & 2nd lane	25 cm thick, 2,472 sqm
	Between 2nd & 3rd lane	25 cm thick, 6,612 sq m
	Berth 8 to 12 (vehicular lane)	25 cm thick, 9,100 sqm
	Berth 15-17 (Working apron)	25 cm thick, 3,150 sqm
	Container Yard at the back of CFS	30 cm thick, 10,800 sqm
1998	First avenue	25 cm thick, 10,036 sqm
	Berth 8-12 (storage area)	25 cm thick, 12,356 sqm
	Container yard @ block C	25 cm thick, 6,600 sqm
	T. Padilla extension	25 cm thick, 2,640 sqm
	Pier No.1 south side	Construction of 3 slopes for RORO ferry berthing.
1999	Berth 18-19 (working apron)	25 cm thick, 2,384 sqm.
	Berth 11-12 (Working apron)	25 cm thick, 3,080 sqm.
	Berth 18 - 27 Pier No.1	Installation of Concrete head mooring dolphins in front of existing quay wall.
	Berth 8-17	Reinforcement of car stop on the edge of the wharf.
2000	Berth 15 to 22 (Storage area & vehicular lane)	25 cm thick, 26,000 sqm
	Widening the apron of berth 8-10	30 m width x 300 m long
	Reconstruction of upper structure of berth 15-17	40 m width x 300 m long
After 2001 (Planned)	Pier No, 2,	Demolishing the upper structure with warehouse and reconstruct a new Pier No.2.
	In 2002; Pier No.3, and In 2003; Pier No.1	The same scope as above for Pier No 3 &1

Table 4.2.4-2 Maintenance Dredging Works by CPA from 1998

Year	Location	Scope of Works
1998		Dredging volume;
	At Cebu Base Port	
	At Cebu International Port (Berth 2 to 3)	15,000 cum, silt material
	At Domestic Port (Berth 18-19 & Berth 23 south)	15,000 cum
1999	At Port of Toledo	8,000 cum
	At Port of Tuburan	3,000 cum
	At Base Port (Berth 10-11)	14,000 cum, silt material
	At Base Port (Berth 12, 16, 17 & 18)	13,000 cum, silt material
2000	At Base Port (Berth 1 to 6 & Berth 23 North)	32,000 cum

Table 4.2.4-3 Construction Program after 2001 by CPA

No	Name of Project	Scope of Works	Estimated Cost in Peso
1	Repair of Fender System of Berth 28 & 29 Cebu Base Port	Supply, delivery and Driving concrete piles. Concreting works of fender support deck. Installation of pay loader tiers fender.	4,396,219.00
2	Provision of covered catwalk with railing at Santa Fe Port	Demolishing the existing concrete curb and pavement. Installation of concrete pavement and roofing.	1,757,991.00
3	Repair of pavement at Tuburan port	Scraping of existing pavement Concrete pavement with base coarse construction. Placement of geo-textile filter fabrics and back filling and, rip-rapping stones	735,713.00
4	Repair of Pavement and disclosing of drainage system at 15th street of Cebu Base port	Scrapping of existing pavement Concrete pavement with base coarse compaction. Disclosing of existing drainage system	4,219,534.00
5	Repair of terminal office at port of Santa Fe	Construction of Terminal Office building including electrical works, plumbing works.	2,889,757.00

4.2.5 Design Standards and Criteria and Structure Design

(1) Design Standards and Criteria

CPA has been adopting basically the Design Manual for Port and Harbor Facilities in Philippine Ports Authority(PPA) published in 1995. This manual (called "PPA Design Manual") was prepared in cooperation with JICA based on the Plan and Design Manual of Ports and Harbors facilities in Japanese and Japanese Industry Standards (JIS).
This manual is a compilation of the procedures of design works of various port facilities adopted in Japan based on the Design Standards and Criteria for Ports and Harbor Facilities published by Ministry of Transport, Government of Japan.
The major features of the standards, criteria adopted in the Manual are high-lighted as follows:

1) Units
The equivalents of SI units are given on imperial and, where applicable, metric technical units, which is adopted by CPA. For example as follows;

Force per unit length			Force per unit area		
1 N/m	0.06852 lbf/ft	0.1020 kg f/m	1 N/mm^2	0.06475 ton f/in2	10.20 kgf/cm^2
1 kN/m	0.0306 tonf/ft	0.1020ton f/m		102 tf/m^2	
1 lbf/ft	14.59 kN / m	1.488 kg f/m	1 kgf/cm^2	14.22 lbf/in2	0.9144 tonf/ft2
1 ton/ft	32.69 kN / m	3.333 ton f/m		0.09807 N/mm^2	9.807 N/kg

Mpa = 1000kPa

2) Strength of Reinforced Concrete Material

The PPA Design Manual specify the allowable stress of reinforced concrete to be used for the marine structures as follows;

Table 4.2.5-1 Strength of Reinforced Concrete Material

Part of Structure	Cylinder strength at 28 days
Parapet, upper structure of sheet piles	240 kgf/cm^2
Pier, Upper structure	240 kgf/cm^2
Pile in general	320 kgf/cm^2
Pile in special place	400 kgf/cm^2
Slab, Beam	350 kgf/cm^2
Pavement, Flexural strength(fbd)	45 kgf/cm^2

CPA has adopted the following strength of concrete works.

Table 4.2.5-2 Strength of Concrete Works

Structures	Concrete Strength	Remarks
Marine works	28 Mpa (4,000 pf/in2)	Similar order as PPA, Japan
Road surface pavement	24 Mpa	Same as DPWH, PPA, Japan
Pre-strength concrete piles	41.5 Mpa	Same as PPA, foreign funded projects and Japan

DPWH: Department of Public Works and Highways

3) Seismic Coefficient and estimate of design seismic coefficient

The earthquake and seismic force of the port and harbor facility in PPA ports is regarded as standard to adopt the seismic coefficient method to consider the seismic effect, which is the same concept as Japanese seismic consideration.

The overhead bridges of the South Coastal Road construction is designed by adopting seismic coefficient of 0.15.

For the design of berthing facility of a new Cebu port the seismic coefficient will be set by taking into account the following factors.

Regional factor		*0.1*
Subsoil conditions factor		
In case of ordinary sand, clay sub soil		1.0
In case of poor subsoil		1.2
Importance of structure; as special case		1.5
Seismic coefficient	under ordinary sand and clay	0.15
	under the poor subsoil conditions	0.18

4) Live Load

CPA has adopted the live load of 1,000 psf for the rehabilitation works of widening the apron of the general purpose berth and reconstruction of marine facilities.

In the case of PPA ports 2.5 ton/sq.m (equivalent to 500 psf) for the general cargo berth, and 2.0 ton/sq.m(400 psf)for container terminals are adopted. In case of the Japanese ports it use 2.0 to 2.5 ton /sq.m for the container terminals construction.
It appears that the above live load on the berth adopted for the design of facilities is considered in higher side.

5) Fender System
PPA Design Manual provide the characteristic and performance curve of worn out rubber tiers as used for the fender system of the wharf structures, in many ports of PPA including the CPA ports that have adopted the used rubber tiers as fender system. It is observed that in many ports of PPA as well as CPA the used rubber tiers function the requirement of shock absorb of the cargo ships, RORO ferry ships, passenger ships calling to the ports.

The container terminal of the Cebu Base Port as constructed under the IBRD fund in 1985, however is equipped with standard type (V-type) rubber fenders to absorb shock by berthing of large size ships, but for the other RORO ferry/cargo berths and piers are equipped with used rubber tiers along the quay wall and dolphins.

It is observed that the chains used for hanging the rubber used tiers as fender are not enough diameter to sustain the required shear stress caused by the impact of the berthing of ships and to maintain the fender alongside of wharf.

The berthing facility of a new Cebu port will be equipped with the suitable type of standard rubber fender system to ensure safe berthing operation of large container and cargo ships.

(2) Structure Design

1) Typical design of marine structures by CPA
CPA has conducted the rehabilitation and maintenance works in the Cebu Base port and out ports of Cebu Province as shown in the Table 4.2.4.1.

The concrete square piles are generally used for the foundation of marine structures like mooring dolphins, RORO ramp slop structure, general cargo berth in the Cebu base port and out ports. For examples;

- The mooring dolphins for Toledo port was designed and constructed with 40 cm square pre cast concrete pile in the length of 18 m.
- A new general purpose berth construction which is widening the apron width for 30 m from the existing berth to sea side was designed and used 40 cm square vertical concrete piles of 24 m length to support the 14 m width of concrete deck apron and concrete sheet piles to retain the filling material for back up area of 16 m width.

2) The structure design of wharf of the Cebu International Port

The Cebu International Port (CIP) which have 20 m x 692.5 m wharf with depth of 9.5 m as constructed in 1985 was designed using 50 cm square pre stress concrete piles in the length of 30 m to 32.5 m, which support the apron parts of 20 m width of reinforced concrete deck.

3) Suggestions for concrete pile structure

CPA plans to rehabilitate the existing pier 1, 2, and 3 by demolishing the existing upper structures and reconstruct them on the existing concrete piles.

Based on the piers investigation it is reported that there are number of heavily damaged concrete piles supporting pier structure.

It is suggested to pay due attention for the design of alternative cases by driving additional piles to supplement the damaged piles or driving steel piles as casing to cover the existing damaged concrete piles and infill with concrete or other alternatives.

It is also preferable to make the piles stronger than the upper structure by applying the better quality of concrete in pile fabrication (350 kgf/cm^2 equivalent to 4,980 Psi) than upper structures (240 kgf/cm^2 equivalent to 3,410 Psi).

4.3 Port Administration, Management, and Operation

4.3.1 Outline of Port Administration

Main duties of CPA are planning and development, maintenance of port facilities and management of operation. CPA owns Cebu international port, other quay side area and some handling equipment. Cargo handling activity and tugboat operations are done by private companies. Pilotage is done by a single private company. Other agencies concerned in port activities include Customs, and Quarantine.

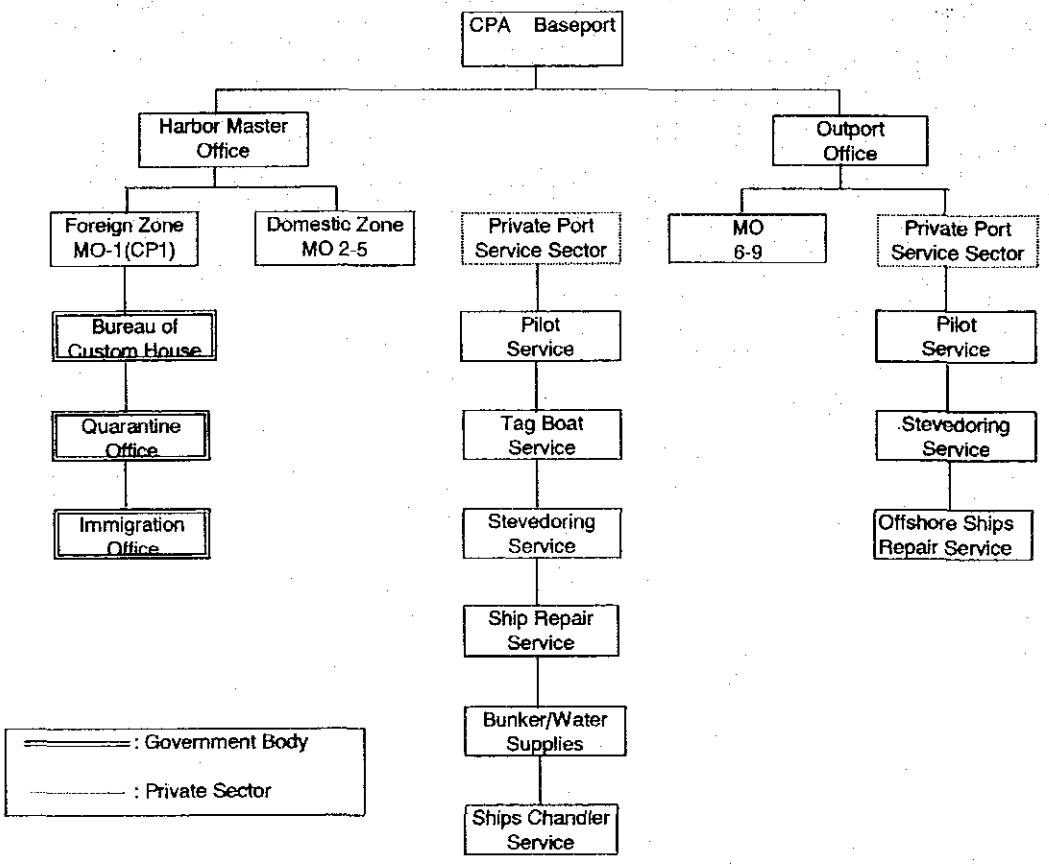

Figure 4.3.1-1 Vessels operation management system in CPA

4.3.2 Port Management Body

(1) Organization and Management

1) Role and Objectives of CPA

CPA's role and objectives are stated in the CPA Charter as follows:

- to integrate and coordinate the planning, development, construction and operations of ports and port facilities within CPA's territorial jurisdiction, consistent with the needs and requirements of the region.
- to enhance the flow of international and domestic commerce passing through or utilizing the regional ports.
- to promote regional development by providing support services to sustain the growth of export and other priority industries in the region.

2) Territorial Jurisdiction of CPA

CPA's territorial jurisdiction includes all government and private ports and all seas, lakes, rivers and all other navigable inland waterways within the Province of Cebu, including the City of Cebu and all other cities which may be created after R.A.7621 was signed in 1992.

3) Power and responsibility of CPA

The Authority shall have the power and responsibility to:

- Have perpetual succession under its corporate name otherwise provided by law;

- Prescribe its bylaws and such rules and regulations as maybe found necessary to promote or enhance the business of the authority;

- Adopt and use a seal;
- Sue and be sued in any court;

- Enter into contracts, transactions, and undertakings of whatever nature, which are necessary or incidental to its functions and objectives, with any natural or juridical person or with any government institutions, domestic or foreign;

- Acquire, own, hire, use, operate and dispose of personal property and to acquire, own, use, lease, operate and dispose of real property and interests thereon and to make improvements on such real property, including the reclamation, for port purposes, of foreshore and submerged lands within its territorial jurisdiction; which reclaimed land shall *ipso facto* be deemed

transferred in ownership to the Authority; and to enter into contracts with any public or private entity for such reclamation under such terms and conditions as it may be deemed to be for the public interest;

- Purchase, hold alienate, mortgage, pledge or otherwise dispose of the shares of the capital stock of, or any bond, security or other evidences of indebtedness created by any other corporation or co-partnership of this or any other country, and while the owner of said stock, to exercise all the rights of ownership, including the right to vote thereon;

- Exercise the right of eminent domain;

- Exercise all the powers not contrary to law which may be necessary or incidental to the effectuation of its authorized purposes or to the exercise of any of the foregoing powers, except the power to levy taxes or assessments and, in general, to exercise in connection with property within its control all powers which may be exercised by a natural or juridical person over its property and affairs;

- Levy dues and impose rates and charges for the use of the premises, works, appliances, facilities, or for services provided by or belonging to the Authority, or any other organization concerned with port operations;

- Make expenditures in foreign countries to pay commissions and hire or contract experts and consultants, both foreign and local;

- Make expenditures for promotion of the business affairs of the Authority; and

- Exercise all the powers of a corporation under the Corporation Law insofar as they are not inconsistent with the provisions of this Act.

4) Organization of CPA

The powers and functions of the CPA are vested in and exercised by a Cebu Port Commission of 7 members, which is CPA's governing and policy-making body. The Chairman of the Commission is the Secretary of the Department of Transportation & Communications, or his designated Undersecretary. The Vice-Chairman is elected from the remaining Commissioners and is then designated as the Cebu Port General Manager. Except for the Chairman, the Commissioners are all appointed by the President of the Philippines to a fixed 3-year term and represent the following sectors: ship owners and shipping operators, cargo handling labor and business.

The daily business and operational management of CPA is directed and controlled by the General Manager. CPA has its head office and four terminal offices, Toledo, Danao, Argao,

and Santa Fe. Number of employees and an organization chart are shown in Fig. 4.3.2-1 and Table 4.3.2-1

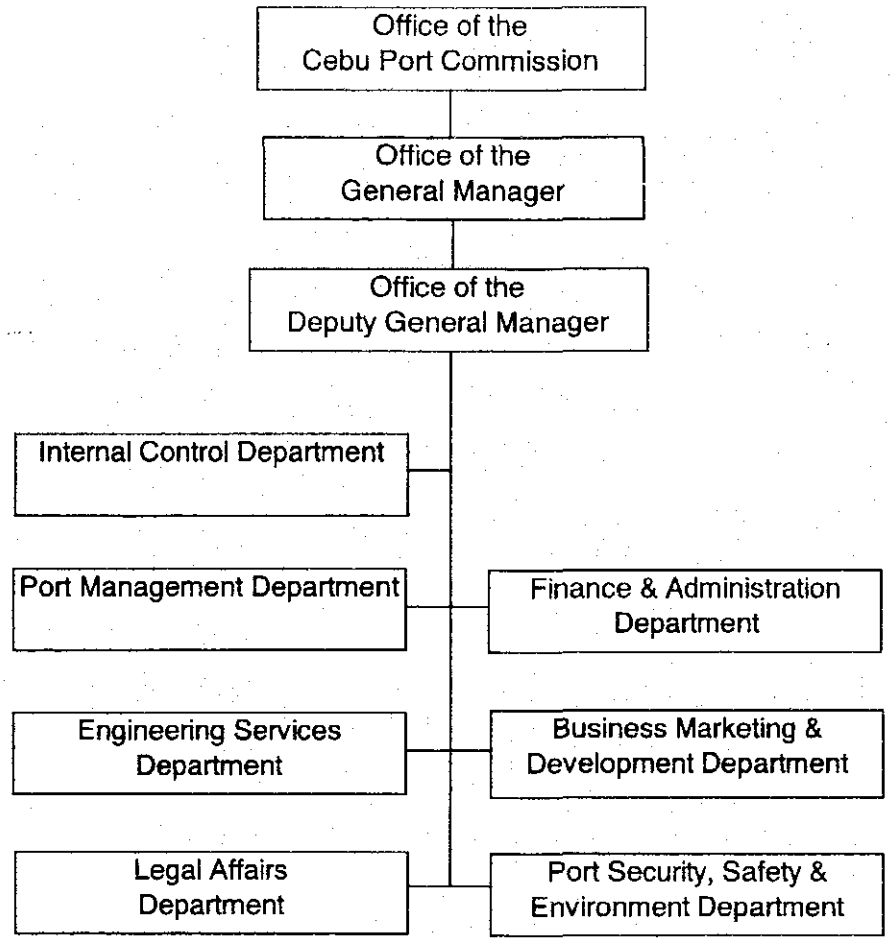

Fig. 4.3.2-1 CPA Organization Chart

Table 4.3.2-1 CPA Number of Employees

Department	No of Employee
OFFICE OF THE BOARD OF COMMISSIONERS	6
BOARD OF SECRETARIAT	1
OFFICE OF THE GENERAL MANAGER	4
OFFICE OF THE DEPUTY GENERAL MANAGER	0
INTERNAL CONTROL DEPARTMENT	3
BUSINESS MARKETING AND DEVELOPMENT DEPARTMENT	4
PORT SAFETY, SECURITY AND ENVIRONMENTAL MANAGEMENT DEPARTMENT	1
SECURITY DIVISION	3
SAFETY & ENVIRONMENTAL DIVISION	4
LEGAL AFFAIRS DEPARTMENT	2
FINANCE AND ADMINISTRATIVE DEPARTMENT	
OFFICE OF THE DEPARTMENT MANAGER	1
FINANCE DIVISION	9
ADMINISTRATIVE DIVISION	16
ENGINEERING SERVICES DEPARTMENT	
OFFICE OF THE DEPARTMENT MANAGER	2
CONSTRUCTION AND MAINTENANCE DIVISION	25
PLANNING & DESIGN DIVISION	3
PORT MANAGEMENT DEPARTMENT	
OFFICE OF THE DEPARTMENT MANAGER	4
PORT MANAGEMENT DIVISION 1 CIP	23
PORT MANAGEMENT DIVISION 2 5TH STREET	14
PORT MANAGEMENT DIVISION 3 PIER 1	13
PORT MANAGEMENT DIVISION 4 PIER 3	10
PORT MANAGEMENT DIVISION 5 ADUANA	12
PORT MANAGEMENT DIVISION TOLEDO	5
PORT MANAGEMENT DIVISION DANAO	4
PORT MANAGEMENT DIVISION SANTA FE	5
PORT MANAGEMENT DIVISION ARGAO	2
TOTAL	176

source: Finance and Administrative Department 2001Jan

5) Human Resources Training

In an effort to ensure that CPA can offer efficient and effective public services, in the year 2000 a total of over 1,000 workers from CPA participated in in-house training or were sent to various training courses sponsored by other government agencies and private sectors. Such training is aimed to enhance the level of awareness, knowledge and skills of the employees.

(2) Financial Condition

1) Revenue

Revenue of the CPA mainly comes from Port Tariff and Share of Arrastre / Stevedoring. Share of Arrastre / Stevedoring come from cargo handling charge of private cargo handling company. Private company pays some share of handling charge to CPA instead of get a franchise to handle cargoes in the port. CPA receives a 20% share of handling charge in the government ports, 10% share in none registered private ports and 3% share in registered private ports. Revenue from port tariff comes from not only government ports but also private ports. But as an incentive for registration, CPA reduced the port tariff for registered private ports by 50 %.

Wharfage dues and Share of Arrastre / Stevedoring represented 61% of all revenue in 2000, and this figure has not changed significantly over the last 5 years. Revenue of the CPA for the last 5 years is shown in Table 8.2.2.

Table 4.3.2-2 Revenue of the CPA for 1996-2000

	2000		1999		1998		1997		1996	
Harbor Fees	21,368,293.58	6%	16,616,602.85	5%	16,347,926.11	6%	12,983,962.25	5%	10,691,126.19	4%
Berthing Charges	19,884,875.62	6%	14,340,210.99	5%	16,499,461.52	6%	16,436,762.14	6%	13,192,815.56	5%
Anchorage Fees	2,148,313.61	1%	1,596,475.00	1%	3,200,355.95	1%	2,266,595.76	1%	1,875,182.03	1%
Port Usage Fees	21,698,257.27	6%	21,637,335.53	7%	20,450,480.54	7%	20,973,471.29	7%	18,159,220.91	7%
Wharfage Dues	108,375,019.29	32%	101,127,655.26	33%	93,851,126.46	32%	85,221,482.27	30%	81,125,328.41	33%
Storage Charges	13,883,830.96	4%	11,732,576.97	4%	19,550,877.28	7%	24,774,528.03	9%	21,438,627.91	9%
Arrastre/Stev. Share	96,504,412.80	29%	82,849,832.21	27%	69,500,633.27	24%	69,049,225.36	24%	67,073,066.08	28%
Other Income	41,526,145.65	12%	42,681,587.75	14%	42,503,825.29	14%	39,911,434.59	14%	22,892,696.59	9%
Total Revenue from Operations	325,389,148.78	97%	292,582,276.56	96%	281,904,686.42	96%	271,617,461.69	96%	236,448,063.68	97%
Fund Management Income	10,155,899.50	3%	10,987,478.70	4%	13,132,254.80	4%	11,935,925.76	4%	6,502,618.05	3%
TOTAL REVENUE	**335,545,048.28**	100%	**303,569,755.26**	100%	**295,036,941.22**	100%	**283,553,387.45**	100%	**242,950,681.73**	100%

CPA is able to change its port tariff through public procedure. Summary of the CPA Port Tariff is shown in Table 4.3.2-3

Table 4.3.2-3 CPA Port Tariff

	Condirion	G/P	Unit	price
Carges on Vessels				
1 Port Dues	Foreign		GRT	US$ 0.081
2 Dockage at Berth	Foreign Up to 50,000GRT	Government	GRT*day	US$ 0.039
	Up to 50,000GRT	Private	GRT*day	US$ 0.020
Dockage at Anchorage	Up to 50,000GRT	Government	GRT*day	US$ 0.020
3 Usage Fee	Domestic 6-100GRT	Government	GRT*day	P30.10
	Over100GRT	Government	GRT*day	P0.301
	6-100GRT	Private	GRT*day	P15.05
	Over100GRT	Private	GRT*day	P0.150
4 Lay Up Fee	Domestic 6-100GRT	Government	GRT*day	P15.05
	Over100GRT	Government	GRT*day	P0.150
Tariff on Cargoes				
Wharfage				
Non-containerized	Import Bulk/Bags/Steel/Heavy Lift/ etc	Government	Metric Ton	P36.65
	Logs/Lumber/etc	Government	Rev Ton	P32.40
	Export Bulk/Bags/Steel/Heavy Lift/ etc	Government	Metric Ton	P18.35
	Logs/Lumber/etc	Government	Rev Ton	P16.20
	Transhipment Bulk/Bags/Steel/Heavy Lift/ etc	Government	Metric Ton	US$0.833
	Logs/Lumber/etc	Government	Rev Ton	US$0.833
	Domestic Bulk/Bags/Steel/Heavy Lift/ etc	Government	Metric Ton	P4.00
	Logs/Uncrated Lumber/etc	Government	1000BDFT	P7.00
	Live Crated Animal/Crated Lumber	Government	Rev Ton	P3.50
Containerized	Import 20'	Government	Box	P520
	40'	Government	Box	P780
	Export 20'	Government	Box	P260
	40'	Government	Box	P390
	Transhipment 20'	Government	Box	US$12
	40'	Government	Box	US$18
	Domestic 20'	Government	Box	P55
	40'	Government	Box	P84
	Empty 20'	Government	Box	
	40'	Government	Box	
Charge on Storage				
Non-containerized	Import 6days free	Government	Rev Ton*day	P7.50
	Export 5days free	Government	Rev Ton*day	P3.75
	Transhipment 15days free	Government	Rev Ton*day	US$0.171
	Domestic 2days free	Government	Rev Ton*day	P5.65
Containerized	Import 6days free 20'	Government	Box	P240.65
	40'	Government	Box	P481.30
	Export 5days free 20'	Government	Box	P60.15
	40'	Government	Box	P120.30
	Transhipment 15days free 20'	Government	Box	US$5.47
	40'	Government	Box	US$10.94
	Domestic 2days free 20'	Government	Box	P180.50
	40'	Government	Box	P360.95

2) Expenditure

Expenditure in 2000 of CPA is well balanced. Personnel cost is relatively low. CPA pays BTR dividend to the national government every year, which is 50% of net income after income tax.

Expenditure of the CPA for the last 5 years shows in Table 4.3.2-4

Table 4.3.2-4 Expenditure of CPA 1996-2000

	2000		1999		1998		1997		1996	
SUMMARY OF PERSONAL SERVICES										
Salaries and Wages	24,758,394		22,512,836		21,474,569		24,502,175		19,076,438	
Social Security Premiums	3,665,061		3,260,803		3,078,252		2,751,718		1,493,061	
Manpower Development	305,190		153,425		37,649		200,549		61,207	
Other Staff Benefits	26,236,591		20,582,464		19,625,594		19,065,903		8,734,660	
PERSONAL SERVICES	**54,966,236**	17%	**46,509,527**	15%	**44,216,063**	15%	**46,520,345**	17%	**29,365,366**	12%
RM-PORT FACILITIES	**52,550,767**	16%	**65,687,402**	22%	**62,005,332**	22%	**48,950,784**	17%	**51,986,258**	22%
SUMMARY OF MAINTENANCE & OTHER OPERATING EXPENSES										
Traveling Expenses	819,673		806,330		382,798		663,849		674,189	
Communication Services	1,180,365		1,195,923		831,591		669,232		491,110	
Security Services	5,776,743	2%	5,233,322	2%	7,565,768	3%	6,735,320	2%	5,416,126	2%
Board Expenses	4,176,498	1%	2,973,844	1%	2,683,565	1%	1,970,543	1%	808,144	
Meeting & Conferences	228,256		329,303		303,347		236,727		212,596	
Insurance Non-Staff	594,515		654,923		569,813		412,039		429,347	
Printing & Binding	2,760,106	1%	2,419,839	1%	1,701,505	1%	1,625,967	1%	926,988	
RM-Equipment	603,717		699,608		519,461		298,514		347,681	
Office Supplies & Materials	699,360		1,029,858		650,796		560,774		582,515	
Water, Ilum. & Power	9,724,006	3%	10,350,483	3%	9,838,502	3%	8,453,848	3%	7,566,899	3%
Retirement Gratuity	13,607,575	4%	491,842		301,062		616,162		8,825,847	4%
Auditing Services	1,664,379	1%	1,637,987	1%	35,906		1,981,402	1%	845,682	
RM-Motor Vehicles	785,231		530,332		244,434		574,470		545,156	
Gasoline & Oil	448,892		297,496		8,116		754,438		0	
Discretionary Expenses	0		0		0		0		1,089,302	
Representation Expenses	0		0		0		0		153,883	
Taxes and License	22,883,198	7%	21,505,021	7%	12,523,878	4%	21,509,879	8%	20,002,000	8%
Other Services	3,225,640	1%	2,007,399	1%	1,991,180	1%	1,327,678		196,489	
Miscellaneous	1,996,427	1%	1,651,139	1%	0		0		0	
MAINT. & OTHER OPERATING EXPENSES	71,174,580	22%	53,814,649	18%	40,151,722	14%	48,390,842	17%	49,113,954	20%
TOTAL OPERATING EXPENDITURE	178,691,583	56%	166,011,579	55%	146,373,117	51%	143,861,972	51%	130,465,578	54%
NON-CASH CAHRGE (DEPRICIATION)	**72,930,286**	23%	**70,353,622**	23%	**70,798,162**	25%	**67,080,446**	24%	**66,625,056**	28%
INTEREST ON LONG TERM LOAN	**43,928,591**	14%	**58,862,000**	20%	**61,536,763**	21%	**66,066,681**	23%	**43,023,000**	18%
INCOME TAX	**9,548,379**	3%	**2,753,042**	1%	**1,086,858**		**2,290,500**	1%	**0**	
BTR DIVIDEND	**15,223,103**	5%	**2,794,755**	1%	**7,621,019**	3%	**2,126,893**	1%	**1,418,523**	1%
TOTAL	**320,321,942**	100%	**300,774,998**	100%	**287,415,919**	100%	**281,426,492**	100%	**241,532,157**	100%

3) Methods of Evaluation for Financial Soundness

The financial soundness is appraised based on its financial statements (Income Statement, Cash Flow Statement and Balance sheet). The appraisal is made from the viewpoints of profitability, loan repayment capacity and operational efficiency, using the following ratios:

- Profitability

Rate of Return on Net Fixed Assets:

$$\frac{\textit{Net Operating Income}}{\textit{Total Fixed Assets}} \times 100\ \%$$

This indicator shows the profitability of the investments, which are presented as net total fixed assets. It is necessary to keep the rate above the average interest rate of the funds for investments.

- Loan Repayment Capacity

Debt Service Coverage Ratio:

$$\frac{\textbf{\textit{Net Operating Income before Depreciation}}}{\textbf{\textit{Repayment of and interest on long-term loans}}}$$

This indicator shows whether the operating income can cover the repayment and the interest on long-term loans. The ratio must be higher than 1.0 and it is generally preferable to be higher than 1.75.

- Operational Efficiency

Operating Ratio:

$$\frac{\textbf{\textit{Operating Expenses}}}{\textbf{\textit{Operating Revenues}}} \times 100\ (\%)$$

The operating ratio shows the operational efficiency of the terminal management entity, namely the ratio of port revenue that is consumed by operating expenses. Generally it must be less than 70%-75%.

Working Ratio:

$$\frac{\textit{Operating Expenses} - \textit{Depreciation Expenses}}{\textit{Operating Revenues}} \times 100\ (\%)$$

The working ratio shows the efficiency of the routine operations of the port. Generally it must be less than 50%-60%.

4) Financial Soundness of CPA

Rate of return on net fixed assets is low compared to the interest rate in the city. This means CPA needs to make more efficient use its assets.

Debt Service Coverage ratio is relatively low, but this does not pose a problem at the moment.

Results of calculation are shown in Table 4.3.2-5

Table 4.3.2-5 Results of calculation

	2000	1999	1998	1997	1996
(1) Rate of Return on Net Fixed Assets	1.65%	1.30%	1.49%	1.38%	0.89%
(2) Debt Service Coverage Ratio	1.95	1.16	1.14	1.09	1.43
(3)Operating Ratio	77%	81%	77%	78%	83%
(4) Working Ratio	55%	57%	52%	53%	55%

CPA's financial statements for the last 5 years are shown in Table 4.3.2-6, Table 4.3.2-7, Table 4.3.2-8.

Table 4.3.2-6 Income Statement of CPA for 1996-2000

	2000	1999	1998	1997	1996
REVENUE FROM OPERATIONS	325,389,148.78	292,582,276.56	281,904,686.42	271,617,461.69	236,448,063.68
Less: Operating Expenses					
Personal Services	54,966,235.87	46,509,527.41	44,216,063.34	46,520,345.44	29,365,365.79
RM-Port Facilities	52,550,767.25	65,687,402.93	62,005,332.26	48,950,784.75	51,986,258.72
Maintenance & Other Operating Expenses	71,174,579.80	53,814,649.11	40,151,721.99	48,390,842.48	49,113,954.30
Total Operating Expenses-Cash Charges	178,691,582.92	166,011,579.45	146,373,117.59	143,861,972.67	130,465,578.81
NET REVENUE BEFORE NON-CASH CHARGES	146,697,565.86	126,570,697.11	135,531,568.83	127,755,489.02	105,982,484.87
Less: Non-Cash Charges	72,930,286.83	70,353,622.54	70,798,162.18	67,080,446.63	66,625,056.02
NET INCOME FROM OPERATIONS	73,767,279.03	56,217,074.57	64,733,406.65	60,675,042.39	39,357,428.85
Add/(Deduct): Other Expense/Revenue Items:					
Fund Management Income	10,155,899.50	10,987,478.70	13,132,254.80	11,935,925.76	6,502,618.05
Interest on Long-Term Loans	43,928,591.00	58,862,000.00	61,536,763.42	66,066,681.27	43,023,000.00
NET INCOME BEFORE INCOME TAX	39,994,586.79	8,342,553.27	16,328,898.03	6,544,286.88	2,837,046.90
Less: Provision for Income Tax	9,548,379.93	2,753,042.58	1,086,858.71	2,290,500.40	0.00
NET INCOME BEFORE BTrDIVIDEND	30,446,206.86	5,589,510.69	15,242,039.32	4,253,786.48	2,837,046.90
Less: Provision for BTrDividend	15,223,103.46	2,794,755.35	7,621,019.66	2,126,893.24	1,418,523.45
NET INCOME TO RETAINED EARNINGS	**15,223,103.46**	**2,794,755.35**	**7,621,019.66**	**2,126,893.24**	**1,418,523.45**

Table 4.3.2-7 Cash Flow Statement of CPA for 1996-2000

	2000	1999	1998	1997	1996
Cash Flow from operating activities:					
Cash received from customers	336,121,492.64	296,565,849.00	284,390,831.01	286,705,748.46	234,693,349.80
Cash paid to suppliers & employees	-148,747,262.38	-142,825,374.52	-142,662,245.75	-128,832,040.41	-94,989,126.21
Interest on Deposits	10,155,899.50	10,987,478.70	13,132,254.80	11,935,925.76	6,502,618.05
Payment for BTr dividend	-2,974,755.35	-7,621,019.66	-2,126,893.24	-1,418,523.45	
Net Output Remittance	-5,083,638.20	-5,923,983.94	-4,827,378.95	-5,502,421.79	320,713.00
Payment for Income Tax	-5,944,255.38	-2,064,871.30	-3,657,300.40	-559,330.00	
Cash transfer from PPA for PY Inter office transaction					7,732,383.25
Total Cash provided by operating activities	183,527,480.83	149,118,078.28	144,249,267.47	162,329,358.57	154,259,937.89
Cash Flow from investing activities:					
Proceeds from sale of unserviceable assets			147,305.50		
Payment for aquisition of fixed assets	-156,378,167.84	-13,865,440.02	-18,958,082.92	-14,722,853.66	-4,877,284.62
Net cash provided from financing activities	-156,378,167.84	-13,865,440.02	-18,810,777.42	-14,722,853.66	-4,877,284.62
Cash Flow from financing activities:					
Proceeds from Domestic Loan	240,000,000.00				
Amortization of foreign loans					
Principal Repayment	-31,428,666.09	-50,316,040.78	-56,991,545.98	-51,595,435.77	-31,093,786.72
Interest and Currency Adjustment	-43,928,591.74	-69,303,936.19	-74,584,567.54	-44,317,117.27	-31,926,397.00
Total cash paid for loan amortization	164,642,742.17	-119,619,976.97	-131,576,113.52	-95,912,553.04	-63,020,183.72
≀t cash inflows during the year	191,792,055.16	15,632,661.29	-6,137,623.47	51,693,951.87	86,362,469.55
ld: Cash & cash equivalents at beg. of year	165,790,285.70	150,157,624.41	156,295,247.88	104,601,296.01	18,238,826.46
ASH BALANCE at the end of the year	**357,582,340.86**	**165,790,285.70**	**150,157,624.41**	**156,295,247.88**	**104,601,296.01**

Table 4.3.2-8 Balance Sheet of CPA for 1996-2000 (1/2)

	2000		1999		1998		1997	
CURRENT ASSETS								
Cash on Hand & in Bank		14,055,151.90		32,379,157.83		19,813,757.80		28,700,313.66
Receivables - Trade	7,493,714.88		10,566,030.68		9,418,990.70		7,639,117.48	
Non-Trade	575,991.90		3,567,120.16		6,652,640.60		10,026,665.46	
Total Receivables	8,069,706.78		14,133,150.84		16,071,631.30		17,665,782.94	
Less: Allowance for Doubtful Accts.	359,200.25		359,200.25		359,200.25		135,521.34	
Net Receivables		7,710,506.53		13,773,950.59		15,712,431.05		17,530,261.60
Inventories - Supplies and Materials	1,039,451.68		1,050,988.15		1,063,718.38			1,580,513.55
- Semi-Expendable Supplies	4,428,923.08		4,176,088.58		2,371,689.55			
- Transit	2,477,999.13		2,714,663.28		3,118,097.00			
Total Inventories		7,946,373.89		7,941,740.01		6,553,504.93		
Total Current Assets		29,712,032.32		54,094,848.43		42,079,693.78		47,811,088.81
FIXED ASSETS								
Land		3,573,170,000.00		3,573,170,000.00		3,573,170,000.00		3,573,170,000.00
Depreciable Fixed Assets								
Building & Structures	1,732,611,987.86		1,689,357,643.32		1,664,186,921.21		1,642,929,670.16	
Building & Structures in Progress	206,159,066.03		31,958,420.30		26,072,218.01		25,987,458.89	
Furn. Fixt. & Equipment	228,839,416.00		226,192,154.40		223,998,470.94		225,287,570.73	
Furn. Fixt. & Equipment - In Transit					55,500.00		4,575,828.55	
Total Depreciable Assets	2,167,610,471.89		1,947,508,218.02		1,914,313,110.16		1,898,780,528.33	
Less: Accumulated Dep'	1,273,261,184.33		1,202,459,499.05		1,132,473,981.08		1,064,838,004.00	
Net Land Building and Equipment		894,349,287.56		745,048,718.97		781,839,129.08		833,942,524.33
Total Fixed Assets		4,467,519,287.56		4,318,218,718.97		4,355,009,129.08		4,407,112,524.33
INVESTMENTS								
Short-Term Investment	343,527,188.96		133,411,127.87		130,343,866.61		127,594,934.22	
Other Investments	36,748.80		36,748.80		36,748.80		36,748.80	
Total Investments		343,563,937.76		133,447,876.67		130,380,615.41		127,631,683.02
OTHER ASSETS & DEFERRED CHARGES								
Prepaid Tax	5,305,695.50		1,582,114.19		2,265,843.37		880,043.00	
Contingent Assets	25,119,816.14		7,773,449.25		7,241,943.05		4,595,334.51	
Miscellaneous Deferred Charges			2,165,348.71		36,747.16		223,632.23	
Miscellaneous	1,160,484.14		186,885.07		186,885.07			
Total Other Assets & Deferred Charges		31,585,995.78		11,707,797.22		9,731,418.65		5,699,009.74
TOTAL ASSETS		**4,872,381,253.42**		**4,517,469,241.29**		**4,537,200,856.92**		**4,588,254,305.90**

Table 4.3.2-9 Balance Sheet of CPA for 1996-2000 (2/2)

	2000		1999		1998		1997	
LIABILITIES AND RESIDUAL EQUITY								
CURRENT LIABILITIES								
Accounts Payable - Trade	104,274,779.39		41,834,759.79		30,732,087.12		33,232,834.99	
Payables-Nationa Gov't	24,771,483.36							
Accrued Interest Payable			4,668,234.07		15,110,170.26			
Other Current Liabilities	3,796,312.39		6,568,084.76		9,695,420.56		5,917,453.04	
Total Current Liabilities		132,842,575.14		53,071,078.62		55,537,677.94		39,150,288.03
LONG TERM LIABILITY								
Loan Payable-Foreign	126,834,598.80			158,263,264.89		208,579,305.67	265,570,851.65	
Loan Payable-Domestic	240,000,000.00							
Accrued Interest Payable							32,846,167.00	
Loan Term Liability		366,834,598.80						298,417,018.65
CONTINGENT LIABILITY		97,000,000.00		75,500,000.00		54,000,000.00		41,500,000.00
OTHER LIABILITIES & DEFERRED CREDITS								
Output VAT Payable	699,242.07		611,786.44		499,323.67		429,301.17	
Miscellaneous Deffered Credits	5,657,343.78		4,176,088.56					
Contra-Asset Accounts	4,428,923.08							
Miscellaneous	39,589.21		8,131,951.50		10,642,931.19		11,742,139.45	
Total Other Liabilities and Deferred Credits		10,825,098.14		12,919,826.52		11,142,254.86		12,171,440.62
TOTAL LIABILITIES		**607,502,272.08**		**299,754,170.03**		**329,259,238.47**		**391,238,747.30**
RESIDUAL EQUITY								
Equity Contribution		150,862,076.32		150,862,076.32		150,862,076.32		150,862,076.32
Retained Earnings		50,111,370.80		33,093,827.61		23,956,543.82		15,572,429.59
Surplus Reserves:								
Gratuity Reserve	21,400,000.00		8,600,000.00		8,600,000.00		8,600,000.00	
Appraisal Surplus	4,017,385,718.08		4,017,385,718.08		4,017,385,718.08		4,017,385,718.08	
Contingent Surplus	25,119,816.14		7,773,449.25		7,137,260.23		4,595,334.51	
Total Surplus Reserves		4,063,905,534.22		4,033,759,167.33		4,033,122,998.31		4,030,581,052.59
TOTAL RESIDUAL EQUITY		**4,264,878,981.34**		**4,217,715,071.26**		**4,207,941,818.45**		**4,197,015,558.60**
TOTAL LIABILITIES AND RESIDUAL EQUITY		4,872,381,253.42		4,517,469,241.29		4,537,200,856.92		4,588,254,305.90

4.3.3 Port Service

(1) Pilot Service

Pilot service is compulsory for all foreign vessels. Pilots are available from the "Cebu Pilot Association Office". The vessels entering Cebu Baseport should inform their estimated arrival time, draft, and the entrance to be used to the pilot station 24 hours in advance of their arrival. A lookout is also maintained day and night from Custom House Tower.

(2) Towage Service

The Cebu Port pilot association can arrange tug boats with various horse powers. All tug boats belong to the private companies. There are nine private companies for tug service.

Table 4.3.3-1 Tug Fleet List

Name of Tug-Boat Co.,	Name of Fleet	Horse-Power
J. Ouano Marine Service	Bulltug	1,000 Hp
	Joms	700 Hp
	Seaborne	600 Hp
	Shoreline	600 Hp
	Sidemate	1,600 Hp
Malayan Tug	MT Primo	2,800 Hp
Capt, Suly Tug	Anglor 44 Feldan	600 Hp
	MT ACG Joy-89	2,000 Hp
Sulpicio Lines, Inc	MTEdgar/MTEdhund	@ 500 Hp
Ting Guan	Tug-I / Tug-II	@ 550 Hp
Asean Shipping	MT Christopher	550 Hp
	MT Legaspi	1,000 Hp
Phil. Marine Shipping Co.,	MT Motibai/Matatug	1,300 – 750 Hp
GT Ferry Co.,	GT-I	2,400 Hp
PKS	MT Wileert	900 Hp
	MT Milagros	900 Hp
	MT Macoy	900 Hp

Source: CPA Report, JICA Study Team

(3) Ships Repair

A vessel in need of hull and engine maintenance or repairs can receive services at Shipyard owned by private company, "Keppel Cebu Shipyard". It is located at the inner part of Cebu Baseport. It has a graving dock of 210m x 30m to accommodate up to 35,000 ton vessel and four slip-ways. Comprehensive repair services for ocean-going, coastal and inter-island vessels are available here.

(4) Bunker supply

Bunker supply is available.

(5) Fresh water and ships stores

Fresh water is supplied by "Cebu Water Corporation" and ship chandler service is provided by private companies.

(6) Working Hours

Cargo handling operations are conducted 24 hours per day under three-shift system for foreign container and conventional cargo vessels. Working hours for domestic vessels such as Ro/Ro ferries and passenger/cargo vessels depend on their service schedule.

(7) Annual Holidaies

January 1st	=New Years Day
April 1st Friday	=Good Friday
May 1st	=Labors Day
December 25th	=Christmas Day

4.3.4 Cargo Handling Method and Productivity

(1) Container Handling Method

1) Export (outbound) container receiving and loading for shipment.

-Shipping company (Agent) makes request of operation of export or outbound containers to CPA and Stevedoring Co.

-Shipping Company (Agent) submits all export documents with corresponding loading container list.

-Export Documents;

Each Charge Receipt (CPA and Stevedore Co.)

Examination Report

Cargo Stuffing Report

-Loading container list should include the following items.

Name of vessels intended to load their cargoes

Container specifications: size/weight/destination port/container status

-Cut-off time of receiving container is two hours before vessel arrival time

-Export (outbound) containers are delivered

-Issuing export (outbound) container list to Bureau of Customs (BOC), CPA and Stevedoring Co.

2) Import (Inbound) container releasing and discharging from vessel.

-Shipping Company (Agent) presents a towage bay plan to Stevedoring Company.

-Shipping Company (Agent) present Cargo Manifest to BOC (Bureau of Customs) and CPA

-Shipping agent representative persons discharge work sheets.

-CY (container yard) tally clerks check discharging containers.

-Shipping agent person receives container list.

-Consignee / Broker pays arrastre charge to Stevedoring Co. billing section. It proceeds to MCCU (Monitoring Cargo Control Unit) and presents all required documents for checking.

-If all document are found to be correct, MCCU issues DR (Delivery Record) and CRC (Cargo Release Control) to consignee / broker. Then they proceed to CPA for payment of charges.

-CPA signs DR and said documents together with CRC (Cargo release Control) will be presented to CY supervisor for his signature.

-Signed documents are presented to CY checker.

-CY checker instructs the RTG operators to load containers.

-The truck driver proceeds to the Bureau of Customs for signature of DR and moves to the main gate for final check up.

3) Vessel Container Loading / Discharging Operation

-Shipping Company (Agent) sends a notice of vessel ETA (Estimated Arrival Time) to Stevedoring Co..

-At least four hours before arrival of vessel, Shipping Company (Agent) has to request.

-Stevedoring Company prepares the required working gangs and other complement for cargo handling operation.

-The request should include the expected time and date when the operation starts.

-Prior to the start of discharging operation, Shipping Company (Agent) has to submit a stowage bay plan of import (inbound) containers to Stevedore Company for the operation personnel to prepare a discharging Sequence Check List.

-Shipping Company (Agent) has to submit a final loading plan to Stevedoring Company at least two hours before the start of loading operations.

-Stevedoring Company head checker prepares a daily working report of all operation activities from the start of operation until completion of work.

-Stevedore Company's CY checker also prepares tally sheets including all containers discharged and loaded.

4) Container Inventory Method

-All Shipping Companies and their Agents make container inventory independently by manual operation.

-Pre-planning (working schedule) for cargo loading and discharging activities is made before ETA (Estimated time of vessel arrival).
-CPA and Stevedoring Co. request cargo details concerned shipping documents.
-Arrangement for requested working gangs
-Inspection or checking must be made upon discharging or loading of cargo by BOC (Bureau of Customs) about any possible damages prior to discharging and loading.
-All discharged (loaded) cargoes need documents including tally sheets.
-After through inspections, discharged (loaded) cargo is transported to cargo storage area to be assigned.
-Direct delivery cargo, for example discharged fertilizer, cement, and lumber, is bagged or bundled and loaded to trucks by fork lift.
-Cargo handling should avoid contamination damage.
-The Stevedoring Company's vessel side checker prepares a daily working report of all operation activities from the start of cargo operation until completion of work.

(3) Productivity of Cargo Handling

Productivity of cargo handling is obtained through interviews of major stevedoring companies of Cebu Baseport and site surveys.

1) Container handling productivity (boxes/working hours)=Total number of container / Total working Times (hour)

Table 4.3.4-1 Container Cargo Handling Productivity
(Laden and Empty Container)

Status	By Gantry Crane	Ships Gears
Discharging/Loading	18.0 Boxes/Hr	10.9 Boxes/Hr

Source: Stevedoring Co., Hearing by JICA Study Team
This productivity is as 2000 1st quarter.

2) Conventional cargo handling productivity for each major commodity is calculated in the following equation.

Productivity (ton/hour) = Total Cargo Volume handled (tons) / Total Working Time (hours)

Productivity calculated for each commodity based on site surveys in Cebu Baseport are showing in Table 4.3.4-2.

Table 4.3.4-2 Conventional Cargo Handling Productivity of Tramping and Ro/Ro Ferry Vessels

Commodity	Cargo Style	Average Productivity	Kind of Ships and Equipment	Remarks
Heavy Equipment	Van-Pack	34.5t/Hr	Ships Gear or Cranes	Loading/ Discharging
Lumbers	Bundles	7.7 t/Hr	Ships Gear or Cranes	Discharging
Steel Products	Bare/Bundles	50.0t/Hr	Ships gear or Cranes	Discharging
Flour (25kgs/Bag)	Bagged	60.0t/Hr	Ships Gear or Cranes	Discharging
Fertilizer (40kgs/Bag)	Bagged	48.0t/Hr	Ships Gear or Cranes	Discharging
Soy Beans Meal	Bulk	9.5t/Hr	Ships Gear or Crane /Barge Operation	Discharging
Soda Ash	Bulk	11.9t/Hr	Ships Gear or Crane	Discharging
Salt in Bag	Bulk	50.3t/Hr	Ships Gear or Crane	Discharging
Plywood	Bundle	10.0t/Hr	Ships Gear or Crane	Loading
General Cargo	Various	30-40t/Hr	Ships Gear or Crane	Loading/ Discharging
Large Type Ferry Ship	Container	1 Cycle 6～7 minutes	On trailer system	Loading/ Discharging
Medium Type Ferry Ship	Container	1 Cycle 7～8 minutes	Operated by Fork lift	Loading/ Discharging
	Palletized Cargo	1 Cycle 78 minutes	Operated by Fork lift	Loading/ Discharging

Source: Stevedoring Co., JICA Study Team

4.3.5 Information System

It is without saying that computer system will be introduced for the whole port management. But in the beginning, efforts to improve the computer system should be concentrated to improve the accuracy of port business management. Once the CPA personnel have improved their work capacity up to a certain level, the next stage of computerization will be considered. The important point for the computerization is to proceed step by step.

Regarding the information system of CPA, present problems are as follows.

(1) Non existence of information system to relate vessel movement with cargo operation performance for real time control of management body.
(2) Non-control of small boats in approach channel and harbor area.
(3) Non existence of information device on calling vessels.
(4) Hand written shipping documents are not clear and may contain errors.

It is practical and desirable to implement computerization of clerical work related to distribution of data among each port management office, not in a rush but step by step.

4.3.6 Marketing

At present, there are few activities for port marketing. Hereafter, positive actions of port marketing for shipping companies and their agents should be taken. Port marketing activities are most important to the future development of ports in Cebu Province, especially the New Cebu Port. CPA must play the main role in conducting these activities.

But the Philippine government also should support and join these activities because the development of CPA will benefit not only CPA itself but also Visayas region and the country.

Furthermore, the people in the shipping business are interested in the government policy on port development. The port development policy and long term port development plan should be formulated and presented to them. The government can enhance the social / economic stability of the country by activity pursuing such kind of development.

5. Port Development Policy in Cebu Province

5.1 Distribution of Roles and Functions among Ports

5.1.1 Roles and Functions of Cebu Baseport

Cebu Baseport is located at the center of the southern part of the Philippines. Due to this geographical advantage and high economic potential of Cebu province, Cebu Baseport plays an important role as a hub port of the sea transport network connecting each island in this region. Cebu Baseport handles the largest number of passengers in the nation and the largest volume of cargoes outside of the Manila area.

In Cebu province, Cebu Baseport is the main gate port and it has sea rout connections with many islands. Container cargoes are handled at only Cebu Baseport. Metro Cebu, which is the main hinterland of Cebu Baseport, is the economic center of Cebu province. This area includes a densely populated area, commercial/business area, industrial area (such as Mactan Economic Zone) and tourist area. Cebu Baseport is an essential infrastructure to support the various economic activities in Metro Cebu. For the development of Metro Cebu, improvement of the functions of Cebu Baseport is necessary.

The modernization of the international shipping world is characterized by containerization. Enlargement of vessel size is another dominant trend. To catch up with these trends is crucial for port development.

Strengthening the international container terminal function to cater for the above trends is strongly required for Cebu Baseport. To increase the direct container routes encourages regional economic activities through the reduction of transportation time and cost. Cebu Baseport should play the leading role as an international container terminal in the southern part of the nation in addition to the international container terminals in the Manila region.

In passenger transport, the fast craft service is expected to increase because of its speed and comfort. Therefore, the fast craft terminal function will become more and more important.

To play the above mentioned roles, Cebu Baseport should have various port functions as an integrated port. The major functions required for Cebu Baseport are as follows.

- International container vessel terminal
- Ro/Ro vessel terminal
- Fast craft terminal
- Passenger/cargo vessel terminal
- Cargo vessel terminal

5.1.2 Roles and Functions of Outports

There are 107 outports consisting of 41 public ports and 66 private ones. These are controlled by 4 management offices, namely Danao, Santa Fe, Toledo, and Argao. The four (4) management offices oversee 13 existing ports. The division of port responsibility is as follows:

1) Danao Management Office
   a.Carmen
   b.Danao
   c.Poro

2) Santa Fe Management Office
   a.Santa Fe
   b.Bantayan
   c.Hagnaya (San Remigio)

3) Toledo Management Office
   a.Toledo
   b.Tuburan
   c.Tabuelan
   d.Balamban

4) Argao Management Office
   a.Argao
   b.Oslob
   c.Bato

These ports supplement the Baseport for medium distance transport and also function as the local transport system for short distance transport.

Table 5.1.2-1 shows major function by port.

Table 5.1.2-1 Major Function of Outports

Port	Function	Remarks
Carmen	Access port to Camotes islands/ delivery port	CPA/ Private
Danao	Access port to Camotes islands	CPA
Poro	Gate port of Camotes islands	CPA
Santa Fe	Gate port of Bantayan island	CPA
Bantayan	Access port to Cadiz(Negros)	Municipality
Hagnaya(San Remigio)	Access port to Bantayan island	CPA
Toledo	Access port to San Carlos(Negros)	CPA
Tabuelan	Access port to Escalante(Negros)	CPA
Tuburan	Access port to Escalante(Negros)	CPA
Balamban	Access port to (Negros)	Private
Argao	Access port to Loon(Bohol)	Private
Oslob	Access port to Dumaguete(Negros)	Private
Bato	Access port to Tampi(Negros)	Private

Table 5.1.2-2 Operating Condition and Calling Vessel by Port

Port	Operation	Remarks
Carmen	Operating	RORO
Danao	Operating	Banca boat
Poro	Operating	Banca, Conventional,
Santa Fe	Operating	Conventional
Bantayan	Operating	Banca boat
Hagnaya(San Remigio)	Operating	Conventional
Toledo	Operating	Conventional,RORO, Speed
Tabuelan	Operating	RORO
Tuburan	Non operating	-
Balamban	Operating	Cargo tramper
Argao	Operating	RORO
Oslob	Operating	Speed boat
Bato	Operating	RORO

Cebu Baseport and the outports located on the eastern coast of Cebu Island have a similar sea route and differ only in terms of port capacity (Baseport is larger and thus has more capacity). Based on this consideration, the eastern coast outports serve as a supplemental port of the Baseport of Cebu. On the contrary, outports located on Cebu's western coast have a smaller capacity and are smaller in size. These ports have relatively similar capacities and, thus, are recognized as alternative ports.

Cebu ports are managed either privately or by the government sector (represented by the Cebu Ports Authority). Major outports other than Bato on the west coast are managed by CPA. Some eastern outports however are operating as private ports, such as the ports in Argao and Oslob.

As per national transport policy, the completion of the north-south highway would usher in an increase of the roles and functions of the Baseport of Cebu as it is expected to play most of the roles and functions previously assumed by the eastern coast outports.

The Baseport however could not substitute the functions of the western Outports. For this reason, Toledo is the key port in terms of east-west exchange in the Trans Visayas Intermodal Transport Network. San Remigio shall be developed as the northern center port of Cebu Province, which shall connect Bantayan, Negros and Masbate.

The Management Office evaluates the port and port services standards through a merit system. Those that are considered merits are items or conditions that are beneficial to the users, such as cheaper transportation cost and shorter transport distance. Demerits are incurred when a condition is detrimental to the users' interests, such as lesser frequency of sailing and the irregularity of sailing schedule (either too early or too late). Vessel size in the Baseport route is much larger than those in the Outport route. Primarily, the size of the vessels in the Baseport is influenced by an increase of port users generated in Metro Cebu.

Below is a table outlining the merits and demerits per outport.

Table 5.1.2-3 Merit and Demerit by Outport

Port Management Office	Merit and demerit
Danao MO (Eastern Outports)	Merit - No congestion at the port Demerit – Less safety and comfort by small boat
Santa Fe MO (Northern Outports)	Merit - Shorter distance between Cebu and Bantayan Islands compared to Cebu direct route Demerit – Boat transfer is necessary in case of low tide at Hagnaya port and small boat is assigned
Toledo MO (Western Outports)	Merit - Shorter distance between Cebu and Negros Islands compared to Cebu direct route Demerit – Long bus trip is necessary between Toledo and Cebu
Argao MO (Southern Outports)	Merit - No congestion at the port Demerit – No daytime schedule of speed boat in Oslob

The number of passengers in 1999 is listed by route including the Baseport in Table 5.1.2-4. Other than Argao MO, number of passengers passing through the Outports exceeded those

passing through the Baseport.

Table 5.1.2-4 Number of Passengers by Outport and Baseport in 1999

Port Management Office and Route	Number of passenger and sea route Outport -- Baseport
Danao MO (Eastern Outports)	195,576 (Danao – Camotes) -- 106,675 (Baseport – Camotes)
Santa Fe MO (Northern Outports)	276,618 (Hagnaya) -- 99,801 (Baseport – Bantayan)
Toledo MO (Western Outports)	286,426 (Toledo), 153,889 (Tuburan) --32,990 (Baseport – Negros Occidental)
Argao MO (Southern Outports)	16,881 (Taloot – Loon) -- 2,621,072 (Baseport – Bohol) 332,929 (Tandayag(Negros Oriental))* -- 445,404 (Baseport – Negros Oriental)

Source:Chapter 7

Note : 332,929 (Tandayag)* refers to PPA statistics in 1999

Roles and functions of Outports are summarized by coast on the short distance transport as follows:

a. Danao MO (Eastern Outports)
- To provide port service to transport daily goods to Camotes Islands
- To provide port service to transport industrial output to neighboring islands

b. Santa Fe MO (Northern Outpports)
- To provide port service to transport passengers to/from Bantayan Island

c. Toledo MO (Western Outports)
- To provide port service for East-west trade and travel between Negros and Cebu

d. Argao MO (Southern Outports)
- To provide cheaper transport cost using port service of Bato or Oslob

5.2 Port Development Policy

5.2.1 Port Capacity of Cebu Baseport

Berthing facilities should be carefully managed because they the key facility in the port. A berth is the place to a ship in port when anchored or lying alongside a pier, a quay, where it can load or discharge. A berth at a quay or a wharf consists of a mooring area in front of the quay or wharf and roadway in front of an open area or shed. A small ferry / RO-RO vessel moored using Mediterranean mooring style must touch vessels bow or stern, and come in contact with the pier or wharf side.

If there is the RO-RO ramp, vehicles are loaded / unloaded using their own power via the ramp. Loading / unloading vehicles are give large shocks to the RO-RO ramp at the point where the RO-RO ramp. Therefore, the mooring position of a RO-RO ship should be adjusted for the smoother possible vehicle transfer. RO-RO ships normally transport passengers and vehicles at the same time, therefore the time of embarking / disembarking passenger and loading / unloading of vehicles should be separated for safety.

(1) Capacity of Vessel Calls from Basic Berth Assignment

Berth assignment is conducted on "first come, first served" basis. However, some of vessels have priority of berthing. The basic berthing priority is given in accordance with the following order. It port facilities now under remodeling, The port facilities is will have to be completed in few years after.

- Passenger vessel (Ferry and RO-RO vessel)
- Container vessel
- Vessel carrying livestock
- General cargo vessel (conventional vessel)
- Vessel carrying bulk cargo (coal, mineral ore, fertilizer and lumber)
- Vessel carrying liquid cargo (oil, chemicals and molasses)
- Vessel entering the dry dock for repair

1) Fast craft ferry of passenger only

Assignment of dedicated berth, the area of MO-3 covered berth from No-18 and 19 vicinity area berths, total length about 300 meters and depth 4.5/6.5 meters.

Assumption:

- Wharf operating hours from 06:00 to 20:00 = 14 hours.
- One fast craft vessel port staying hours, an average 3 Hours/vessel.
- One fast craft vessel maneuvering space/mooring by pontoon.

Mediterranean mooring system (right angle mooring system)
Length overall around 75 meters each Jet power fast craft vessel, standard maneuvering length of quay, it taken 1.3 times up to length over all.

Maximum efficiency;

Wharf length 4 Pontoon x both side	= 8 berths
Operating hours from 06:00 to 20:00	= 14 hours/day
Per ship an average port stay hours	= 3 hours/ship
Capacity per berth/day 14 hrs ÷3 hours	≒5 sailing/berth/day
Estimated berthing capacity (8 berths x 5 sailing/day)	= 40 sailing/day

Right Angles mooring system (Mediterranean mooring system)
Ships beam around 50 meters each Jet power fast craft vessel, standard maneuvering length of quay, it taken 3 times up to ships width, and wide of pontoon (both side along side)

Maximum efficiency;

Wharf length 816m ÷ 150m ≒ 6 berths x both side	= 12 berths
Operating hours from 06:00 to 20:00	= 14 hours/day
Per vessel an average port stay hours	= 3 hours/vessel
Capacity per berth/day 14 hrs ÷3 hours	≒5 calling/berth/day
Estimated berthing capacity (12 berths x 5 calling/day)	=60 sailing/day

2) Ferry (passenger/cargo), RO-RO vessel (passenger / cargo) and tramping conventional cargo vessel.

Assignment of dedicated berth, the area of MO-2,3,4 and 5 covered from No-10 up to 30 (except pier berth) total length 2,025 meters, and depth 3.5m/6.5m

Assumption;

- Wharf operating hours from 06:00 to 21:00 = 15 hours/day
- Vessels category-wise of average port stay hours
  - ①Small passenger and cargo vessels = 4.0 hours/vessel
  - ②Passenger and cargo ferry vessels = 14.5 hours/vessel
  - ③Tramping conventional cargo vessels = 40.5 hours/vessel

- Vessels category-wise calling vessels ratio

①Small passenger and cargo vessel (22,220 x 21%)	= 4,666 vessels
②Passenger and cargo ferry vessels (22,220x 47%)	= 10,444 vessels
③Tramping conventional cargo vessels (22,220x32%)	= 7,110 vessels
Total calling	22,220 vessels

- Passenger and cargo ferry vessel along side mode of ratio (2000 estimate total calling-ship

approximately 22,220 vessels, exclude fast craft ferry vessels, large ferry and foreign cargo trade vessels), data-base on CPA vessels traffic statistics on 2000.

- Ratio of mooring method by ships category.

① Small passenger and cargo vessels;	= 21 %
All small vessels are parallel mooring.	= 4,666 vessels
② Tramping cargo vessel;	= 32 %
All tramping cargo ships are parallel mooring	= 7,111 vessels
③ Passenger and cargo ferry vessels;	= 47 %
Parallel and right angle vessels	= 10,443 vessels
Detail of mooring method	
(Parallel mooring method = only passenger	= 28%)
10,444 vessels x 0.28	= 2,924 vessels
(Right Angle mooring method =RO-RO	= 72%)
10,444 vessels x 0,72	= 7,519 vessels

- Average ships LOA and width (vessels particulars)

Small passenger and cargo vessels:	LOA	36.7m	Width	7.1m
Passenger and cargo ferry vessels:	LOA	80.8m	Width	14.8m
Tramping conventional cargo vessels:	LOA	42.7m	Width	8.6m

- Requirement maneuvering space per kind of vessels.
- Right Angle mooring system (Mediterranean mooring system)

Average calling vessels LOA 80.8m and width 14.8m, standard maneuvering length of quay, it taken 3 times up to vessel width.

Necessity for ferry vessel mooring length of quay
14.8m x 3 times ≒ 45.0m / vessel
Existing quay side length (exclude 3 pier length)

Total quay side length	=3,053 meters
Total pier side length	=1,028m
3,053m − 1,028m	= 2,025 m marginal quay side length

- Parallel mooring system (Usually mooring system)
- Average calling ships, small passenger vessels LOA 36.7m and tramping cargo ship, LOA 42.7m, standard maneuvering length of quay, it taken 1.2 times up to ships over all-length.

Necessity for small passenger vessels and tramping cargo vessels, mooring length of quay.
(36.7m + 42.7m) x 1.3 times ≒ 103.0meters / vessel

Ratio of Right Angle mooring system vessels and Parallel mooring system vessels

①Small passenger vessel and cargo vessel (parallel mooring)	21.0%
②Tramping cargo vessels (parallel mooring)	32.0%
③Passenger and cargo ferry = RO/RO vessels	47.0%
(Right angle mooring vessels = 72 %)	
(Parallel mooring vessels = 28 %)	

Existing berthing capacity

① Small passenger and cargo vessels	
(Parallel mooring vessel)	
1,028.0m x 0.21 = 216 ÷ (36.7m x 1.2)	≒65vessels/call/one time
(15 hrs ÷4.0 hrs) x 5 ships	≒19 vessels/call/day
② Tramping conventional cargo vessels	
(Parallel mooring vessels)	
1,028 .0m x 0.32 = 329 ÷(42.7m x 1.3)	≒ 6 vessels/ One time
(24 hrs ÷40.5 hrs) x 6 vessels	≒ 4 vessels/call/day
③ Passenger and cargo ferry vessels = RO/RO	
Parallel mooring vessels	
(2,025.0 m x 0.47) x 0.28 ÷(80.8 x 1,2) x 1.5 vessels	≒ 3 vessels/call/day
(Right Angle mooring vessel)	
(2,025.0m x 0.47) x 0.72 ÷(14.8 x 3.0) x 1.5	≒14 vessels/call/day
(15 hrs ÷14.5 hrs) x 10 vessels	≒10 vessels/call/day

Total berthing capacity;

①Small passenger and cargo vessels	= 10 vessels/call/day
②Passenger and cargo ferry vessels = RO/RO	= 19 vessels/call/day
③Tramping conventional cargo vessels	= 4 vessels/call/day

3) Large Ferry (passenger and cargo) and foreign conventional cargo vessl

Assignment of dedicated berth, the area MO-1 and 2 covered berth from No-1 up to 17(excluding 1 container carried vessel among quay length 180m), total length 1,775 m and depth 6.0m / 8.0m.

Assumption;

- Large ferry wharf operating hours, from 06:00 to 22:00	16 hours/day
- Foreign cargo vessel wharf operation hours,	24 hours/day
- Ships category-wise of average port stay hours,	
Large Ferry vessel (GWT over 10,000 tons)	7.7 hours/call
Foreign Conventional vessel	76.5 hours/call

- Average vessels dimension and maneuvering quay length.

Large ferry vessel (150m x 1.3 times)	= 195m / vessel
Foreign conventional cargo vessel	= 182m / vessel

Estimated berthing capacity

Large Ferry vessel (1,775m x 0.6) ÷ 195m	≒ 6 vessels / day
(16 hrs ÷ 7.7 hrs/vessel) x 6 vessels	≒ 13 vessels/call/day
Foreign cargo vessel (1,775m x 0.4) ÷ 182m	≒ 4 vessels / day
(24 hrs ÷ 76.5 hrs/ship) x 4 vessels	≒ 2 vessels/call/day

4) Container Vessel and Container Marshalling Yard

Assignment of dedicated berth, the area MO-1 covered berth from No-1 to 7 total length 690m and depth 8.0m / 8.5m

Assumption;

- Actual working hours / day	20 Hours / day
- Container yard area	10 Hectares
- Average container stacking high	3 Tiers
- Quay side Gantry Crane (PANAMAX Type)	2 Units
- Container through put (actual figure on 2000 1st quarter)	14,187 Boxes
- Average gross productivity (including hatch open and other loss times)	18 Boxes / hour
- Average vessels port stay hours	12 Hours/call/ship

Container Terminal Handling Capacity by Quay side Gantry Crane (CIP)

18 Boxes/hrs x 20 hrs x 2 cranes	= 720 boxes/day
720 boxes x 7 days	= 5,040 boxes/week
Estimate annual through put containers	
5,040 boxes x 52 weeks	= 262,080 boxes/year
20' equivalent per year (equivalent rate 6 : 4)	= 366,912 TEUs

CIP Berth Specification

- Total berth length (No-1 to 7)	690 m
- Average calling ships LOA, (container ship)	135m
- Standard clearance ship to ship by LOA 1.3 times	175m
- Maximum container ship mooring capacity (Twice/day)	
24 hrs ÷ 12 hrs	= 2 ships/call/day

Estimated berthing capacity

Container vessel	= 2 ships/day

5) Marshalling Yard Capacity (Except Stowing Empty Containers)

a. Total yard capacity of flat spots by TEU		714 TEU/Flat Spot
b. Ratios of export and import container		
Export container 714 TEUs x 40%		= 286 Flat Spot
Import container 714 TEUs x 60%		= 428 Flat Spot
c. Average Container Stay During Days in Marshalling Yard		
Export containe r	Average	2 Days
Import container	Average	3 Days
d. Maximum Efficiency of Marshalling Yard		
Export = b x Tier		= d
286 TEUs x 3.0 Tiers		= 858 TEUs/Day
Import = b x Tier		= 1,498 TEUs/Day
e. Annual Available Through-put Efficiency of Marshalling Yard Usage Rate.		
Export and Import container		75%
Total Handling container Per Annual		
Export (d x Annual days x e) ÷ c		= Capacity
(858 TEUs x 365 Days x 0.75) ÷2 Days		= 117,288 TEUs/Year
Import (d x Annual Days x e) ÷ c		= Capacity
(1,498 TEUs x 365 Days x 0.75) ÷3 Days		= 136,692 TEUs/Year
Total Marshalling Yard Capacity		=253,980 TEUs/Year

The port berthing capacity and container marshalling yard capacity is summarized in Table. 5.2.1-1.

Table 5.2.1-1 Summary of Port Berthing Capacity

Kind of Ship	Covered Area	Berth Length	Berthing Capacity	Average Port Stay
Fast Craft Ferry Vessel	Covered of MO-3 Berth No-28/34	300 m	Right angle mooring System **40 vessels/call/day** Right Angle moo-ring System **60 vessels/call/day**	3 Hours/vessel
Small passenger / Cargo vessels Passenger / cargo Ferry / RO/RO vessels	Covered of MO-3/4 Berth No-20, 23 and 26 (1,028m pier berths) length 2.025m (Marginal wharf length	3,058 m	Small passenger /cargo vessel **19 vessels/call/day** Passenger / cargo Ferry vessel=RO/RO **10 vessels/call/day**	Passenger vessel Port stay 4.0Hrs Ferry vessel port stay 14.5 Hrs
Tramping cargo vessels	Covered of MO-2/3 and 4 Berth No-10/21 up to 30	1,0,28 m	Tramping cargo Vessel port stay **4 vessels/call/day**	Port stay 40,5Hrs
Large Ferry Vessel Foreign Conventional Cargo Vvessel	Covered MO-1/2 Berth No-2 / 17 Covered MO-1 Berth No-2 / 4	1,775m(60%) 1,775m (40%)	Parallel mooring **13 vessels/call/day** Parallel mooring **3 vessels/call/day**	Port stay 7.7hrs Port stay 76.5hrs
Container Operating by Quay side Gantry Crane	Covered MO-1 Berth No-1/7	1 ship occupancy length 175m	Container ship **2 vessels/call/day**	Port stay 12.0hrs
Container Handling Capacity	Covered MO-1 Berth No-1/7	Open Yard 10 Hectares	Annual through-put262,080Boxes Equivalent **366,912 TEUs**	Productivity 18 boxes /hrs/crane PANAMAX-TYPE 2units G/Crane
Container Marshalling Yard Maximum Capacity (TEU)	Present CIP Container Yard	Total Flat Spots 714 TEUs	Export Container 78,292 TEU/Yr Import Container 82,015 TEU/Yr **Total: 253,980 TEUS**	Yard Area 100,000 m Total Flat Spot 714 TEUs

Source: CPA Traffic Report, JICA Study Team

The Study Team evaluated the capacity of Cebu Baseport based on the maximum berthing number of ships per day by ship types in future berth allocation, considering all berth lengths are available. The result shows that maximum ship calling of domestic passenger/cargo ships, Ro-Ro ships and tramping cargo ships is totally 46 per day, which is around 17 thousand ships calling annually (See Table.5.2.1-1). In 1999 more than 2 thousand of this kind ships called at Cebu Baseport, even though some berths were not available due to the rehabilitation. It is considered that the capacity calculation is conducted based on the global standard berthing manner and present berthing time of the vessels, but the actual berthing methods are different from the standard. For example, mooring side to side manner and insufficient clearance of ship to ship are commonly seen. That is due to the lack of berthing length. Therefore it can be said that Cebu Baseport is already over its standard capacity of berth length under the present utilization of the berths.

The above capacity estimation is conducted from the berthing facilities. Moreover, the cargo handling spaces of Cebu Baseport except CIP are very narrow and it is necessary to expand cargo handling area for the improvement of cargo handling capacity. But possible area for expansion of cargo handling is limited.

Regarding the international container cargoes, the present maximum handling capacity of CIP, which is limited from the area of container yard, is around 250 TEUs, and CIP handled 100 thousand TEUs of international container cargoes in 2000. Considering the progress of the containerization, the foreign container cargo demand is assumed to be over the present capacity of CIP before 2010. But the container yard expansion space in adjacent area is limited. Accordingly, the development of a new container terminal out of the existing Cebu Baseport area should be considered in order to accommodate future demand.

5.2.2 Port Development Policy for Cebu Baseport

(1) Constraints of Cebu Baseport

Cebu Baseport has many constraints identified below, which limits the port capacity and efficiency of port activities.

1) Limitation of Maximum Draft

The maximum draft of the vessels entering Cebu Baseport is limited below 8.5 meters due to the lack of water depth at the approach channel. Cebu Baseport cannot accommodate the present large vessels. Deeper water facilities are especially essential in attracting international container vessels at the inter-Asia route. However, it is difficult to increase the water depth of the channel and berths because of the large dredging volume and hard seabed in some areas.

2) Lack of Space for Land Area Expansion

CPA owns only about 40ha as port zone. The back yard area for cargo handling is very narrow.

Backyard depth is about 30m to 50m, except for Cebu International Port. Since Cebu Baseport is located in the city center, it is difficult to expand its backyard area.

3) Limitation of Waterfront Expansion

The southern adjacent waterfront area is part of the city where the market, buildings and houses are located. The northern adjacent area is Mandaue reclamation area where some facilities have already been developed.

4) Limitation of the Offshore Expansion

Since Cebu Baseport faces Mactan Channel, offshore expansion of port facilities will affect vessel navigation route. Therefore, large offshore expansion of the port area is not feasible.

5) Deterioration of the Facilities

Some facilities are damaged by deterioration. In particular, port facilities in pier 1-3 are seriously damaged. Some facilities are no longer in use, while others decrease cargo handling productivity when utilized.

6) Low Productivity of the Cargo Handling

Cargo handling productivity is low as a result of the lack of backyard area and RORO ramps. The major problem identified is that the berth structure cannot accommodate the stern ramp style RORO ferries. A large volume of cargos is transported by stern ramp RORO ferries but due to the lack of the RORO ramps, the more efficient RORO system cannot be implemented.

7) Lack of Passenger Facilities

Although Cebu Baseport handles more than 10 million passengers, it neither has sufficient passenger terminals nor amenity facilities. Moreover, cargo handling and passenger movements are not separated and thus passengers are vulnerable to accidents.

(2) Development of the New Cebu Port

As mentioned above, Cebu Baseport has some major problems. The first one is lack of water depth of approach channel and berths. Since the maximum draft of the vessel through the approach channel is only 8.5 m, Cebu Baseport can't accommodate the large vessels. Especially, for attracting international container vessels at inter-Asia route, deeper water port facilities are essential. Moreover, the size of container vessels becomes larger every year.

The second one is the insufficient backyard for cargo handling and lack of expansion areas. The port area of CPA is limited. Adjacent areas, which are privately owned, are mostly utilized. The container yard space of CIP is adequate at present. However, this space is not sufficient for the future demand of cargoes and passengers.

The third one is shortage of berths. Considering the capacity of Cebu Baseport and future

increase of cargoes and passengers, there will be a shortage of berths in near future, even if the cargo and passenger handling productivity is improved (See chapter 5.2.1).

In order to solve the above mentioned problems and to develop Cebu Baseport as the regional hub for both international/domestic cargo and passenger transportation in Visayas and Mindanao region, the development of the New Cebu Port out of the existing port area is required.

(3) Development Policy for the New Cebu Port

1) International Container Terminal

Since this port can be developed with deep berths, its main function is as an international container terminal. This terminal should play the leading role as an international container terminal in the southern part of the nation, Visayas and Mindanao. To achieve this target, the New Cebu Port should have adequate port facilities to attract container vessels operated in the inter-Asia container route. Therefore, the berth needs 13 m water depth in order to cater to the Panamax type container vessels, which is considered to be the maximum vessel type in the inter-Asia container route in future.

Another factor that needs to be considered is the cargo handling efficiency of the port. This is an important aspect in competing with other ports and in attracting container routes because shipping companies tend to choose calling ports that have high cargo handling productivity.

2) Foreign Cargo Terminal

Foreign cargo vessels also need deep berths and thus should use the New Cebu Port which has deeper berths. It will be advantageous for the foreign trade-related functions, such as customs, immigrations, and forwarders, if foreign cargoes are concentrated in one terminal. Therefore, the New Cebu Port should be developed as an international cargo terminal at the initial stage.

3) Feeder domestic container vessels

The feeder domestic container vessels should be handled at the New Cebu Port for an efficient container transport network, while the other domestic cargo vessels should be handled at Cebu Baseport. In this way, the utilization of Cebu Baseport will be maximized and the initial investment for the New Cebu Port development will be reduced.

4) Land Transportation

Access road is an essential facility for port development. A container terminal, in particular, needs a good road network which enables speedy and smooth container transportation. In order to establish the linkage between international container routes at a new Cebu Port and domestic container routes at Cebu Baseport, the effective land route between the two ports is necessary. Coordination between port development and road development must be conducted.

(4) Development Policy for Cebu Baseport

Cebu Baseport has constraints in terms of maximum vessel draft and expansion area. However, its location, which is close to the city center, is advantageous for passengers. The primary function of this port is the transportation of passenger by RORO ferries, passenger/cargo vessels, fast crafts, and metro bus ferries. Passengers facilities should therefore be developed.

Moreover, Cebu Baseport should use its port facilities to its maximum capacity by renovating and providing suitable facilities. RORO ramps are urgently required for efficient cargo handling. The quay length is an important factor for catering to many vessels.

For the renovation of this port, shifting plan of the vessels using the renovated berth should be considered carefully. The renovation work should be conducted gradually so that it would not affect vessel operation.

The efficient use of the entire port zone is very important. Some areas are vacant or are not utilized to the optimum level. Efficient utilization of these areas should be considered in the future development plan.

1) Proper Maintenance and Rehabilitation

In Cebu Baseport, some facilities are seriously deteriorated. Since the berthing length and land space in the port area is limited, it is important to use the existing port facilities efficiently. Therefore, it is necessary to maintain all the facilities in available condition except when under construction. Proper maintenance and rehabilitation work should be conducted timely.

2) Expansion of Backyard Area

All backyard areas except CIP are very narrow. They are used for cargo handling, cargo and traffic lanes without clear boundary due to the limitation of space. For efficient cargo handling, smooth vehicle transport and passenger safety, the expansion of the backyard area should be done.

30 m offshore extension of the backyard at PMO 2 area has already started. At pier 1–3, the demolition of the old sheds should be considered for the expansion of backyard, because these sheds are seriously damaged by deterioration and low level utilization.

3) Improvement of Passenger Facilities

Passenger transport is the main function of this port and more than 10 million passengers use this port annually. But at present Cebu Baseport has passenger terminal buildings and cat walks only for passengers of long distance RORO ferries (for Manila and Cagayan De Oro) and fast crafts. It also has no amenity facilities for passengers. The construction of additional facilities for passengers should be promoted.

For the safety of passengers, separation between passenger movement and cargo handling in the backyard is necessary. Boarding bridge connecting the terminal building and the vessel is one way to achieve this.

4) Efficient Land Use of Port Zone

Port area of the existing Cebu Baseport, which is owned by CPA, has almost no room for expansion of port facilities except offshore area. However, in the port zone, there are still some vacant or low level utilization areas owned by the private sector. All areas in the port zone, including private areas, are restricted to port related facilities. Based on the discussion with private land owners, appropriate land use plan of the port zone should established.

5) Improvement of access road network in Cebu Province

Since Cebu Baseport is a main port of Cebu Province, the improvement of access road network from regional areas in Cebu Province is necessary to encourage the use of Cebu Baseport.

5.2.3 Port Development Policy for Outports

For Outports to perform their roles and functions, well balanced development policy is necessary.

Port development policy of Outports needs to be comprehensive in scope, covering such issues as safety, comfort, cost, time, service, accessibility, etc..

1. Establishment of the Trans Visayas Intermodal Transport Network is the priority target of the Region VII.
2. Competition between Baseport and Outports shall be encouraged to promote sustainable development in the port and shipping industry.
3. Urgent rehabilitation shall be implemented for damaged ports such as Carmen, Santa Fe, Tuburan, etc.
4. Passenger terminals for Outports such as Toledo, Danao, Tuburan, Carmen, etc. shall be constructed.
5. New San Remigio Port shall be developed in place of Hagnaya Port
6. Access road to the port from national road shall be widened and paved to improve access at places such as Argao, etc.
7. Port development plan of Cebu province shall be implemented on schedule together with road development plan for reducing of hours to reach Outports.
8. Master plan of each Outport shall be implemented to accommodate upgraded vessels on various points such as enlargement, speed, luxury, etc..
9. Safety facilities such as lighting, fender, navigation buoy, etc. shall be installed when necessary.
10. Passenger path shall be a safe distance from cargo handling operations.

5.2.4 Recommendation on the Selected Two Major Outports for the Master Plan Study

After evaluating the seven candidate ports from among the outports, two ports are selected as prioritized ports for the master plan study. Seven candidate ports are: Santa Fe, San Remigio, Carmen, Balamban, Toledo, Argao and Oslob.

Generally speaking, outports in Cebu Province have the following characteristics in relation with Cebu Baseport.

(1) Cebu Baseport is the leading port in Cebu Province and has maritime routes with almost all surrounding islands. A few outports such as Bantayan port serve maritime transportation with them.
(2) Outports located on the east coast of Cebu island has less frequency and handle less cargo than Baseport. However, private ports for industrial cargo such as cement handle large volumes. Carmen port is an example of this.
(3) Outports in southern Cebu is conducting a relatively stable business due to shorter distance and lower tariff. But expanding this market in future may be difficult, because the population growth rate is lower here and the cost of improving facilities will necessitate raising the tariff.
(4) Unlike the southern ports, outports in the northern Cebu have no large partner port. Regarding maritime access there is only one or two sailings per week at present via Cebu Baseport. Therefore, the development of northern ports is urgently need to improve the island transport condition.
(5) Outports on the west coast of Cebu have an advantage over Cebu Baseport in terms of traffic accessibility to ports in opposite island. Moreover their development plans can be authorized independently from the development plan of Cebu Baseport. Major function of these ports is to provide a faster and more economical condition between Cebu and Bacolod. To take advantage of better road conditions or lower tariff, trucks often bypass Toledo port in favor of these outports. Passengers, however, use Toledo port because of the established bus network system.

Next, the following four points are examined in order to select two prioritized ports.

(1) High potential ports shall be selected to develop maritime transport capacity of Central Visayas.
(2) Selected ports shall offer public service and may have ties with CPA
(3) Urgency of development and whether CPA has development plan of the port already
(4) The demand of the port is forecast to increase steadily

A closer examination of each point is given bellow:

(1) Comparison of potential of ports

According to the latest report by DOTC, "feasibility Study Report for the Roll-on/Roll-off

Ferry Network Development Project for the Trans Visayas Intermodal Transport Network", six RORO route shall be developed in Central Visayas and four of them pass through the Cebu island.

First route is a north-south corridor which passes from Masbate island to Siquijor island via Cebu island. The development of some northern and southern ports in Cebu island is thus required. Second route is an east-west corridor which passes from Negros island to Bohol island via Cebu island. Toledo port and Cebu Baseport are the objective ports. Third route is also an east-west corridor which passes southern part to the second route and Argao or Oslob port is the objective port. Fourth route is northern east-west corridor which passes from Bantayan island to Leyte island via Cebu island with Hagnaya and Bogo ports as objective ports.

Six ports other than Carmen port are reported as an objective port.

(2) Operation by CPA and public service

Among the candidate ports, Carmen and Balamban ports handle private cargo only. Other five ports handle public cargo or passenger even though they may be private ports. Therefore, these five ports meet the criteria to be considered as objective ports.

(3) Urgency of development

Urgent rehabilitation is necessary in Hagnaya and Oslob ports for the following reasons:

- There are restrictions on the calling of vessels due to the shallow channel in Hagnaya port, which forces passengers to change ships at the entrance of the Hagnaya bay. Urgent rehabilitation shall be conducted as soon as possible
- The deck of a berth at Oslob port is damaged and needs to be repaired as sonn as possible.

Regarding 2 cases above, Oslob port can continue operation but Hagnaya port needs urgent development.

CPA's development plan for Santa Fe, San Remigio and Toledo is shown in the following Table.

Table 5.2.4-1 Development Program of CPA

Port	Implementing Item	Implementation Schdule
Santa Fe	Rehabilitation of R.C. Deck	2001, 2nd semester
San Remigio	Construction of New Port	2003
Carmen	Rehabilitation of Pavement and RoRo Ramp	Completed
Balamban	Not clear	
Toledo	Construction of Passenger Terminal	Waiting for Donation of Land
Argao	Not clear	
Oslob	Not clear	

Source: CPA

(4) Stable increasing of demand

Based on cargo and passenger statistics of candidate ports indicated in the Table. Toledo port handled the largest volume of cargo followed by Argao port. Hagnaya port handled a small volume of cargo but is expected to handle the same volume as Santa Fe port after investment. Santa Fe port handled the largest passenger traffic volume followed by Hagnaya port. Toledo port was third.

In terms of demand, Santa Fe port, San Remigio port and Toledo port are recognized as prioritized ports.

Table 5.2.4-2 Cargo Statistics of Seven Candidate Ports

Port	1990		1999		2000	
	inbound	outbound	inbound	outbound	inbound	outbound
Santa Fe	19,700	9,000	79,400	23,300	85,500	28,800
San Remigio	4,900	8,100	n.a.	n.a.	3,500	1,200
Carmen	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Balamban	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Toledo	14,900	16,900	128,500	173,600	115,000	118,500
Argao (Taloot)	9,500 (7,700)	30,600 (31,600)	n.a. (62,600)	n.a. (76,200)	n.a. (62,400)	n.a. (68,200)
Oslob	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.

Source: in 1990 by PPA, in 1999 and 2000 by CPA

Table 5.2.4-3 Passenger Statistics of Seven Candidate Ports

Port	1990		1999		2000	
	Embarkation	Disembarkation	Embarkation	Disembarkation	Embarkation	Disembarkation
Santa Fe	59,700	64,600	181,800	187,700	216,900	223,600
San Remigio	77,300	72,300	161,200	156,100	193,200	195,900
Carmen	0	0	0	0	0	0
Balamban	0	0	0	0	0	0
Toledo	12,700	12,800	158,900	162,200	139,300	146,100
Argao (Taloot)	3,700 (0)	2,100 (0)	n.a. (9,500)	n.a. (7,300)	n.a. (18,500)	n.a. (15,100)
Oslob	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.

Source: in 1990 by PPA, in 1999 and 2000 by CPA

Results of evaluation are indicated numerically by three point method in the Table. San Remigio port and Toledo port received 11 points, Santa Fe port 9 followed by Argao port and Oslob port. Carmen and Balamban received the lowest scores.

Table 5.2.4-4 Evaluation on Seven Candidate Outports

Port	Potential	Publicity	Urgency	Future Demand	Total
Santa Fe	2	3	1	3	9
San Remigio	2	3	3	3	11
Carmen	1	1	1	1	4
Balamban	1	1	1	1	4
Toledo	3	3	2	3	11
Argao (Taloot)	1	2	2	1	6
Oslob	1	1	2	1	5

5.2.5 Strategy for Implementation of Port Development Policy

(1) Coordination of Port Development by CPA

One of the main objectives of CPA is to integrate and coordinate planning, development, construction and operations of seaports and seaport facilities in Cebu Province. In Cebu Province, port development is basically promoted by CPA, local government units and the private sector. Some other national government organizations, such as DOTC and DPWH, also promote port development of some outports. To promote effective port development in Cebu Province, it is necessary to coordinate the port development plans among various entities. CPA should have leadership in this matter from the viewpoints of nationwide and regional port

development in order to avoid duplication of investment.

Particularly, coordination of port development between the public sector and private sector is important. Private ports play an important role in Cebu Province, especially regional areas. For outports, more than 70 % of domestic cargoes and all foreign cargoes are handled at private ports. Most private ports are developed for the specialized purpose such as industrial ports. However, some private ports have public cargo/passenger sea routes with other ports and contribute to the formulation of the sea transport network. However, the private sector puts the priority on profit rather than public benefit and its port development is limited to profitable projects. The port development by private sector should be encouraged, because it reduces the financial burden of the public sector. But in order to establish effective port allotment and sea transport network in Cebu Province, port development by the private sector needs to be properly controlled by CPA.

(2) Port Development Plans and Statistics

In order to coordinate port development plans in Cebu Province, CPA should have a long-term integrated port development plan in Cebu Province and prioritize the projects based on the forecast for future sea transport demand. CPA needs to anticipate future sea transport network and regional development not only in Cebu Province but also in the Visayas/Mindanao region.

Port statistics are essential in formulating port development plans, not only for each port but also an integrated regional plan. CPA should introduce an efficient data collection system covering various ports including major private ports. CPA needs to obtain adequate and latest cargo/passenger movement statistics. Based on these data, CPA can take the latest trend into account for future forecast of sea transport demand and revise its port development plans timely. The accuracy of statistics is also important because this affects the quality of port planning.

In addition to the statistics of cargo/passenger movement, CPA should have the latest inventory of port facilities, which includes public port and major private ports. The actual condition of the facilities is also important. This is basic information for CPA to manage and develop ports in Cebu Province

(3) Privatization

It is necessary to make a clear distinction between public sector responsibility and private sector responsibility for efficient use of CPA's limited funds. As a means to safeguard public welfare as well as promote efficiency, many public ports in the world have become Landlord ports. In this type of management system, a port is owned and managed by the public sector, but operation is performed by the private sector.

At this moment, operations at ports belonging to CPA are already conducted by the private sector. And they have their own equipment for operation activities. CPA ports can thus be categorized as Landlord ports.

Under the BOT law, such schemes as BOT, BLT and ROT are options in introducing private funds to infrastructure development. This is the next step of privatization for CPA. The private sector will invest in and construct port infrastructure instead of getting a franchise of port operation. However, ownership will belong to the public sector finally.

But BOT schemes are often not attractive to the private sector because of the huge investment and long construction periods that can be involved. The potential risks and profits of a project need to be carefully considered. Sometimes it is necessary for the public sector to make certain guarantees to the private sector to minimize the risk factor. BOT projects are often limited to clearly profitable projects, such as container terminal development.

In order to promote private sector participation in port development, it is a key factor to formulate a project which the private sector can expect to be profitable. But, as mentioned above, private sector participation in port infrastructure development is basically difficult except for some profitable projects such as container terminal, passenger terminal and small port construction. Therefore, it will likely be necessary to offer some incentives to the private sector. One of the measures is to formulate an integrated project including some profitable portions with port infrastructure development.

For example, Cebu Baseport is close to the densely populated city area and this area has high potential for both port development and city development. Redevelopment of Cebu Baseport requires coordination with city development and it is possible to formulate a joint project between the port development and the city development. Most of the city development projects are attractive to the private.

(4) Stage Plan

Port development, especially new port development, is a long-term project. Therefore, it is necessary to formulate an effective stage implementation plan, because early operation of the facility and reduction of the initial investment improve the economic/financial condition of the project. In order to accommodate the required future development, consideration on the possible expansion area is also needed.

Stage implementation plan is also important for renovation of the port, because the facility under renovation can't be used and the function of this facility must be transferred to other places until the completion of the renovation. For port renovation, effective stage plan should be formulated to maintain the service level even during the renovation period.

(5) Strengthening the Organization of CPA

To strengthen its organization, CPA should improve its personnel management and training systems.

Planning and Design Division is very important to promote port development efficiently. Considering its importance, CPA needs more highly qualified engineers in this division.

Statistical data is a base for everything, such as port policy, port management, and port planning. Administration of statistical data should be improved.

Employees at CPA are essentially specialists and rarely move from one department to another. As a result, there are few employees who have comprehensive knowledge of port development, management, and operation. For efficient activity of CPA, both specialists and generalists should systematically be promoted. For the exchange of views and information, the liaison conference should be established with PPA, DOTC, etc.

Staff training system for CPA should be designed and developed with comprehensive training program structure covering across various training demands.