

CHAPTER 12 CONCLUSION

As described in the previous chapters, seaborne cargo demand in the Greater Capital Region (GCR) in the year 2010 amounts to 41,110 thousand tons (2.3 times as much as the present cargo throughputs) in the low economic growth case, 56,720 thousand tons (3.1 times as much as the present cargo throughputs) in the medium economic growth case and 79,900 thousand tons (4.4 times as much as the present cargo throughputs) in the high economic growth case.

Table 12-1 shows seaborne cargo demand at each port in GCR in the year 2010. As shown in the same table, international cargo increases rapidly, especially international container cargo shows a steep rise up to the year 2010. According to the forecast, international container cargo amounts to 23,010 thousand tons (4.6 times as much as the present container cargo throughputs) in the medium economic growth case and 32,200 thousand tons (6.4 times as much as the present container cargo throughputs) in the high economic growth case. Table 12-1 also shows the growing demand of domestic container cargo, although the annual growth rate of domestic container is less than that of international container. Thus, it can be safely said that the general tendency of future cargo demand is containerization. At present, international and domestic container cargo is mainly handled at the Port of Manila, but in future, container cargo will be very common at almost all ports in GCR.

In order to establish the foundation of port master planning for major ports in GCR, the Study Team conducted [1] Origin/Destination Survey for Cargo and Passenger Movement at the Port of Manila, [2] Port Traffic Impact Analysis on Urban Road System and [3] Natural Conditions Survey at the Port of Manila and the Naic/Cavite New Port Site. Firstly, the origin/destination survey was conducted in order to estimate a port hinterland in GCR which would be one of the important factors to determine a role and function of each port. Interview points were founded at each harbor, that is, the South Harbor, the Manila International Container Terminal (MICT) and the North Harbor, and total interview points amounted to thirteen. All vehicles and passengers at the Port of Manila were interviewed during seven-day survey period. Table 12-2 shows the origin/destination of seaborne cargo through the Port. In short, the survey verified that 64% of international cargo and 84% of domestic cargo in terms of metric tons come from Metro Manila. On the contrary, 73% of international cargo and 74% of domestic cargo go to Metro Manila. This means that quite a large number of shippers remain in Metro Manila, not in other region of GCR. Shippers in Metro Manila would not use other

Table 12-1 Cargo Demand Forecast in 2010

(Unit: Thousand Tons)

Item	Present in 1991	Future in 2010			Annual Growth Rate		
		Low Case	Medium Case	High Case	Low	Medium	High
Int'l Cargo (Container)	6,710 (5,002)	19,010 (16,760)	26,070 (23,010)	36,600 (32,200)	5.6% (6.6%)	7.4% (8.4%)	9.3% (10.3%)
Domestic Cargo (Container)	11,464 (7,012)	22,100 (18,200)	30,650 (25,080)	43,300 (35,300)	3.5% (5.1%)	5.3% (6.9%)	7.2% (8.9%)
Total (Container)	18,174 (12,014)	41,110 (34,960)	56,720 (48,090)	79,900 (67,500)	4.4% (5.8%)	6.1% (7.5%)	8.1% (9.5%)

Table 12-2. Result of Origin / Destination Survey at Manila Port

(Unit: Kilogram)

Destination Origin	BATAAN	BULAKAN	PAMPANGA	BATANGAS	CAVITE	LAGUNA	QUEZON	RIZAL	MET.MNL	FOREIGN	OTHERS	TOTAL
BATAAN	0	0	0	0	5,750	0	0	0	59,900	208,320	22,400	296,460
BULAKAN	0	0	0	0	0	0	0	0	96,000	965,066	894,612	1,955,678
PAMPANGA	0	0	0	0	0	0	0	0	55,350	846,500	308,395	1,210,245
BATANGAS	0	5,000	0	0	0	0	0	0	15,000	147,000	10,440	271,440
CAVITE	0	0	0	0	0	0	0	0	103,250	1,165,900	294,050	1,563,200
LAGUNA	0	0	0	0	0	0	0	0	78,500	1,698,820	934,564	2,711,884
QUEZON	0	0	0	0	0	0	0	0	0	826,500	20,000	846,500
RIZAL	0	0	0	0	0	0	0	1,950	21,000	791,000	622,683	1,436,633
MET.MNL	42,750	316,500	131,000	32,360	240,400	312,193	21,000	157,980	4,245,422	15,652,482	24,269,208	45,421,295
FOREIGN	773,488	6,765,455	513,543	285,280	1,421,935	2,401,165	44,000	2,151,520	40,037,025	0	315,150	54,709,561
OTHERS	3,490	1,079,155	719,914	93,100	217,740	543,818	0	1,063,290	14,406,889	2,019,970	1,444,499	21,591,865
TOTAL	819,728	8,166,110	1,364,457	410,740	1,885,825	3,257,176	65,000	3,374,740	59,118,426	24,321,558	29,231,001	132,014,761

ports than the Port of Manila on condition that port charge, fuel coast and traffic congestion are almost the same at each port in GCR. Because the utilization of other ports, say, the Port of Batangas requires much more land transportation cost from most shippers due to the distance from the port. However, if future traffic congestion in Metro Manila which might be brought about by a huge amount of seaborne cargo demand, develops into the worst, shipper's port preference will be greatly influenced. On the contrary, it is easily expected that the number of shippers who prefer the Port of Batangas or any other port in the CALABARZON region to the Port of Manila, will grow rapidly, if the on-going CALABARZON Regional Development Project makes great progress. However, as described in Table 12-2, 19% of international cargo and 7% of domestic cargo in terms of metric tons come from the CARABARZON region, and 12% of international cargo and 10% of domestic cargo go to the same area at this moment. In short, quite a few shippers remain within the CALABARZON region.

Secondly, The Port Traffic Impact Analysis on Urban Road System was conducted in order to examine and evaluate the possibility of the port extension plan at the Port of Manila from the viewpoint of urban transport equilibrium. This analysis is based on [1] Feasibility Study on Metro Manila Urban Expressway System by JICA in 1993, [2] Origin/Destination Survey for Cargo and Passenger Movement in 1993 and [3] Cargo and Passenger Demand Forecast by the Study. First of all, cargo and passenger demand in 2010 has been transformed into the number of vehicles on roads. According to the Study's prediction, port-related traffic has less than 3 % share of total urban traffic in 2010. And then, this port-related traffic has been assigned on the future urban transport network by using a traffic simulation model. There exist several premises in this analysis. They are : [1] Ordinary road improvement and access controlled expressway construction will have made good progress by the year 2010 in accordance with DPWH's implementation schedule. [2] In general, urban traffic congestion will still remain without taking port-related traffic into account due to rapid increase of urban traffic in future, but road transportation in Metro Manila is expected to be workable. [3] Origin and destination of port-related traffic in the year 2010 is the same as the result of O/D survey conducted by the Study in 1993.

The result of the traffic simulation shows that the urban road network will not be significantly affected by port-related traffic. Predicted impact is that 12 % portion of total road links in Metro Manila (60 links among total 500 links) will experience remarkable congestion which cuts down their average traffic speed from 46 km/h to 39 km/h due to port-related traffic. However, basic understanding derived from the traffic

simulation is that the port extension at the Port of Manila will be feasible from the viewpoint of urban transport equilibrium on condition that the above three premises remain true in 2010. It is also to be taken into account that there should be several countermeasures in order to prevent further road congestion and environmental effect as well. The Study Team recommends : [1] Introduction of truck-ban during the most congested hours, [2] Extension of Cavite Coastal Highway to Naic/Ternate which will contribute to promotion of a substitutive port's project to the Port of Manila and [3] Acquisition of land near the Port of Manila for storage of a large number of containers. It is also considered that development of Inland Container Depot (ICD) and railway system for container transport planned by MICT, will be beneficial to keeping up efficient urban transport system in Metro Manila.

The major ports in GCR are the Port of Manila (South Harbor, MICT and North Harbor), the Port of Batangas, Sangley Point, and the Naic/Cavite New Port which has been selected as an alternative port to Sangley Point. There are six (6) basic policies when the Study determines the functional allotment of port activities among the major GCR ports, and formulates a port master plan. The following describes nine (9) basic policies.

- (1) Port development should back up high industrialization in the Greater Capital Region (GCR). With respect to the CALABARZON region in particular, port development should facilitate the smooth implementation of the CALABARZON Regional Development Project.
- (2) Existing port facilities including on-going projects such as NO.5 International Container Terminal at the Manila International Container Terminal (MICT) and NO.1 to NO.3 Roll on/Roll off Terminal at the North Harbor, must be utilized up to the maximum capacity in order to meet growing cargo and passenger demand in future.
- (3) The result of O/D survey, especially the port hinterland identified by the survey, must be taken into account when the role and function of each GCR port is determined.
- (4) Port master planning must be based on the principle of minimization of total cost which consists of capital investment for port facilities and cargo handling equipment, land acquisition cost, environment preservation cost, transportation cost within the hinterland and so on.
- (5) Port master plans should give rise to no further impact on the urban transport

system, especially in Metro Manila.

- (6) Port master planning is also premised on the following assumptions.
 - Metro Manila's urban highway networks will be fully established to the extent that the JICA's "Feasibility Study on Metro Manila Urban Expressway System" proposed in 1993.
 - The MICT's rail-served inland container depot project will be implemented without delay by the year 2000.
 - The Phase-I project at the Port of Batangas will be completed in accordance with the original implementation schedule.
- (7) The hinterland of the Port of Subic is considered at present as the mid-west part of the Luzon Island.
- (8) Environmental impact must be carefully examined and assessed.
- (9) The advantage and disadvantage of a port development plan for Sangley Point should be clarified and compared with those for other alternative ports, although the conversion plan of Sangley Point into an international commercial port may become one of the most expensive projects due to cost for the Naval Base relocation.

First of all, the Study Team considered that Sangley Point would be one of the most advantageous ports if there should be a complementary port to the Port of Manila in order to alleviate the role and function of the port. Because Sangley Point has the following three advantages: [1] the closest port to the Export Processing Zones in the Cavite and Laguna Province which give rise to a great number of container cargo for export, [2] Because of the good geographical location, Sangley Point may dispense with breakwaters and reclamation in order to expand port capacities, and [3] there exist several usable port and air facilities in the base, although they need to be rehabilitated or modernized.

However, due to the significant delay of obtaining a permission by the Philippine Government for the purpose of the Team's natural conditions survey at Sangley Point, the conversion plan of Sangley Point into an international commercial port has not been given technically sufficient analysis. In addition, it has been also announced that the conversion plan needs the Naval Base's relocation cost of 4.2 billion pesos. Accordingly, the Study Team started to conduct a site selection survey and also natural conditions survey for an alternative port to Sangley Point, and found out the Naic/Cavite New Port as the most suitable alternative to Sangley Point.

The Naic/Cavite New Port is located about 50 km away from Metro Manila. The

distance from Metro Manila is not far, but not close to it, thus most shippers in Metro Manila might not have a strong intention to make use of this new port when completed. In addition, the construction of the Naic/Cavite New Port needs a large amount of expense ranging from a long offshore breakwaters to a massive scale of dredging for a navigation channel. Moreover, one of the most important things to be taken into account is that a huge amount of investment is necessary in order to connect this port with major trunk roads in the hinterland. All these factors being taken into account, the Naic/Cavite new port plan may be the second best from the economic point of view. However, if the port extension at the Port of Manila is not feasible, due to the failure in land acquisition or land creation, and/or significant impact of port-related cargo upon the urban traffic within Metro Manila, there should be at least one alternative port in GCR to the Port of Manila. In this context, the Naic/Cavite New Port should be always within the scope of port development strategies in GCR.

On the other hand, as for the port extension at the Port of Manila in order to meet the growing international container cargo, the South Harbor and MICT will be able to provide possible port space for further reclamation. The port extension at the South Harbor and MICT is not necessarily indispensable to construction of breakwaters and deep dredged channels, thus the amount of port investment must be most inexpensive among the major GCR ports. On the other hand, the North Harbor, which is handling rapidly increasing domestic cargo, will not be able to provide enough port space for further reclamation. The solution for the port extension at the North Harbor is to develop the port along the coast line toward the north. In this sense, land acquisition at the National Housing Authority's Reclamation area, and the Smokey Mountain Development and Reclamation Project area is vital to the port development at the North Harbor, if more space is needed. At present, the Study Team considers that the possibility of further port development at the Port of Manila is still promising.

On the other hand, the development plan of the Port of Batangas has been cut down this time in comparison with that of the "Study on the Development Project on the Port of Batangas" by JICA in 1985. One of the reasons is the revision of cargo demand forecast, resulting in placing great emphasis of increasing container cargo, which needs rather more efficient cargo handling equipment than conventional berthing facilities. Another reason is that the Study has proceeded on the assumption that Phase I Project at the Port of Batangas will have completed by the year 1998, in accordance with the implementation schedule of the Philippine Ports Authority (PPA). In spite of diminished port development plan, however, the Port of Batangas will handle a great number of

cargo and passenger in the year 2010, and function as a strategic base port in the CALABARZON region.

Table 12-3 shows the allocation of seaborne cargo volume to each GCR port. The cargo allocation has been carried out based on the nine (9) basic policies described above. The result of port cargo allocation to each GCR port also determines the additional berth requirement by means of comparison analysis between the present port capacity and the necessary future port capacity enough to handle cargo demand in the target year, and by means of predicting the number and size of future calling vessels at each port. In calculating additional berth requirement, rehabilitation and extension projects at the Port of Manila (South Harbor, MICT and North Harbor), and the Phase I Project at the Port of Batangas are supposed to be completed by the year 2000. Table 12-4 summarizes the additional berth requirement at each GCR port up to the year 2010. Table 12-5 shows the total amount of investment for port development up to 2010. It is needless to say that the cost estimation for the port master plan at each GCR port is based on the result of the natural conditions survey, and the preliminary technical study and design of port facility structures. This amount of investment is containing construction cost for necessary port facilities such as berths, breakwaters, dredged approach channels, anchorage and port roads as well as purchasing cost for major cargo handling equipment such as gantry cranes and transfer cranes. According to Table 12-5, the total amount of investment for port development in GCR up to the year 2010 is 20,870 million peso in the medium economic growth case, 43,311 million peso in the high economic growth (I) case, 44,541 million peso in the high economic growth (II) case and 49,015 million peso in the high economic growth (III) case. It should be worth notice that port development at the Naic/Cavite New Port is recommended in the high economic growth (II) case, although the total amount of investment becomes larger than that of the high economic growth (I) case if a great amount of cost for port access road is added together. In this scenario, it is supposed that a large scale of port development at the Port of Manila is not feasible due to the following three reasons; [1] urban traffic congestion in Metro Manila will become worse because of significant delay of urban highway construction and rehabilitation. [2] land acquisition, especially anticipated offshore reclamation area results in failure because of wide sprawl of unauthorized settlers. [3] The project of rail-served inland container depot for the Port of Manila is delayed, or cancelled. However, the high economic growth (II) case contains uncertainty as well, because it is natural to consider that all three assumptions described above cannot be true at the same time, and also a hundred percent new development project

Table 12-3 Cargo Demand Forecast of Each GCR Port

(Unit: Thousand Tonns)

Port	Item	Present in 1991			Future in 2010							
		Cargo Tonnage	Container Cargo Tonnage	Cargo Tonnage	Low Case		medium Case		High Case (I)		High Case (II/III)	
					Cargo Tonnage	Container Cargo Tonnage	Cargo Tonnage	Container Cargo Tonnage	Cargo Tonnage	Container Cargo Tonnage	Cargo Tonnage	Container Cargo Tonnage
Manila South Harbor	Int'l Cargo	2,765	(1,119)	6,300	(4,200)	7,020	(4,200)	14,430	(10,430)	8,200	(4,200)	
	Domestic Cargo	6	(6)	-	-	0	(0)	-	(-)	-	(-)	
	Total	2,771	(1,125)	6,300	(4,200)	7,020	(4,200)	14,430	(10,430)	8,200	(4,200)	
Manila MICT	Int'l Cargo	3,889	(3,883)	12,100	(12,100)	18,040	(18,040)	20,570	(20,570)	20,570	(20,570)	
	Domestic Cargo	55	(55)	-	-	-	(-)	-	(-)	-	(-)	
	Total	3,944	(3,938)	12,100	(12,100)	18,040	(18,040)	20,570	(20,570)	20,570	(20,570)	
Manila North Harbor	Int'l Cargo	-	-	-	-	-	(-)	-	(-)	-	(-)	
	Domestic Cargo	10,459	(6,951)	19,900	(16,900)	26,960	(22,910)	37,600	(32,000)	37,600	(32,000)	
	Total	10,459	(6,951)	19,900	(16,900)	26,960	(22,910)	37,600	(32,000)	37,600	(32,000)	
Batangas	Int'l Cargo	56	(-)	610	(460)	1,010	(770)	1,600	(1,200)	1,600	(1,200)	
	Domestic Cargo	944	(-)	2,200	(1,300)	3,690	(2,170)	5,700	(3,300)	5,700	(3,300)	
	Total	1,000	(-)	2,810	(1,760)	4,700	(2,940)	7,300	(4,500)	7,300	(4,500)	
Cavite/Naic or S. Point	Int'l Cargo	-	-	-	-	-	(-)	-	(-)	6,230	(6,230)	
	Domestic Cargo	-	-	-	-	-	(-)	-	(-)	-	(-)	
	Total	-	-	-	-	-	(-)	-	(-)	6,230	(6,230)	
Total	Int'l Cargo	6,710	(5,002)	19,010	(16,760)	26,070	(23,010)	36,600	(32,200)	36,600	(32,200)	
	Domestic Cargo	11,464	(7,012)	22,100	(18,200)	30,650	(25,080)	43,300	(35,300)	43,300	(35,300)	
	Total	18,174	(12,014)	41,110	(34,960)	56,720	(48,090)	79,900	(67,500)	79,900	(67,500)	

Table 12-4 Additional Berth Requirement in 2010

Port	Berth Type	Existing Berth		Additional Berth Requirement in 2010			Berth Length & Depth
		No. of Berths	Berth Length & Depth	Medium Case	High Case (I)	High Case (II)	
				No. of Berths	No. of Berths	No. of Berths	
South Harbor	Int'l Container Berth	4	180m, -10m	-	3	-	300m, -13m
	Int'l Conventional Berth	14	170m, -10m	0	0	0	170m, -10m
MICT	Int'l Container Berth	4	300m, -13m	3	4	4	300m, -13m
North Harbor	Domestic Container Berth	0	180m, -10m	6	10	10	180m, -10m
	Domestic RO/RO Berth	43	-6m, -9m	2	3	3	220m, -9m
	Domestic Conventional Berth			0	0	0	
Naic/Cavite New Port or Sangley Point		0		0	0	3	300m, -13m
Batangas	Int'l Container Berth	0	185m, -10m	0	1	1	180m, -10m
	Int'l multipurpose Berth	1	230m, -10m	0	1	1	170m, -10m
	Domestic Container Berth	0		1	1	1	150m, -10m
	Domestic RO/RO Berth	8	-120m, -5.5m	0	1	1	120m, -5.5m
	Domestic Ferry Berth	4	-4m	0	0	0	
Total		78		12	24	24	

Table 12-5 Cost Estimation of Port Master Plan in the Year 2010

(Unit: Million Peso)

Port	Medium Case	High Case (I)	High Case (II)	High Case (III)
South Harbor	1,424	11,545	1,424	1,424
MICT	9,748	12,931	12,931	12,931
North Harbor	8,661	16,499	16,499	16,499
Naic/Cavite	-	-	11,351	-
S. Point	-	-	-	15,825
Batangas	1,037	2,336	2,336	2,336
Total	20,870	43,311	44,541	49,015

has more or less greater risk than the extension project, in general. Thus, each port development scenario in GCR must be carefully dealt with and it should be necessary to carry out detailed study before deciding the project. In conclusion, port investment into the Port of Manila is always advantageous from the economic point of view.

However, serious attention must be paid to the fact that the amount of investment mentioned above is including construction cost for port facilities as well as purchasing cost for equipment, but not including maintenance cost and other port-related cost. For example, maintenance dredging cost at the Port of Manila or the Naic/Cavite New Port is expected to amount to a huge sum. The impact of port traffic upon the overall urban road traffic will impose economic damage on shippers and consignees in Metro Manila. Therefore, preliminary evaluation of master plan components must be carried out, taking all these cost and benefit described above into account.

It must be also mentioned that in considering a port master plan for the Port of Manila, there are a great amount of other seaborne cargo handled at river-side port facilities along the Pasig River and anchorage areas at the South Harbor. The Study could not deal with those amount of cargo. In this manner, there are still a number of factors which must be carefully taken into account when a port master plan in GCR is formulated. Thus, the port master plan must be always reviewed from time to time, and if necessary, the plan must be altered and improved at the same time.

The giant table, namely, Table 12-6 summarizes roles and functions of each GCR port in the year 2010. In Table 12-6, the first column gives the name of ports, and the second column and thereafter give the present and expected roles and functions of each GCR port, respectively.

FUTURE ROLES AND FUNCTIONS AT EACH GCR PORT

MASTER PLAN OF MANILA PORT

(2010 MEDIUM ECONOMIC GROWTH CASE)

(2010 HIGH ECONOMIC GROWTH CASE)

Table 12.6 Future Roles and Functions at Each GCR Port

PORT	PRESENT SITUATION AT EACH GCR PORT Cargo Volume: 18.2 Million tons in 1991 No. of Passengers: 4.4 Million in 1991	HIGH CARGO & PASSENGER DEMAND IN 2010 (HIG CASE I) Demand Target: 79.9 Million Tons (4.4 Times) and 26.1 Million Passengers (5.3 Times)	HIGH CARGO AND PASSENGER DEMAND IN 2010 (HIG CASE II/II) Demand Target: 79.9 Million Tons (4.4 Times) and 26.1 Million Passengers (5.3 Times)	MEDIUM CARGO AND PASSENGER DEMAND IN 2010 (MED CASE) Demand Target: 56.7 Million Tons (3.1 Times) and 15.8 Million Passengers (3.2 Times)					
SUBIC	(Port Facility) No. of Berths: 31, Length: 2,976m, Depth: 12.2m (Port Activity) No. port activity at present.	-No Port utilization at present. -Free port project is announced. -Growing demand for beach resort. -Strong interest in Subic as a container feeder port, is being taken by some shipping lines. -Possible industrialization by Taiwan group. -Distant location from Metro Manila, and poor road link between, San Fernando and Olongapo.	-Taking advantage of deep-sea port as base port for i) Industrial development in Mid-west Luzon. ii) complementary int'l container port for MNL Port. iii) free trade zone. iv) shelter port during storm. v) and other urgent use.	-Taking advantage of deep-sea port as base port for i) Industrial development in Mid-west Luzon. ii) complementary int'l container port for MNL Port. iii) free trade zone. iv) shelter port during storm. v) and other urgent use.	-Taking advantage of deep-sea port as base port for i) Industrial development in Mid-west Luzon. ii) complementary int'l container port for MNL Port. iii) free trade zone. iv) shelter port during storm. v) and other urgent use.				
MANILA	(Port Facility) No. of Berths: 65, Length: 8,692m, Depth: 2.5m to 12.4m In addition, anchorage area and facilities along Pasig River being highly utilized. (Port Activity) *Cargo Volume -17.2 Million tons in 1991 -12.0 Million tons (Container) - 2.2 Million tons (General) *No. of Passengers -3,176 Thousand in 1991	-Gate way to Capital City. -Sole int'l. commercial port. -Sole int'l. container port. -Super hub port of the Philippines. -Growing demand for int'l containerization and domestic RO/RO transport. -Careful consideration for port development is needed in order not to affect an impact on severe road traffic congestion within Metro Manila.	(Cargo and Passenger Demand) *Cargo Volume -72.6 Million Tons in 2010 -63.0 Million Tons (Container) - 9.6 Million Tons (General) *No. of Passengers -16.9 Million in 2010 (Berth Requirement) - 7 Int'l Container Berths -10 Domestic Container Berths - 3 Domestic RO/RO Berths (Major Equipment Requirement) -14 Panamax Gantry Cranes -10 Domestic Gantry Cranes -35 Transfer Cranes -30 Straddle Carriers (Amount of Investment) -40,975 Million Peso	-Number-one port role accelerated. -Port rehabilitation and extension, needed on a large scale. -Especially, large-scale reclamation needed to the utmost extent at South, MICT. -Land acquisition be speeded up at South and North Harbor (Including Smokey Mountain Reclamation Area) -Port access roads (Including port bridge) upgraded and/or newly constructed. -R-10 elevated expressway project completed and duly connected with port roads at North Harbor and MICT. -Environmental impact and urban traffic congestion be carefully taken into account.	(Cargo and Passenger Demand) *Cargo Volume -66.4 Million Tons in 2010 -56.8 Million Tons (Container) - 9.6 Million Tons (General) *No. of Passengers -16.9 Million in 2010 (Berth Requirement) - 4 Int'l Container Berths -10 Domestic Container Berths - 3 Domestic RO/RO Berths (Major Equipment Requirement) - 8 Panamax Gantry Cranes -10 Domestic Gantry Cranes -20 Transfer Cranes -30 Straddle Carriers (Amount of Investment) -30,854 Million Peso	-Number-one port role increased further. -Port rehabilitation and extension needed on a large scale. -Especially, large scale reclamation needed at South Harbor. -Land acquisition be speeded up at South and North Harbor (Including Smokey Mountain Reclamation Area) -Port access roads (Including port bridge) upgraded and/or newly constructed. -R-10 elevated expressway project hopefully completed and connected with port roads at North and MICT. -Environmental impact and urban traffic congestion be carefully taken into account.	(Cargo and Passenger Demand) *Cargo Volume -52.0 Million Tons in 2010 -45.1 Million Tons (Container) - 6.9 Million Tons (General) *No. of Passengers -10.7 Million in 2010 (Berth Requirement) - 3 Int'l Container Berths - 6 Domestic Container Berths - 2 Domestic RO/RO Berths (Major Equipment Requirement) - 6 Panamax Gantry Cranes - 6 Domestic Gantry Cranes -15 Transfer Cranes -18 Straddle Carriers (Amount of Investment) -19,833 Million Peso	-Number-one port role increased -Port rehabilitation and extension needed to a great extent. -Reclamation needed at South Harbor. -Land acquisition be speeded up, especially at South Harbor. -Port access roads (Including port bridge) upgraded and/or newly constructed. -Environmental impact and urban traffic congestion be taken into account.	(Cargo and Passenger Demand) *Cargo Volume -38.3 Million Tons in 2010 -33.2 Million Tons (Container) - 5.1 Million Tons (General) *No. of Passengers -7.3 Million in 2010 (Berth Requirement) - 1 Int'l Container Berths - 5 Domestic Container Berths - 1 Domestic RO/RO Berths (Major Equipment Requirement) - 5 Panamax Gantry Cranes - 5 Domestic Gantry Cranes -15 Transfer Cranes -15 Straddle Carriers (Amount of Investment) -19,833 Million Peso
SANGLEY POINT	(Port Facility) Naval base existing, including port facilities (water depth of roughly 6m), short aircraft runway and shipyard.	-Advantageous location for complementary int'l commercial port to Manila Port (About 10km from Metro Manila, and nearest, to Carabazon Industrial area.) -Existing port facilities are usable, although rehabilitation/improvement of facilities needed for int'l container port. -Various development options of aircraft runway, for future transport demand. -Poor road links to Hinterland. Moreover, road widening not possible due to narrow land corridor.	-The most promising alternate int'l container port to Port of Manila in case that relocation of the naval base is possible. -However, little exact data on natural conditions gives rise to uncertainty about master plan. -Industrialization in hinterland rapidly progressing. -Growing demand for commercial port still remaining. -4.2 billion peso relocation cost will be new hurdles on road to port development.	(Cargo and Passenger Demand) *Cargo Volume -6.2 Million Tons in 2010 -6.2 Million Tons (Container) (Berth Requirement) - 3 Int'l Container Berths (Major Equipment Requirement) - 6 Panamax Gantry Cranes -15 Transfer Cranes (Amount of Investment) -15,825 Million Peso (Including 4.2 billion peso relocation cost)	-Lots of unknown factors contained in the scenario. -Little exact data on natural conditions gives rise to uncertainty about master plan. -4.2 billion peso relocation cost remains as new hurdles on road to port development. -Cavite coastal expressway extended to Rosario. -Road investment to access S-Point on a large scale. -Great contribution to industrialization in hinterland.	-Conversion plan of S-Point into int'l commercial port premature, due to relatively slow growth of container cargo demand. -Little exact data on natural conditions gives rise to uncertainty about master plan. -4.2 billion peso relocation cost remains as great difficulty to overcome. -Industrialization in hinterland steadily progressing.			
NAIC/CAVITE	(Port Facility) Natural sand beach and shallow water area along Cavite/Naic coast but nearest to South Main Channel	-Changing tendency from agriculture to industrialization (EPZ) -Fishing activity and beach resort along coast. -Poor road links to Hinterland, but possible road widening, if invested. -Possible land acquisition because of very few residents along shoreline. -Vast investment for a new port construction from the beginning.	-Fishing activity and beach resort increased along coast. -Industrial and recreational development in hinterland rapidly progressing. -Growing demand for international commercial port in Cavite from the long-term point of view.	(Cargo and Passenger Demand) *Cargo Volume -6.2 Million Tons in 2010 -6.2 Million Tons (Container) (Berth Requirement) - 3 Int'l Container Berths (Major Equipment Requirement) - 6 Panamax Gantry Cranes -15 Transfer Cranes (Amount of Investment) -11,351 Million Peso	-New int'l commercial port complementing the role of MNL Port -Breakwater, dredging for channel and long port access roads, needed on a large scale, but relatively good natural conditions around the port site. -Relocation of coastal residents -Total cost comparison with MNL Port extension project be vital importance, taking into account shipper's transportation cost, vast road investment in hinterland etc.	-New int'l container port project premature, due to relatively slow growth of container cargo demand. -Fishing activity and beach resort increased along coast. -Industrial and recreational development steadily progressing.			
BATANGAS	(Port Facility) No. of Berths: 13, Length: 618m, Depth: 3.5m to 11m In addition, plenty of private berths within Batangas Bay (3.5 to 11m in depth) (Port activity) *Cargo Volume -1.0 Million Tons in 1991 *No. of Passengers -1,200 Thousand in 1991	-Base port in Southern Tagalog -Port extension near at hand (Phase I Project) -Integration of private ports within Batangas Bay -South Super Expressway expected to be extended to Batangas in near future. -Diversion road (Access road) almost completed. -Deep sea port feasible.	-Role as base port in Southern Tagalog accelerated. -Additional port role for contributing to industrialization and containerization in Calabarzon, strengthened on condition that phase I project be completed. -Phase II project required.	(Cargo and Passenger Demand) *Cargo Volume -7.3 Million Tons in 2010 -4.5 Million Tons (Container) *No. of Passengers -9.2 Million in 2010 (Berth Requirement) - 1 Int'l Container Berth - 1 Int'l Conventional Berth - 1 Domestic Container Berths - 1 Domestic RO/RO Berth (Major Equipment Requirement) - 2 Domestic Gantry Cranes - 6 Straddle Carriers (Amount of Investment) -2,336 Million Peso	-Role as base port in Southern Tagalog accelerated. -Additional port role for contributing to industrialization and containerization in Calabarzon, strengthened on condition that phase I project be completed. -Phase II project required.	-Role as base port in Southern Tagalog increased. -Additional port role for contributing to industrialization and containerization in Calabarzon has come up gradually on condition that phase I project be completed. -Phase II project desired.	(Cargo and Passenger Demand) *Cargo Volume -4.7 Million Tons in 2010 -2.9 Million Tons (Container) *No. of Passengers -5.1 Million in 2010 (Berth Requirement) - 1 Domestic Container Berth (Major Equipment Requirement) - 1 Domestic Gantry Cranes - 3 Straddle Carriers (Amount of Investment) -1,037 Million Peso	(Cargo and Passenger Demand) *Cargo Volume -2.8 Million Tons in 2010 -1.8 Million Tons (Container) *No. of Passengers -2.8 Million in 2010 (Berth Requirement) - 1 Domestic Container Berth (Major Equipment Requirement) - 1 Domestic Gantry Cranes - 3 Straddle Carriers (Amount of Investment) -1,037 Million Peso	
TOTAL BERTH AND EQUIPMENT REQUIREMENT, AND TOTAL AMOUNT OF INVESTMENT AT GCR PORTS	(Port Facility) No. of Berth: 78 (Port Activity) *Cargo Volume -18.2 Million Tons in 1991 -12.0 Million Tons (Container) - 6.2 Million Tons (General) *No. of Passengers	Berth Requirement: - 8 Int'l Container Berths - 1 Int'l conventional Berths -11 Domestic Container Berths - 4 Domestic RO/RO Berths -24 in total Major Equipment Requirement:	Berth Requirement: - 8 Int'l Container Berths - 1 Int'l Conventional Berths -11 Domestic Container Berth - 4 Domestic RO/RO Berths -24 in total Major Equipment Requirement	Berth Requirement: - 3 Int'l Container Berths - 7 Domestic Container Berths - 2 Domestic RO/RO Berth -12 in total Major Equipment Requirement: - 6 Panamax Gantry Cranes	Berth Requirement: - 3 Int'l Container Berths - 7 Domestic Container Berths - 2 Domestic RO/RO Berth -12 in total Major Equipment Requirement: - 6 Panamax Gantry Cranes				

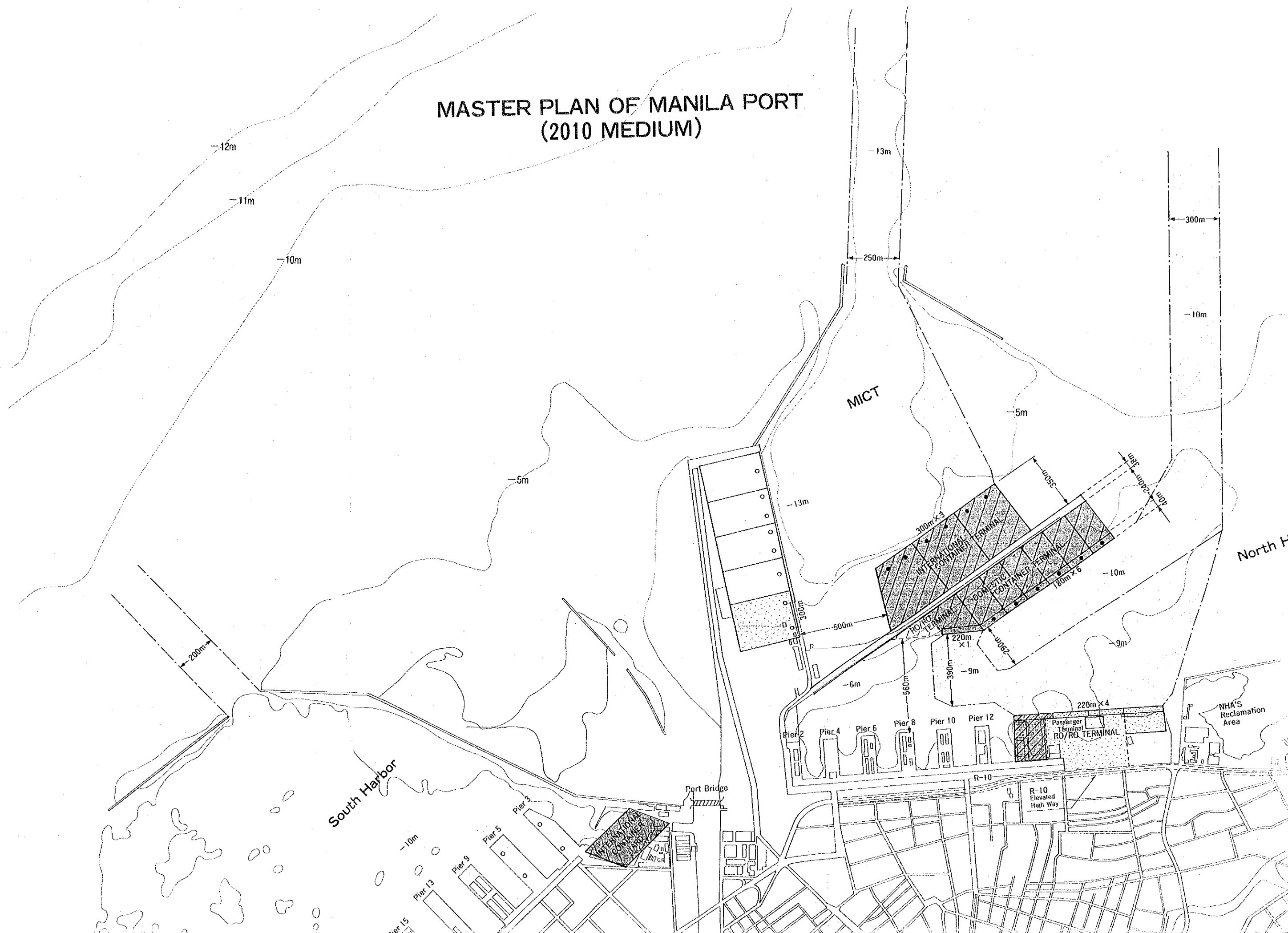
Table 12.6 Future Roles and Functions at Each GCR Port

	HIGH CARGO & PASSENGER DEMAND IN 2010 (HIGH CASE I) Demand Target: 79.9 Million Tons (4.4 Times) and 26.1 Million Passengers (5.3 Times)	HIGH CARGO AND PASSENGER DEMAND IN 2010 (HIGH CASE II/III) Demand Target: 79.9 Million Tons (4.4 Times) and 26.1 Million Passengers (5.3 Times)	MEDIUM CARGO AND PASSENGER DEMAND IN 2010 (MED CASE) Demand Target: 56.7 Million Tons (3.1 Times) and 15.8 Million Passengers (3.2 Times)	LOW CARGO AND PASSENGER DEMAND IN 2010 (LOW CASE) Demand Target: 41.1 Million Tons (2.3 Times) and 10.1 Million Passengers (2.1 Times)
	-Taking advantage of deep-sea port as base port for i) industrial development in Mid-west Luzon. ii) complementary int'l container port for MNL Port. iii) free trade zone. iv) shelter port during storm. v) and other urgent use.	-Taking advantage of deep-sea port as base port for i) industrial development in Mid-west Luzon. ii) complementary int'l container port for MNL Port. iii) free trade zone. iv) shelter port during storm. v) and other urgent use.	-Taking advantage of deep-sea port as base port for i) industrial development in Mid-west Luzon. ii) complementary int'l container port for MNL Port. iii) free trade zone. iv) shelter port during storm. v) and other urgent use.	-Taking advantage of deep-sea port as base port for i) industrial development in Mid-west Luzon. ii) complementary int'l container port for MNL Port. iii) free trade zone. iv) shelter port during storm. v) and other urgent use.
	(Cargo and Passenger Demand) *Cargo Volume -72.6 Million Tons in 2010 -63.0 Million Tons (Container) - 9.6 Million Tons (General) *No. of Passengers -16.9 Million in 2010 (Berth Requirement) - 7 Int'l Container Berths -10 Domestic Container Berths - 3 Domestic RO/RO Berths (Major Equipment Requirement) -14 Panamax Gantry Cranes -10 Domestic Gantry Cranes -35 Transfer Cranes -30 Straddle Carriers (Amount of Investment) -40,975 Million Peso	(Cargo and Passenger Demand) *Cargo Volume -66.4 Million Tons in 2010 -56.8 Million Tons (Container) - 9.6 Million Tons (General) *No. of Passengers -16.9 Million in 2010 (Berth Requirement) - 4 Int'l Container Berths - 10 Domestic Container Berths - 3 Domestic RO/RO Berths (Major Equipment Requirement) - 8 Panamax Gantry Cranes -10 Domestic Gantry Cranes -20 Transfer Cranes -30 Straddle Carriers (Amount of Investment) -30,854 Million Peso	(Cargo and Passenger Demand) *Cargo Volume -52.0 Million Tons in 2010 -45.1 Million Tons (Container) - 6.9 Million Tons (General) *No. of Passengers -10.7 Million in 2010 (Berth Requirement) - 3 Int'l Container Berths - 6 Domestic Container Berths - 2 Domestic RO/RO Berths (Major Equipment Requirement) - 6 Panamax Gantry Cranes - 6 Domestic Gantry Cranes -15 Transfer Cranes -18 Straddle Carriers (Amount of Investment) -19,833 Million Peso	(Cargo and Passenger Demand) *Cargo Volume -38.3 Million Tons in 2010 -33.2 Million Tons (Container) - 5.1 Million Tons (General) *No. of Passengers - 7.3 Million in 2010. (Berth Requirement) - 1 Int'l Container Berth - 5 Domestic Container Berths - 1 Domestic RO/RO Berth (Major Equipment Requirement) - 2 Panamax Gantry Cranes - 5 Domestic Gantry Cranes - 5 Transfer Cranes -15 Straddle Carriers (Amount of Investment)
	-Number-one port role accelerated. -Port rehabilitation and extension needed on a large scale. -Especially, large-scale reclamation needed to the utmost extent at South, MICT. -Land acquisition be speeded up at South and North Harbor (Including Smokey Mountain Reclamation Area) -Port access roads (Including port bridge) upgraded and/or newly constructed. -R-10 elevated expressway project completed and duly connected with port roads at North Harbor and MICT. -Environmental impact and urban traffic congestion be carefully taken into account.	-Number-one port role increased further. -Port rehabilitation and extension needed on a large scale. -Especially, large scale reclamation needed at South Harbor -Land acquisition be speeded up at South and North Harbor (Including Smokey Mountain Reclamation Area) -Port access roads (Including port bridge) upgraded and/or newly constructed. -R-10 elevated expressway project hopefully completed and connected with port roads at North and MICT. -Environmental impact and urban traffic congestion be carefully taken into account.	-Number-one port role increased -Port rehabilitation and extension needed to a great extent. -Reclamation needed at South Harbor. -Land acquisition be speeded up, especially at South Harbor. -Port access roads (including port bridge) upgraded and/or newly constructed. -Environmental impact and urban traffic congestion be taken into account.	-Number-one port role unchanged. -Role as port for int'l and domestic container and domestic RO/RO cargo, increased. -Port rehabilitation and extension needed, but not on a large scale. -Port access roads be upgraded -Environmental impact and urban traffic congestion be taken into account.
	-The most promising alternate int'l container port to Port of Manila in case that relocation of the naval base is possible. -However, little exact data on natural conditions gives rise to uncertainty about master plan. -Industrialization in hinterland rapidly progressing. -Growing demand for commercial port still remaining. -4.2 billion peso relocation cost will be new hurdles on road to port development.	(Cargo and Passenger Demand) *Cargo Volume -6.2 Million Tons in 2010 -6.2 Million Tons (Container) (Berth Requirement) - 3 Int'l Container Berths (Major Equipment Requirement) - 6 Panamax Gantry Cranes -15 Transfer Cranes (Amount of Investment) -15,825 Million Peso. (Including 4.2 billion peso relocation cost)	-Lots of unknown factors contained in the scenario. -Little exact data on natural conditions gives rise to uncertainty about master plan. -4.2 billion peso relocation cost remains as new hurdles on road to port development. -Cavite coastal expressway extended to Rosario. -Road investment to access S.Point on a large scale. -Great contribution to industrialization in hinterland.	-Conversion plan of S-Point into int'l commercial port definitely premature, due to very slow container cargo growth. -Little exact data on natural conditions gives rise to uncertainty about master plan. -4.2 billion peso relocation cost remains great difficulty to overcome. -Industrialization in hinterland slowly progressing.
	-Fishing activity and beach resort increased along coast. -Industrial and recreational development in hinterland rapidly progressing. -Growing demand for international commercial port in Cavite from the long-term point of view.	(Cargo and Passenger Demand) *Cargo Volume -6.2 Million Tons in 2010 -6.2 Million Tons (Container) (Berth Requirement) - 3 Int'l Container Berths (Major Equipment Requirement) - 6 Panamax Gantry Cranes -15 Transfer Cranes (Amount of Investment) -11,351 Million Peso	-New int'l commercial port complementing the role of MNL Port -Breakwater, dredging for channel and long port access roads, needed on a large scale, but relatively good natural conditions around the port site. -Relocation of coastal residents -Total cost comparison with MNL Port extension project be vital importance, taking into account shipper's transportation cost, vast road investment in hinterland etc.	-New int'l container port project premature, due to relatively slow growth of container cargo demand. -Fishing activity and beach resort increased along coast. -Industrial and recreational development steadily progressing.
	(Cargo and Passenger Demand) *Cargo Volume -7.3 Million Tons in 2010 -4.5 Million Tons (Container) *No. of Passengers -9.2 Million in 2010 (Berth Requirement) - 1 Int'l Container Berth - 1 Int'l Conventional Berth - 1 Domestic Container Berths - 1 Domestic RO/RO Berth (Major Equipment Requirement) - 2 Domestic Gantry Cranes - 6 Straddle Carriers (Amount of Investment) -2,336 Million Peso	(Cargo and Passenger Demand) *Cargo Volume -7.3 Million Tons in 2010 -4.5 Million Tons (Container) *No. of Passengers -9.2 Million in 2010 (Berth Requirement) - 1 Int'l Container Berth - 1 Int'l Conventional Berth - 1 Domestic Container Berths - 1 Domestic RO/RO Berth (Major Equipment Requirement) - 2 Domestic Gantry Cranes - 6 Straddle Carriers (Amount of Investment) -2,336 Million Peso	(Cargo and Passenger Demand) *Cargo Volume -4.7 Million Tons in 2010 -2.9 Million Tons (Container) *No. of Passengers -5.1 Million in 2010 (Berth Requirement) - 1 Domestic Container Berth (Major Equipment Requirement) - 1 Domestic Gantry Cranes - 3 Straddle Carriers (Amount of Investment) -1,037 Million Peso	(Cargo and Passenger Demand) *Cargo Volume - 2.8 Million Tons in 2010 - 1.8 Million Tons (Container) *No. of Passenger - 2.8 Million in 2010 (Berth Requirement) - 1 Domestic Container Berth (Major Equipment Requirement) - 1 Domestic Gantry Crane - 3 Straddle Carriers (Amount of Investment)
	-Role as base port in Southern Tagalong accelerated. -Additional port role for contributing to industrialization and containerization in Calabarzon, strengthened on condition that phase I project be completed. -Phase II project required.	-Role as base port in Southern Tagalong accelerated. -Additional port role for contributing to industrialization and containerization in Calabarzon, strengthened on condition that phase I project be completed. -Phase II project required.	-Role as base port in Southern Tagalog increased. -Additional port role for contributing to industrialization and containerization in Calabarzon has come up gradually on condition that phase I project be completed. -Phase II project desired.	-Role as base port in Southern Tagalog unchanged. -Growing demand for coping with industrialization and containerization in Calabarzon in accordance with the completion of phase I project.
	Berth Requirement: - 8 Int'l Container Berths - 1 Int'l conventional Berths -11 Domestic Container Berths - 4 Domestic RO/RO Berths -24 in total Major Equipment Requirement: - 14 Panamax Gantry Cranes	Berth Requirement: - 8 Int'l Container Berths - 1 Int'l Conventional Berths -11 Domestic Container Berths - 4 Domestic RO/RO Berths -24 in total Major Equipment Requirement: - 14 Panamax Gantry Cranes	Berth Requirement: - 3 Int'l Container Berths - 7 Domestic Container Berths - 2 Domestic RO/RO Berths -12 in total Major Equipment Requirement: - 6 Panamax Gantry Cranes - 7 Domestic Gantry Cranes	Berth Requirement: - 1 Int'l Container Berth - 6 Domestic Container Berths - 1 Domestic RO/RO Berths - 8 in total Major Equipment Requirement: - 2 Panamax Gantry Cranes - 6 Domestic Gantry Cranes

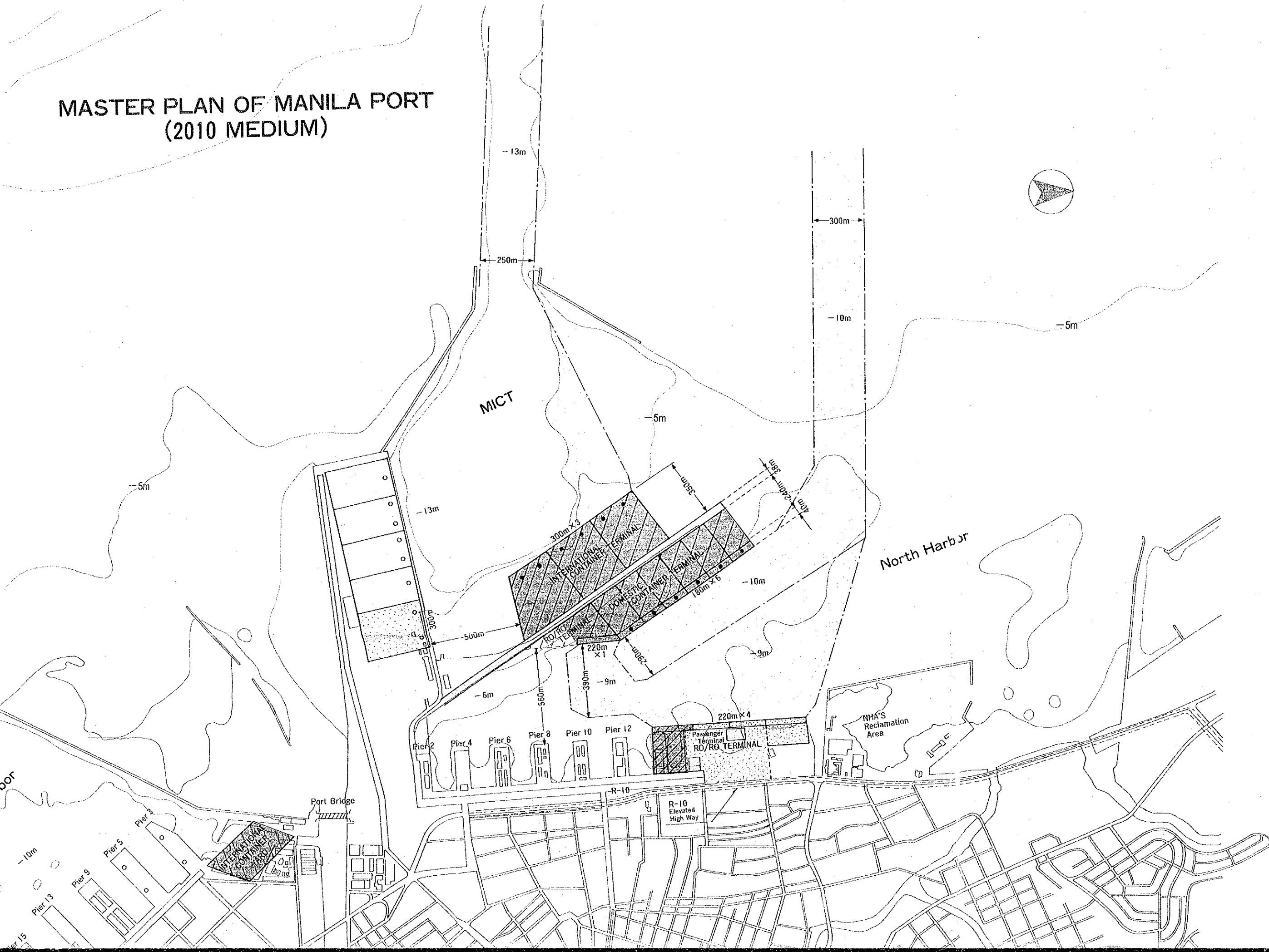
	<p>(Port Activity) * Cargo Volume -17.2 Million tons in 1991 -12.0 Million tons (Container) - 2.2 Million tons (General) * No. of Passengers -3,176 Thousand in 1991</p>	<p>Current consideration for port development is needed in order not to affect an impact on severe road traffic congestion within Metro Manila.</p>	<p>(Berth Requirement) - 7 Int'l Container Berths -10 Domestic Container Berths - 3 Domestic Ro/Ro Berths (Major Equipment Requirement) -14 Panamax Gantry Cranes -10 Domestic Gantry Cranes -35 Transfer Cranes -30 Straddle Carriers (Amount of Investment) -40,975 Million Peso</p>	<p>Land acquisition be speeded up at South and North Harbor (Including Smokey Mountain Reclamation Area) -Port access roads (Including port bridge) upgraded and/or newly constructed. -R-10 elevated expressway project completed and duly connected with port roads at North Harbor and MICT. -Environmental impact and urban traffic congestion be carefully taken into account.</p>	<p>(Berth Requirement) - 4 Int'l Container Berths - 10 Domestic Container Berths - 3 Domestic RO/RO Berths (Major Equipment Requirement) - 8 Panamax Gantry Cranes -10 Domestic Gantry Cranes -20 Transfer Cranes -30 Straddle Carriers (Amount of Investment) -30,854 Million Peso</p>	<p>Land acquisition be speeded up at South and North Harbor (Including Smokey Mountain Reclamation Area) -Port access roads (Including port bridge) upgraded and/or newly constructed. -R-10 elevated expressway project hopefully completed and connected with port roads at North and MICT. -Environmental impact and urban traffic congestion be carefully taken into account.</p>	<p>- 3 Int'l Container Berths - 6 Domestic Container Berths - 2 Domestic RO/RO Berths (Major Equipment Requirement) - 6 Panamax Gantry Cranes - 6 Domestic Gantry Cranes -15 Transfer Cranes -18 Straddle Carriers (Amount of Investment) -19,833 Million Peso</p>	<p>bridge) upgraded and/or newly constructed. -Environmental impact and urban traffic congestion be taken into account.</p>
SANGLEY POINT	<p>(Port Facility) Naval base existing, including port facilities (water depth of roughly 6m), short aircraft runway and shipyard.</p>	<p>-Advantageous location for complementary int'l commercial port to Manila Port (About 10km from Metro Manila, and nearest, to Carabazon Industrial area.) -Existing port facilities are usable, although rehabilitation /improvement of facilities needed for int'l container port. -Variou development options of aircraft runway, for future transport demand. -Poor road links to Hinterland. Moreover, road widening not possible due to narrow land corridor.</p>	<p>(Cargo and Passenger Demand) * Cargo Volume -6.2 Million Tons in 2010 -6.2 Million Tons (Container) (Berth Requirement) - 3 Int'l Container Berths (Major Equipment Requirement) - 6 Panamax Gantry Cranes -15 Transfer Cranes. (Amount of Investment) -15,825 Million Peso. (Including 4.2 billion peso relocation cost)</p>	<p>-The most promising alternate int'l container port to Port of Manila in case that relocation of the naval base is possible. -However, little exact data on natural conditions gives rise to uncertainty about master plan. -Industrialization in hinterland rapidly progressing. -Growing demand for commercial port still remaining. -4.2 billion peso relocation cost will be new hurdles on road to port development.</p>	<p>(Cargo and Passenger Demand) * Cargo Volume -6.2 Million Tons in 2010 -6.2 Million Tons (Container) (Berth Requirement) - 3 Int'l Container Berths (Major Equipment Requirement) - 6 Panamax Gantry Cranes -15 Transfer Cranes. (Amount of Investment) -15,825 Million Peso. (Including 4.2 billion peso relocation cost)</p>	<p>-Lots of unknown factors contained in the scenario. -Little exact data on natural conditions gives rise to uncertainty about master plan. -4.2 billion peso relocation cost remains as new hurdles on road to port development. -Cavite coastal expressway extended to Rosario. -Road investment to access S.Point on a large scale. -Great contribution to industrialization in hinterland.</p>	<p>-Conversion plan of S-Point into int'l commercial port premature, due to relatively slow growth of container cargo demand. -Little exact data on natural conditions gives rise to uncertainty about master plan. -4.2 billion peso relocation cost remains as great difficulty to overcome. -Industrialization in hinterland steadily progressing.</p>	
NAIC/CAVITE	<p>(Port Facility) Natural sand beach and shallow water area along Cavite/Naic coast but nearest to South Main Channel</p>	<p>-Changing tendency from agriculture to industrialization (EPZ) -Fishing activity and beach resort along coast. -Poor road links to Hinterland, but possible road widening, if invested. -Possible land acquisition because of very few residents along shoreline. -Vast investment for a new port construction from the beginning.</p>	<p>(Cargo and Passenger Demand) * Cargo Volume -6.2 Million Tons in 2010 -6.2 Million Tons (Container) (Berth Requirement) - 3 Int'l Container Berths (Major Equipment Requirement) - 6 Panamax Gantry Cranes -15 Transfer Cranes (Amount of Investment) -11,351 Million Peso</p>	<p>-Fishing activity and beach resort increased along coast. -Industrial and recreational development in hinterland rapidly progressing. -Growing demand for international commercial port in Cavite from the long-term point of view.</p>	<p>(Cargo and Passenger Demand) * Cargo Volume -6.2 Million Tons in 2010 -6.2 Million Tons (Container) (Berth Requirement) - 3 Int'l Container Berths (Major Equipment Requirement) - 6 Panamax Gantry Cranes -15 Transfer Cranes (Amount of Investment) -11,351 Million Peso</p>	<p>-New int'l commercial port complementing the role of MNL Port -Breakwater, dredging for channel and long port access roads, needed on a large scale, but relatively good natural conditions around the port site. -Relocation of coastal residents -Total cost comparison with MNL Port extension project be vital importance, taking into account shipper's transportation cost, vast road investment in hinterland etc.</p>	<p>-New int'l container port project premature, due to relatively slow growth of container cargo demand. -Fishing activity and beach resort increased along coast. -Industrial and recreational development steadily progressing.</p>	
BATANGAS	<p>(Port Facility) No. of Berths: 13 Lengths: 618m Depth: 3.5m to 11m In addition, plenty of private berths within Batangas Bay (3.5 to 11m in depth) (Port Activity) * Cargo Volume -1.0 Million Tons in 1991 * No. of Passengers -1,200 Thousand in 1991</p>	<p>-Base port in Southern Tagalog -Port extension near at hand (Phase I Project) -Integration of private ports within Batangas Bay -South Super Expressway expected to be extended to Batangas in near future. -Diversion road (Access road) almost completed. -Deep sea port feasible.</p>	<p>(Cargo and Passenger Demand) * Cargo Volume -7.3 Million Tons in 2010 -4.5 Million Tons (Container) * No. of Passengers -9.2 Million in 2010 (Berth Requirement) - 1 Int'l Container Berth - 1 Int'l Conventional Berth - 1 Domestic Container Berth - 1 Domestic RO/RO Berth (Major Equipment Requirement) - 2 Domestic Gantry Cranes - 6 Straddle Carriers (Amount of Investment) -2,336 Million Peso</p>	<p>-Role as base port in Southern Tagalog accelerated. -Additional port role for contributing to industrialization and containerization in Calabarzon, strengthened on condition that phase I project be completed. -Phase II project required.</p>	<p>(Cargo and Passenger Demand) * Cargo Volume -7.3 Million Tons in 2010 -4.5 Million Tons (Container) * No. of Passengers -9.2 Million in 2010 (Berth Requirement) - 1 Int'l Container Berth - 1 Int'l Conventional Berth - 1 Domestic Container Berth - 1 Domestic RO/RO Berth (Major Equipment Requirement) - 2 Domestic Gantry Cranes - 6 Straddle Carriers (Amount of Investment) -2,336 Million Peso</p>	<p>-Role as base port in Southern Tagalog accelerated. -Additional port role for contributing to industrialization and containerization in Calabarzon, strengthened on condition that phase I project be completed. -Phase II project required.</p>	<p>(Cargo and Passenger Demand) * Cargo Volume -4.7 Million Tons in 2010 -2.9 Million Tons (Container) * No. of Passengers -5.1 Million in 2010 (Berth Requirement) - 1 Domestic Container Berth (Major Equipment Requirement) - 1 Domestic Gantry Cranes - 3 Straddle Carriers (Amount of Investment) -1,037 Million Peso</p>	<p>-Role as base port in Southern Tagalog increased. -Additional port role for contributing to industrialization and containerization in Calabarzon has come up gradually on condition that phase I project be completed. -Phase II project desired.</p>
TOTAL BERTH AND EQUIPMENT REQUIREMENT, AND TOTAL AMOUNT OF INVESTMENT AT GCR PORTS	<p>(Port Facility) No. of Berths: 78 (Port Activity) * Cargo Volume -18.2 Million Tons in 1991 -12.0 Million Tons (Container) - 6.2 Million Tons (General) * No. of Passengers -4,376 Thousand in 1991</p>	<p>(Berth Requirement) - 8 Int'l Container Berths - 1 Int'l conventional Berths -11 Domestic Container Berths - 4 Domestic RO/RO Berths -24 in total Major Equipment Requirement: -14 Panamax Gantry Cranes -12 Domestic Gantry Cranes -35 Transfer Cranes -36 Straddle Carriers Amount of Investment: -43,311 Million peso</p>	<p>(Berth Requirement) - 8 Int'l Container Berths - 1 Int'l Conventional Berths -11 Domestic Container Berth - 4 Domestic RO/RO Berths -24 in total Major Equipment Requirement: -14 Panamax Gantry Cranes -12 Domestic Gantry Cranes -35 Transfer Cranes -36 Straddle Carriers Amount of Investment: -44,541 Million Peso (49,015 Million Peso in case of S.Point) Including vast road investment in hinterland and 4.2 billion peso relocation cost.</p>	<p>(Berth Requirement) - 8 Int'l Container Berths - 1 Int'l Conventional Berths -11 Domestic Container Berth - 4 Domestic RO/RO Berths -24 in total Major Equipment Requirement: -14 Panamax Gantry Cranes -12 Domestic Gantry Cranes -35 Transfer Cranes -36 Straddle Carriers Amount of Investment: -44,541 Million Peso (49,015 Million Peso in case of S.Point) Including vast road investment in hinterland and 4.2 billion peso relocation cost.</p>	<p>(Berth Requirement) - 3 Int'l Container Berths - 7 Domestic Container Berths - 2 Domestic RO/RO Berth -12 in total Major Equipment Requirement: - 6 Panamax Gantry Cranes - 7 Domestic Gantry Cranes -15 Transfer Cranes -21 Straddle Carriers Amount of Investment: - 20,870 Million Peso</p>	<p>-Urban highway network improved, but traffic congestion still remains. -South expressway extended to Batangas. -Rail-served Inland Container Depot Project hopefully completed.</p>		
PRESENT SITUATION IN GCR AND MAJOR PREMISES IN FUTURE	<p>-Growing need for port extension and improvement of cargo handling operation at Port of MNL. -Critical situation of road congestion within Metro Manila. -Industrialization and containerization are booming up in Calabarzon as well as Metro Manila. -Subic is open for public use, but S. Point remains as Naval Base. -Promising natural conditions data discovered at Naic/Cavite New Port</p>	<p>-Urban highway network thoroughly improved -South expressway extended to Batangas -Rail-served Inland Container Depot effectively utilized. -Conversion plan of S. Point into int'l commercial port still suspended, due to administrative difficulty to promote the project. -Land acquisition at MNL Port nicely accomplished.</p>	<p>-Road bottleneck within Metro MNL, thus transportation cost to/from MNL Port greater than that to/from new port in Cavite. -Rail-served Inland Container Depot Project less developed or suspended. -Difficulty in MNL port extension and improvement, due to unsuccessful land acquisition and technical difficulty in port construction. -Relocation problem at S.Point solved peacefully.</p>	<p>-Urban highway network improved, but traffic congestion still remains. -South expressway extended to Batangas. -Rail-served Inland Container Depot Project hopefully completed.</p>				

<p>Port in order on restion</p>	<p>-16.9 Million in 2010 (Berth Requirement) - 7 Int'l Container Berths -10 Domestic Container Berths - 3 Domestic RO/RO Berths (Major Equipment Requirement) -14 Panamax Gantry Cranes -10 Domestic Gantry Cranes -35 Transfer Cranes -30 Straddle Carriers (Amount of Investment) -40,975 Million Peso</p>	<p>MICT. -Land acquisition be speeded up at South and North Harbor (Including Smokey Mountain Reclamation Area) -Port access roads (Including port bridge) upgraded and/or newly constructed. -R-10 elevated expressway project completed and duly connected with port roads at North Harbor and MICT. -Environmental impact and urban traffic congestion be carefully taken into account.</p>	<p>(Berth Requirement) - 4 Int'l Container Berths -10 Domestic Container Berths - 3 Domestic RO/RO Berths (Major Equipment Requirement) - 8 Panamax Gantry Cranes -10 Domestic Gantry Cranes -20 Transfer Cranes -30 Straddle Carriers (Amount of Investment) -30,854 Million Peso</p>	<p>Harbor) -Land acquisition be speeded up at South and North Harbor (Including Smokey Mountain Reclamation Area) -Port access roads (Including port bridge) upgraded and/or newly constructed. -R-10 elevated expressway project hopefully completed and connected with port roads at North and MICT. -Environmental impact and urban traffic congestion be carefully taken into account.</p>	<p>(Berth Requirement) - 3 Int'l Container Berths - 6 Domestic Container Berths - 2 Domestic RO/RO Berths (Major Equipment Requirement) - 6 Panamax Gantry Cranes - 6 Domestic Gantry Cranes -15 Transfer Cranes -18 Straddle Carriers (Amount of Investment) -19,833 Million Peso</p>	<p>bridge)upgraded and/or newly constructed. -Environmental impact and urban traffic congestion be taken into account.</p>	<p>- 1 Int'l Container Berth - 5 Domestic Container Berths - 1 Domestic RO/RO Berth (Major Equipment Requirement) - 2 Panamax Gantry Cranes - 5 Domestic Gantry Cranes - 5 Transfer Cranes -15 Straddle Carriers (Amount of Investment)</p>	<p>Environmental impact and urban traffic congestion be taken into account.</p>
<p>for commercial about ita, and industrial</p>	<p>-The most promising alternate int'l container port to Port of Manila in case that relocation of the naval base is possible. -However, little exact data on natural conditions gives rise to uncertainty about master plan. -Industrialization in hinterland rapidly progressing. -Growing demand for commercial port still remaining. -4.2 billion peso relocation cost will be new hurdles on road to port development.</p>	<p>(Cargo and Passenger Demand) *Cargo Volume -6.2 Million Tons in 2010 -6.2 Million Tons (Container) (Berth Requirement) - 3 Int'l Container Berths (Major Equipment Requirement) - 6 Panamax Gantry Cranes -15 Transfer Cranes -15,825 Million Peso. (Including 4.2 billion peso relocation cost)</p>	<p>-Lots of unknown factors contained in the scenario. -Little exact data on natural conditions gives rise to uncertainty about master plan. -4.2 billion peso relocation cost remains as new hurdles on road to port development. -Cavite coastal expressway extended to Rosario. -Road investment to access S.Point on a large scale. -Great contribution to industrialization in hinterland.</p>		<p>-Conversion plan of S-Point into int'l commercial port premature, due to relatively slow growth of container cargo demand. -Little exact data on natural conditions gives rise to uncertainty about master plan. -4.2 billion peso relocation cost remains as great difficulty to overcome. -Industrialization in hinterland steadily progressing.</p>		<p>-Conversion plan of S-Point into int'l commercial port definitely premature, due to very slow container cargo growth. -Little exact data on natural conditions gives rise to uncertainty about master plan. -4.2 billion peso relocation cost remains great difficulty to overcome. -Industrialization in hinterland slowly progressing.</p>	
<p>are ilitiation int'l</p>	<p>-Fishing activity and beach resort increased along coast. -Industrial and recreational development in hinterland rapidly progressing. -Growing demand for international commercial port in Cavite from the long-term point of view.</p>	<p>(Cargo and Passenger Demand) *Cargo Volume -6.2 Million Tons in 2010 -6.2 Million Tons (Container) (Berth Requirement) - 3 Int'l Container Berths (Major Equipment Requirement) - 6 Panamax Gantry Cranes -15 Transfer Cranes -11,351 Million Peso</p>	<p>-New int'l commercial port complementing the role of MNL Port -Breakwater,dredging for channel and long port access roads, needed on a large scale, but relatively good natural conditions around the port site. -Relocation of coastal residents -Total cost comparison with MNL Port extension project be vital importance, taking into account shipper's transportation cost, vast road investment in hinterland etc.</p>		<p>-New int'l container port project premature, due to relatively slow growth of container cargo demand. -Fishing activity and beach resort increased along coast. -Industrial and recreational development steadily progressing.</p>		<p>-Fishing activity and beach resort along coast. -Industrial and recreational development progressing.</p>	
<p>m alization beach</p>	<p>-Role as base port in Southern Tagalog accelerated. -Additional port role for contributing to industrialization and containerization in Calabarzon, strengthened on condition that phase I project be completed. -Phase II project required.</p>	<p>(Cargo and Passenger Demand) *Cargo Volume -7.3 Million Tons in 2010 -4.5 Million Tons (Container) *No. of Passengers -9.2 Million in 2010 (Berth Requirement) - 1 Int'l Container Berth - 1 Int'l Conventional Berth - 1 Domestic Container Berths - 1 Domestic RO/RO Berth (Major Equipment Requirement) - 2 Domestic Gantry Cranes - 6 Straddle Carriers (Amount of Investment) -2,336 Million Peso</p>	<p>-Role as base port in Southern Tagalog accelerated. -Additional port role for contributing to industrialization and containerization in Calabarzon, strengthened on condition that phase I project be completed. -Phase II project required.</p>	<p>(Cargo and Passenger Demand) *Cargo Volume -4.7 Million Tons in 2010 -2.9 Million Tons (Container) *No. of Passengers -5.1 Million in 2010 (Berth Requirement) -1 Domestic Container Berth (Major Equipment Requirement) -1 Domestic Gantry Cranes -3 Straddle Carriers (Amount of Investment) -1,037 Million Peso</p>	<p>-Role as base port in Southern Tagalog increased. -Additional port role for contributing to industrialization and containerization in Calabarzon has come up gradually on condition that phase I project be completed. -Phase II project desired.</p>	<p>(Cargo and Passenger Demand) *Cargo Volume - 2.8 Million Tons in 2010 - 1.8 Million Tons (Container) *No. of Passenger - 2.8 Million in 2010 (Berth Requirement) - 1 Domestic Container Berth (Major Equipment Requirement) - 1 Domestic Gantry Crane - 3 Straddle Carriers (Amount of Investment)</p>	<p>-Role as base port in Southern Tagalog unchanged. -Growing demand for coping with industrialization and containerization in Calabarzon in accordance with the completion of phase I project.</p>	
<p>Tagalog and</p>	<p>Berth Requirement: - 8 Int'l Container Berths - 1 Int'l conventional Berths -11 Domestic Container Berths - 4 Domestic RO/RO Berths -24 in total Major Equipment Requirement: -14 Panamax Gantry Cranes -12 Domestic Gantry Cranes -35 Transfer Cranes -36 Straddle Carriers Amount of Investment: -43,311 Million peso</p>	<p>Berth Requirement - 8 Int'l Container Berths - 1 Int'l Conventional Berths -11 Domestic Container Berth - 4 Domestic RO/RO Berths -24 in total Major Equipment Requirement -14 Panamax Gantry Cranes -12 Domestic Gantry Cranes -35 Transfer Cranes -36 Straddle Carriers Amount of Investment -44,541 Million Peso (49,015 Million Peso in case of S.Point) Including vast road investment in hinterland and 4.2 billion peso relocation cost.</p>		<p>Berth Requirement: - 3 Int'l Container Berths - 7 Domestic Container Berths - 2 Domestic RO/RO Berths -12 in total Major Equipment Requirement: - 6 Panamax Gantry Cranes - 7 Domestic Gantry Cranes -15 Transfer Cranes -21 Straddle Carriers Amount of Investment: - 20,870 Million Peso</p>		<p>Berth Requirement: - 1 Int'l Container Berth - 6 Domestic Container Berths - 1 Domestic RO/RO Berths - 8 in total Major Equipment Requirement: - 2 Panamax Gantry Cranes - 6 Domestic Gantry Cranes - 5 Transfer Cranes -18 Straddle Carriers (Amount of Investment)</p>		
<p>to handling Calabarzon</p>	<p>-Urban highway network thoroughly improved -South expressway extended to Batangas -Rail-served Inland Container Depot effectively utilized. -Conversion plan of S. Point into int'l commercial port still suspended, due to administrative difficulty to promote the project. -Land acquisition at MNL Port nicely accomplished.</p>	<p>-Road bottleneck within Metro MNL, thus transportation cost to/from MNL Port greater than that to/from new port in Cavite. -Rail-served Inland Container Depot Project less developed or suspended. -Difficulty in MNL port extension and improvement, due to unsuccessful land acquisition and technical difficulty in port construction. -Relocation problem at S.Point solved peacefully.</p>		<p>-Urban highway network improved, but traffic congestion still remains. -South expressway extended to Batangas. -Rail-served Inland Container Depot Project hopefully completed.</p>		<p>-Urban highway network improved, but traffic congestion still remains. -South expressway extended to Batangas. -Rail-served Inland Container Depot Project expected to be completed.</p>		





MASTER PLAN OF MANILA PORT (2010 MEDIUM)



MASTER PLAN OF MANILA PORT (2010 MEDIUM)










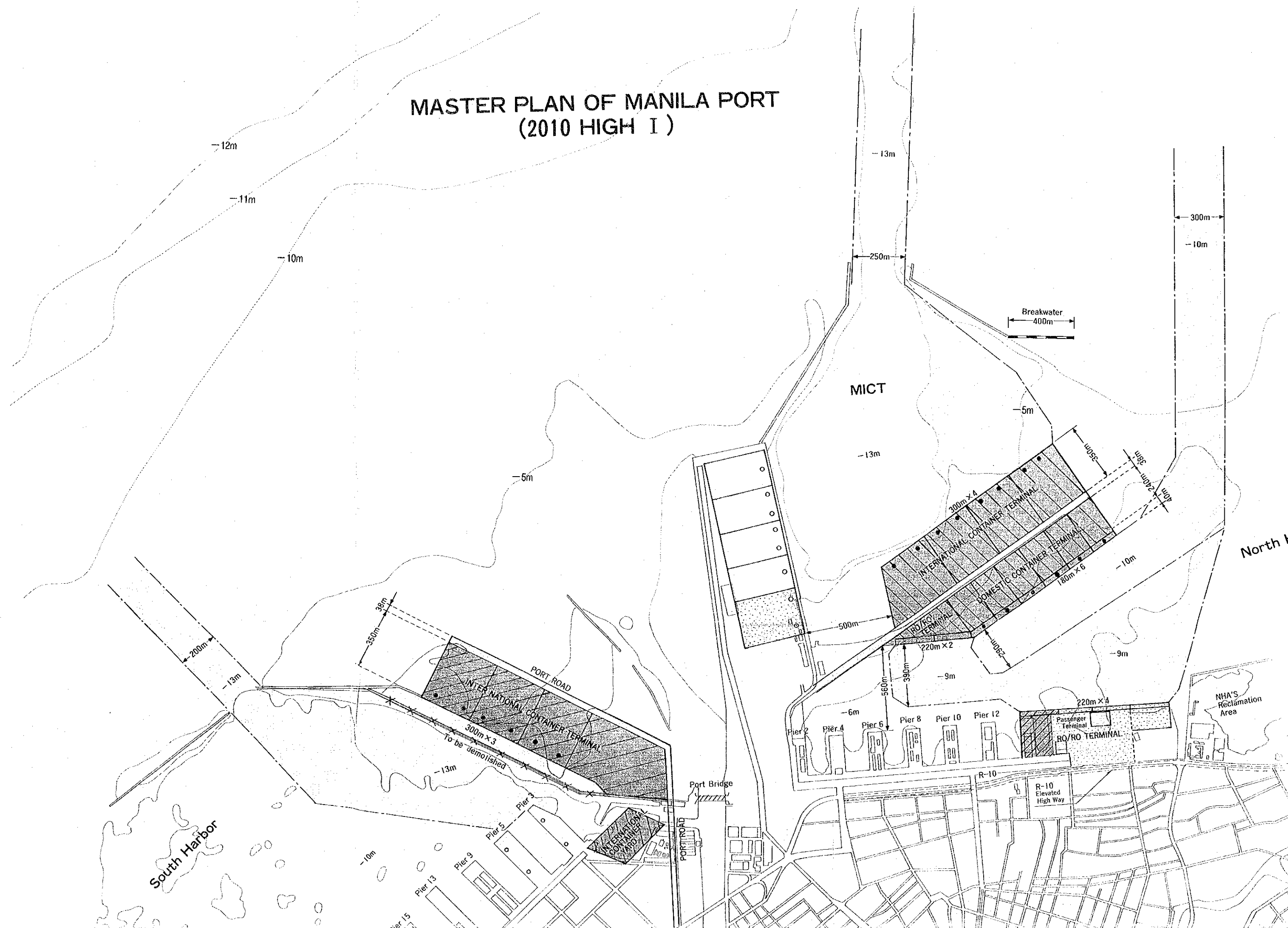
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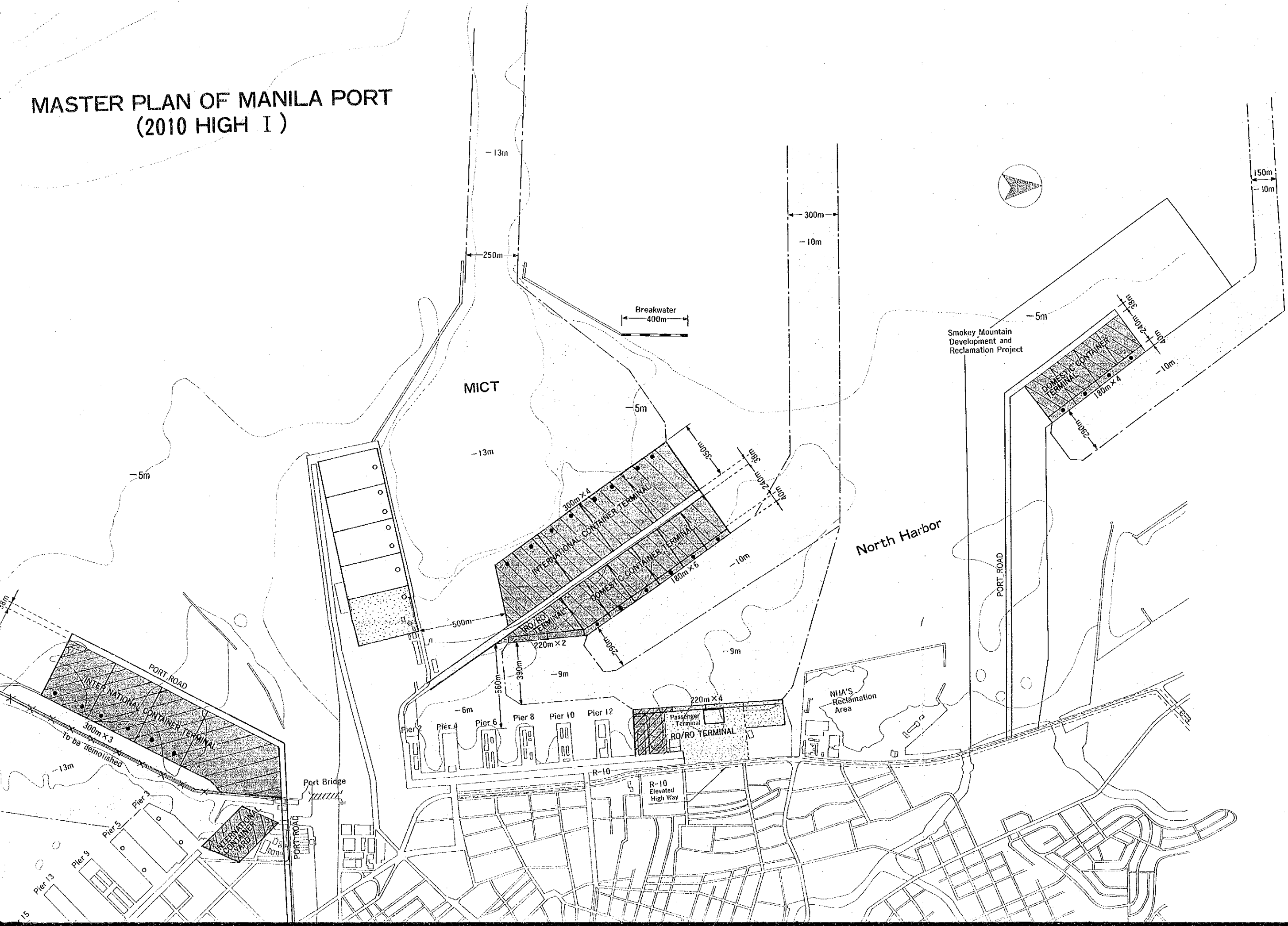
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			On-going Project





MASTER PLAN OF MANILA PORT (2010 HIGH I)

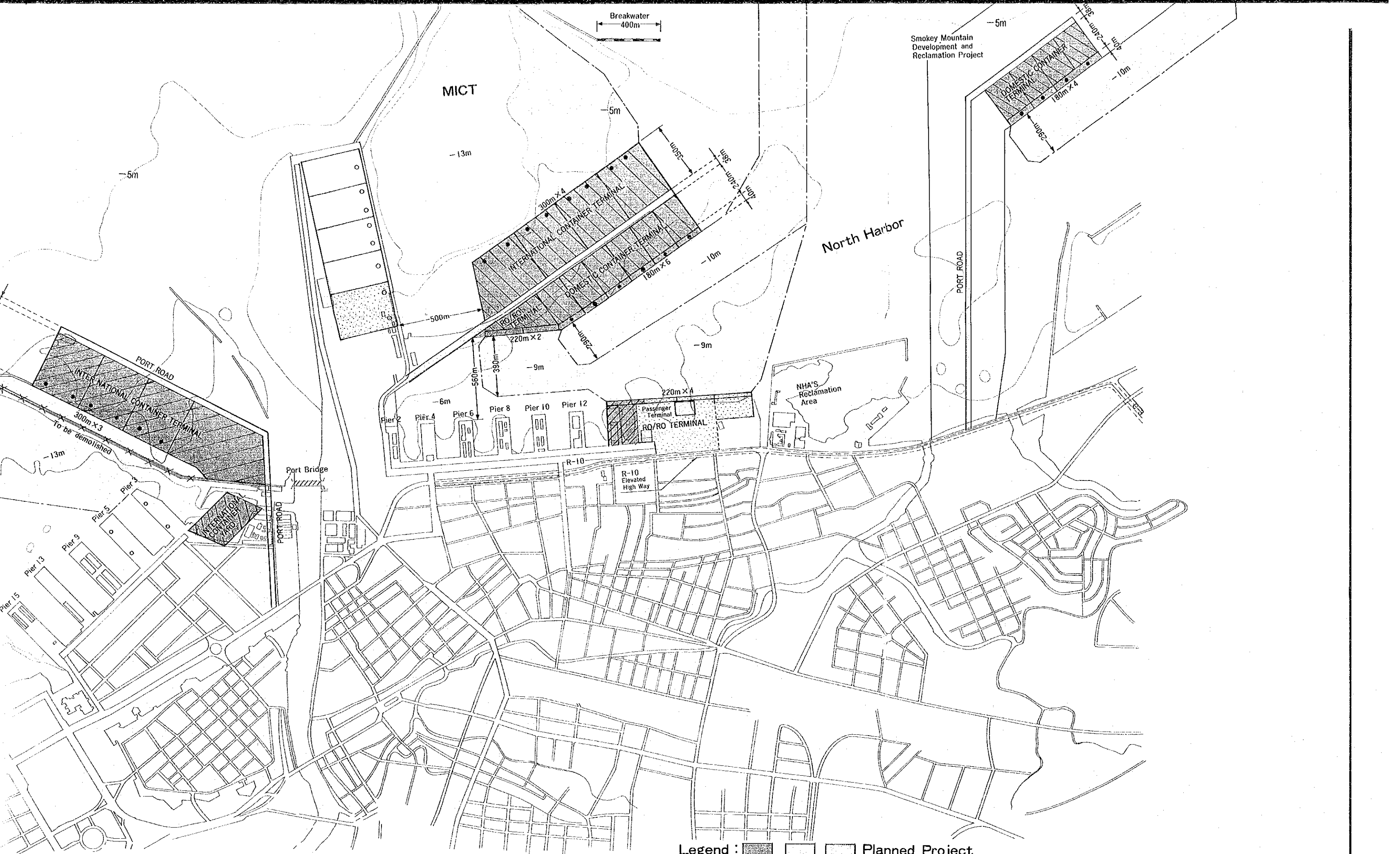


MASTER PLAN OF MANILA PORT (2010 HIGH I)





Legend :    P
 On-going Pro



Legend :

- Planned Project
- On-going Project

JICA