

PORT DEVELOPMENT PLANNING IN THE ECONOMIC KEY AREA IN THE MIDDLE OF VIETNAM

Nguyen Huu Dau
 Doctor
 Vice Director
 Research Institute for Transportation
 Science and Technology
 1252 - Lang Street, Dong Da, Ha Noi,
 Viet Nam
 Tel : (84-4) 8349682
 E-mail : net.daunh@fpt.vn

abstract : In the paper the studies on the port development plan in the key area of the central region of Viet Nam are presented. The ports are Lien Chieu, Chan May and Dung Quat. The studied are implemented by Japan International Cooperation Agency (JICA) and Ministry of Transport (MOT) Viet Nam in few last years. The paper is included information following of the study area : Economic condition, hinterland domestic and foreign areas ... For each study port are presented stage development plans, economic and finance analysis.... Brief discussion of paper author is also presented on the studies.

1 - INTRODUCTION

The key area in the middle of Vietnam included 6 following provinces : Quang Tri, Thua Thien Hue, Da Nang, Quang Nam, Kon Tum, Quang Ngai. The provinces have the population of 5 millions (approximately 7% of national average). Average GDP per capita of the Region is 231 USD (approximately 74% of national average). The economic development of the Region is vital for the nationwide development. In the key area Vietnamese have planing to develop three main ports following :

- Chan May
- Lien Chieu
- Dung Quat

In the Government's eco-development planning for the Region there are important projects following :

1. East West Transport Corridor for Asian and Asean's Highway Network
2. Dung Quat Oil Refinery Plant N^o1.
3. South - North Highway N^o1 and Truong Son Highway
4. Haivan Tunnel
5. Major Ports : Chan May, Tien Sa, Lien Chieu, Dung Quat
6. Industrial Zones

Port Development Strategy for the Three Key Sites

1. Harmonized Development with Local Environment
2. Full Utilization of "Late Comer" Position of the Region
3. Strict Check for Duplication of Port Function and Facilities
4. Timely Commencement of Port Construction Works
5. Minimum Scale of Intial Stage Development
6. Authorization of Port Master Plans
7. Diversification of Port Development Funds

Functional Allotment of Ports in the Areas

1. Chan May Area
Future Multi-Functional Port with Limited Local Port Facilities at the Initial Stage.
2. Da Nang Area
Commercial Port with International Standard Container Terminals.
3. Dung Quat Area
Industrial Port mainly for Planned Oil Refinery.

2 - SOCIO - ECONOMIC CONDITIONS :

2.1 - Location :

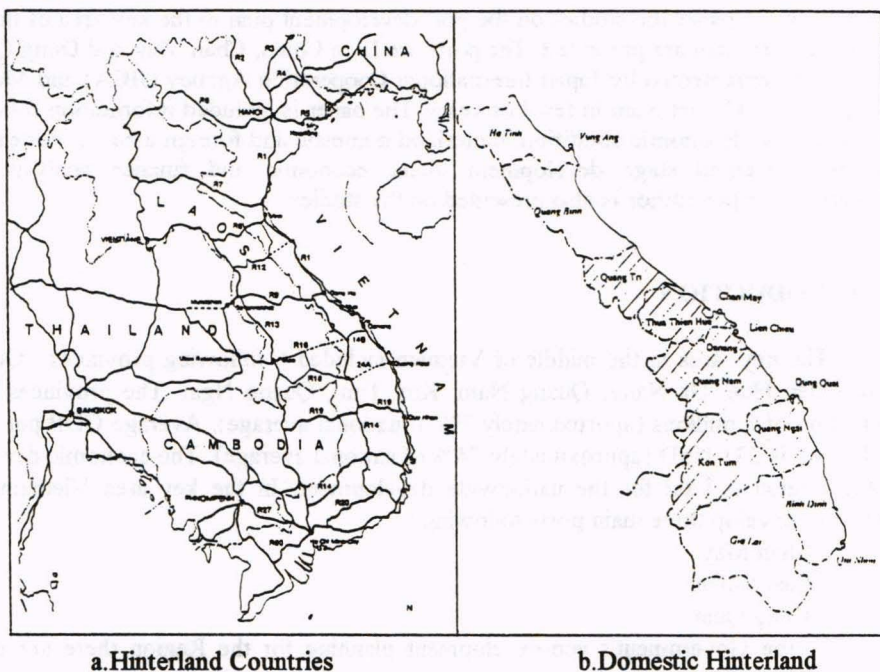


Figure 1. Location of Industrial Areas

2.2 - Population and economics :

Table 1. Population in Central region

Province	Unit : Thous. per				
	1990	1991	1992	1993	Est.1994
North central coast	8,842.4	9,067.9	9,306.3	9,505.0	9,726.6
Thanh Hoa	3,699.8	3,160.1	3,243.8	3,312.0	3,381.7
Nghe An		2,561.8	2,620.9	3,312.0	3,381.7
Ha Tinh		1,234.9	1,265.8	1,280.5	1,308.3
Quang Binh	697.7	698.2	718.0	738.3	762.3
Quang Tri	478.8	492.0	507.4	521.7	535.0
Thua Thien - Hue	903.0	920.9	950.4	972.6	995.4

South central coast	6,846.1	7,016.5	7,199.8	7,379.5	7,557.6
Quang Nam - Da Nang	1,793.4	1,835.7	1,873.5	1,914.9	1,952.7
Quang Ngai	1,072.0	1,094.4	1,122.5	1,150.6	1,178.8
Binh Dinh	1,269.7	1,303.7	1,339.6	1,373.8	1,407.0
Phu Yen	663.3	673.3	691.7	708.9	730.6
Khanh Hoa	844.7	873.8	901.2	923.8	947.0
Ninh Thuan			436.8	449.0	459.3
Binh Thuan			834.5	858.5	882.2

Note : Quang Nam - Da Nang divided to Quang Nam and Da Nang from 1996 and having the population : Quang Nam 1,4 million and Da Nang 0,67 million (1995)

Table 2. GDP and GDP per Capita in 1994

Area	GDP (Million USD)	GDP per Capita (USD)
Whole Country	21,021.0	288.0
Thua Thien - Hue	253.0	252.2
Quang Ngai	176.2	148.8
Quang Nam - Da Nang	488.2	246.1

Source : Port Traffic Demand Survey For Master Plan Study on Coastal Shipping Rehabilitation and Development Project in Vietnam (JICA-TEST)

2.3 - Domestic hinterland

In the area there are following plans to develop industrial base (refer to figure 2 The map of Industrial zones in the study area):

Table 3. Industrial Development plan of the Study Area

Province	Name of IE, EPZ and FTZ	Land Area			Number of Companies	Number of Employees (Person)	Industrial Output (Mil.USD)
		Cross (ha)	Net (ha)	(%)			
Thua Thien	Chan May Port FTZ	1,200	200	75	87	17,400	3,000
Hue	Phu Bai Airport	400	300	75	150	25,00	5,00
	Industrial Complex						
	Van Xa IE	200	150	75	60	7,600	1,900
Quang Nam	Da Nang EPZ	63	47	75	25	6,00	1,800
Da Nang	Lien Chieu - Hoa	800	600	75	170	40,00	7,000
	Khanh IE						
	Dien Nam - Dien	418	314	75	180	30,000	2,300
	Ngoc IE						
Quang Ngai	Dung Quat Port IE	1,800	735	41	29	9,700	15,000
	Tinh Phong IE	200	140	70	40	6,000	580
	Quang Ngai	100	75	75	20	3,600	970
	Town IE						
	Pho Phong IE	300	180	60	60	12,00	3,50

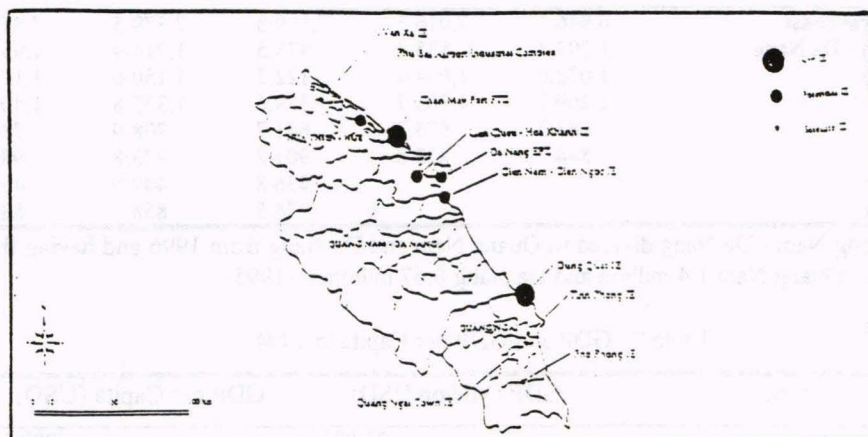


Figure 2. The map of industrial zones in the study areas

2.4 - Hinterland countries

2.4.1 - Laos

Table 4. Economic activities of Laos

	LAOS		South Region of Laos	
Area (1995)*1	236,800	sp.km	65,865	sp.km (28%)
Road	18,363	km		
Tarred road	2,446			
Graveled road	5,138			
Earthen road	10,779			
Population (Year 1995)*2	4,581,258		1,580,143	(34.5%)
P. Savannakhet			671,581	
P. Champasack			500,994	
P. Saravane			256,550	
P. Attapeu			87,182	
P. Sekong			63,836	
GDP (1990 constant)*1				
Year 1994	780,657	Mill.Kip	n.a	
Year 1995	835,519	Mill.Kip		
GDP per Capita (1990 constant)*e			n.a	
Year 1994	170,000	Kip(240USD)		
Year 1995	182,000	Kip(256USD)		
	1 USD=	708.6 Kip		

2.4.2 - Thailand

Table 5. Economic activities of Thailand

	Thailand		Northeast Region	
Area (1995)*1	513,115	sp.km	168,854	sp.km (33%)
Highway (1994)*1 incl. Gravel road	50,155	km	14,906	km (30%)
Population				
Year 1990*2	56,303,273		19,828,941	(35,2%)
Year 1994*2	59,095,419		20,542,381	(34,8%)
Year 1995*5 & *2	59,401,000		20,663,191	(34,8%)

GDP (1988 constant)	(Billion Baht)	(Billion baht)
Year 1990*2	1,953	226 (11.6%)
Year 1994 *2	2,688	294 (10,9%)
Year 1995 *5	2,921	319 (10,9%)
GDP per Capita (1988 constant)	(Baht)	(Baht)
Year 1990	34,700	11,400
Year 1994	45,500	14,300
Year 1995	49,200	15,400

Source : *1 - Statistical Yearbook Thailand, Number 42, 1995 - National Statistical Office

2.5 - Demand Forecast

2.5.1 - Macro Forecast

Cargo throughput forecast of the study hinterland by macro forecast method is as follows. It is assumed to be three scenarios by difference of economic growth speed.

Table 6.

Scenario	Unit : Ton	
	2010	2020
I	7,496,000	20,194,000
II	5,654,000	15,624,000
III	4,961,000	10,314,000

2.5.2 - Micro Forecast (Commodity - wise Forecast)

Commodity-wise forecast (micro forecast) of dry cargo in 2010 and in 2020 of the port for cargo handling located in the study hinterland is summarized as follows.

Table 7

Province	Port	Unit : Ton	
		2010	2020
Quang Tri	Cua Viet Port	70,700	93,000
Thua Thien Hue	Chan May Port*	1,983,800	3,945,700
	Thuan An Port	80,000	90,000
Da Nang City	Danang Port and Lien		
	Chieu Port*	5,173,300	8,638,400
Quang Ngai	Dung Quat Port*	750,00	6,077,000
	Sa Ky Port	42,000	92,000
	(Total)	8,099,800	18,936,100

2.5.3 - International Transit Cargo

In order to realize the shift from the current trade route via Bangkok port to Vietnamese ports, certain preconditions must be met as follows :

1. Transit cargo can enjoy quick clearance without duty at the border.
2. Transport activities can be performed freely in Thailand, Laos and Vietnam.

3. Road conditions in Laos and Vietnam must be improved through paving and increasing lane width.
 4. The service level of Vietnamese ports in terms of cost, security and vessel allocation must be equal to that of Bangkok port.
- Forecast result based on above precondition are as follows.

Table 8.

Route No.	Unit : Ton	
	2010	2020
R-9	3384,000	647,000
R-16/18	351,000	823,000
(Total)	735,000	1,470,00

2.5.4 - Cargo Throughput in ISP and Master Plan

Total cargo throughput including international transit cargo of the three ports is summarized as follows. In the ISP, liquid cargo accounts for 23.0% of the total cargo handled at Chan May, 11.6% of that at Lien Chieu and 94.0% of that at Dung Quat. In the masterplan, these figures become 26.0%, 9.6% and 79.8% respectively.

Table 9. Cargo Throughput in ISP

Port	Unit : Ton				Total
	Foreign		Domestic		
	Export	Import	Loading	Unloading	
Chan May	890,000	1,067,000	465,000	233,000	2,655,000
Lien Chieu	647,000	2,334,000	710,000	91,000	3,782,000
Dung Quat	10,000	2,636,000	6,250,000	4,400,000	13,296,000

Note : Inclusive of liquid cargo

Table 10. Cargo Throughput in Masterplan

Port	Unit : Ton				Total
	Foreign		Domestic		
	Export	Import	Loading	Unloading	
Chan May	2,201,000	2,191,000	470,000	588,000	5,450,000
Lien Chieu	1,767,000	4,758,000	1,193,000	768,000	8,486,000
Dung Quat	302,000	8,483,000	13,388,000	8,339,000	30,572,000

Note : Inclusive of liquid cargo

3. THE JICA'S STUDY

In the few last years Japan International Cooperation Agency (JICA) and Ministry of Transport (MOT), Viet Nam had implemented : "The Study on the port development plan in the key area of the central region :Lien Chieu-Chan May-Dung Quat". The Study was covered by ODA of Japan. The brief informations of the study are presented as following:

3.1 - Lien Chieu Port

Table 11. Preliminary Cost Estimate of MASTER PLAN

Lien Chieu		Estimated Cost as of March '97			
Facilities	Type of Structure	Depth	Quantity	Estimated Cost USD million	Remarks
North Breakwater/Seawall	Caisson	-10.0 m	1,420 m	56	
Revetment	Caisson	-10.0 m	350 m	14	
Quaywall	Caisson	-13.0 m	660m+80m	49	
Quaywall	Caisson	-9.0 m	320m +80m	17	
Quaywall	Caisson	-8.0	300m +50m	16	
Quaywall	Caisson	-5.5 m	300m +30m	12	
Revetment	Concreteblock	-4.0 m	1,250 m	6	
Oil Pier	pile	-7.5 m	150m +120m	6	
South Breakwater	Caisson	-7.0 m	240m +1,010m	20	
Revetment	Caisson	-7.0 m	300m	10	
Quaywall	Caisson	-8.0 m	300m +50m	15	
Quaywall	Caisson	-5.5 m	300m +30m	12	
Revetment	Rubble mound	-1.0 m	640m	2	
Landfill			12,554,000 m ³	50	
Access Road			2,510 m	4	
Paving			1,262,000 m ²	44	
Dredging			10,800,000 m ³	54	
Surface Drainage	1,169,000 m ²			13	
Total (1)				399	
Cargo Handling Equipment	Container 3No. Transfer Crane 9No Yard Trailer 18No Yard Truck 2No Yard Trailer 18 No		I Sum	28	
Building & Water Supply	CFS(27mx150m)IBldg GATE(15mx15m)IBldg and Other		I Sum	22	
Laoding Arm & Pile Line	Laoding Arm (8")4No Pile Line (8") L-440 m		I Sum	2	
Total (2)				52	
Contingency	15% of Total (1) +5% of Total (2)			62	
Engineering Service	5% of (Total (1) + Total(2) + Contingencv)			538	

Table 12. Initial Stage Development Plant (Lien Chieu)

Port Facilities	Quantity
Alongside Berths	
- 13 m berth	330m
- 9 m berth	320m
Oil Jetty	2 berth
Breakwaters	
Main Breakwater	1,170 m
Second Breakwater	540 m
Groin	460m

Note 1/ To be used with a depth of minus 9 meters and be deepened to minus 13 meters at

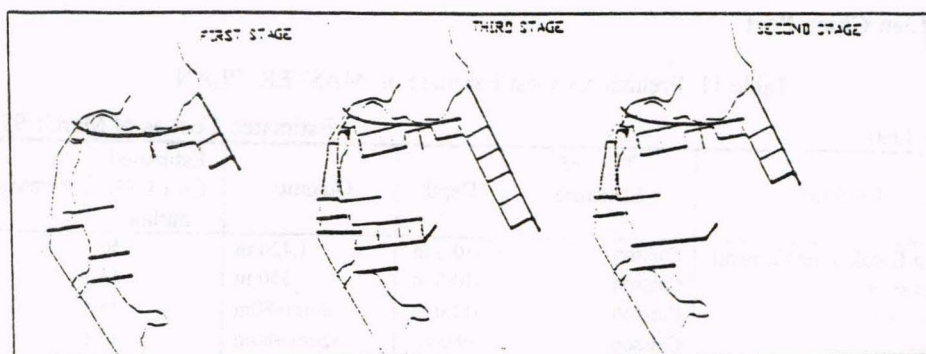


Figure 3. Stage Plan of Port Development

3.2 - Dung Quat Port

Table 13. Preliminary Cost Estimate of MASTER PLAN

Dung Quat		Estimated Cost as of March '97			
Facilities	Type of Structure	Depth	Quantity	Estimated Cost USD million	Remarks
North Breakwater	Caisson	-15.5~-8.0m	1500 m	133	
Oil Berth	Dolphin (pile)	-13.0 m	660 m	20	
Oil Pier	Pile	-8.0 m	405m + 120m	24	
Quaywall	caisson	-8.0 m	600m + 100m	32	
Revetment	Concreteblock	-4.0 m	400 m	2	
South Breakwater/Seawall	Caisson	-10.5~-5.0m	1610 m	51	
	Rubble mound	-1.0 m	550 m	1	
Revetment	Caisson	-9.5 m	350 m	13	
Quaywall	Caisson	-13.0 m	600m + 30m	42	
Quaywall	Caisson	-8.0 m	300 m	14	
Quaywall	Caisson	-5.5 m	300 m	11	
Revetment	Concreteblock	-3 ~ -1.0 m	550 m	2	
Landfill			7,334,000 m ³	29	
Access Road			2,900 m	5	
Paving			966,000 m ²	34	
Dredging			5,646,000 m ³	28	
Surface Drainage	966,00 m ²	Sum	1	5	
Total (1)				446	
Loading Arm & Pile Line	Loading Arm (12") 6No. (6") 2No. (8") 8No. Pile Line (12") L=2,100m (6") L=2,100m (8") L=1,750 m 40m x 50m x 3m	Sum	1	13	
Oil Treatment Pond		Sum	1	1	
Total (2)				14	
Contingency	15% of Total(1) + 5% of Total(2)			68	
Engineering Service	5% of Total(1) + Total(2) + Contingency			26	
Grand Total				554	

Table 14. Initial Stage Development Plant (Dung Quat)

Port Facilities	Quantity
Alongside Berths	
-8m berth	450 m
Oil Jetty Berth	4 berth
Brerthwaters	
Main Breakwater	600 m

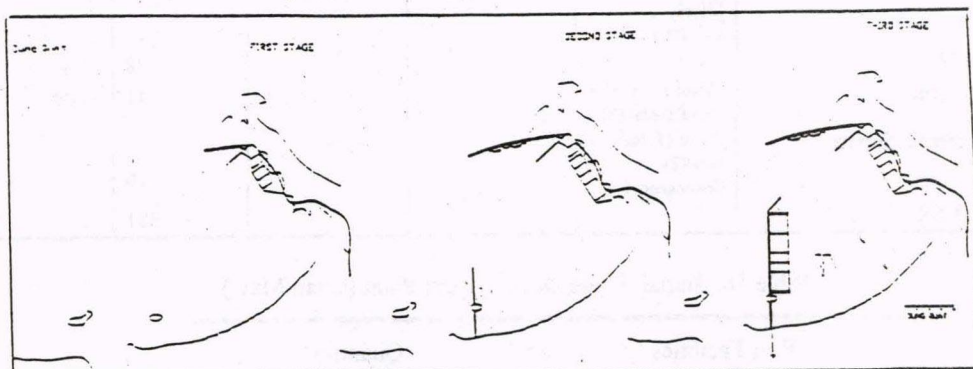


Figure 4. Stage Plan of Port Development

3.3 - Chan May Port

Table 15. Preliminary Cost Estimate of MASTER PLAN

Chan May		Estimated Cost as of March '97			
Facilities	Type of Structure	Depth	Quantity	Estimated Cost USD million	Remarks
North Breakwater/Seawall	Caisson	-13.0 m			
	Caisson	-13.0 ~ -10.0 m	1,360 m	96	
Quaywall	Caisson	-13.0 m	300m + 60m	23	
Quaywall	Caisson	-8.0 m	300 m	14	
Quaywall	Caisson	-5.5 m	210 m	8	
Revetment	Concrete block	-4.0 m	120 m	1	
Revetment	Concrete block	-3.0 m	370 m	2	
Revetment	Rubble mound	-1.0 ~ +1.0 m	390m + 225 m	1	
Oil Pier	Steel pipe Pile	-9.0 m	230m + 60m	16	
Approach Part of Pier	Rubble mound	-4.0 ~ -2.0 m	680m + 440m	15	
Revetment	Rubble mound	0.0 ~ +1.0 m	1,210 m	3	
Groin	Rubble mound	-7.0 ~ -1.5 m	720 m	13	
Land fill			3,809,000 m ³	15	
Access Road			3,000 m	5	
Paving			467,000 m ²	16	
Dredging			2,833,000 m ³	14	
Surface Drainage	467,000 m ²		1 Sum	4	
Total (1)				247	

Cargo Handling Equipment	Forklift 2No. Chassis 3No. Trailer 3No.		1 Sum	2
Belt Conveyor	800t/hr L = 1,850 m		1 Sum	2
Loading Arm & Pipeline	Loading Arm (8") 4No. Pipe Line (8") L = 2,010m		1 Sum	38
Building & Water Supply	CFS (27mx150m) IBldg GATE(15mx15m) IBI gd and Other		1 Sum	4
Total (2)				78
Contingency	15%of Total (1) + 5% of Toatal (2)			41
Engineering Service	5% of (Total(1) + Total(2) + Contingency)			16
Grand Total				381

Table 16. Initial Stage Development Plant (Chan May)

Port Facilities	Quantity
Alongside Berths	
-9 m berth	160 m
- 5.5 m berth	200 m
Breakwaters	
Main Breakwater	780 m
Second Breakwater	460 m

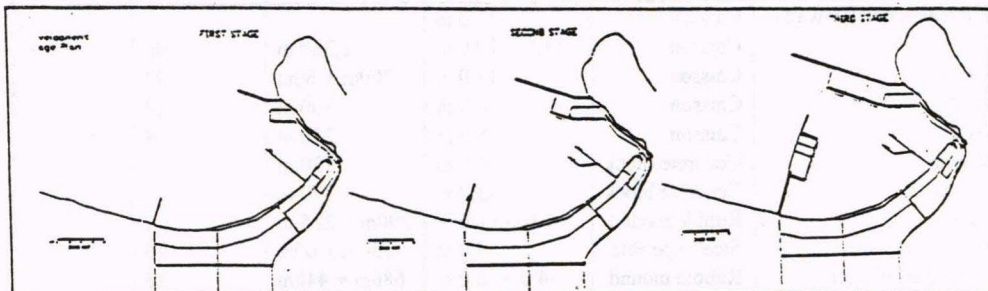


Figure 5 . Stage Plan of Port Development

3.4 - Summary

Table 17. Preliminary Cost Estimates of Master

(Unit : Million USD)

Description	Chan May	Lien Chieu	Dung Quat
1. Protective Facility	66.8	64.4	87.4
2. Dredging	19.8	40.8	25.3
3. Bridge	NA	1.9	5.0
4. Berthing Facility	57.0	51.3	53.4
5. Yard	34.5	67.3	95.9
6. Access Road	2.6	4.4	2.7
7. Building and Utilities	5.3	10.6	NA
8. Oil Treatment Pond and Pile Line	NA	NA	9.7
9. Sub-total (1)	186.0	240.7	279.4
10. Cargo Handling Equipment	12.8	44.6	NA
11. Loading Arm	NA	NA	6.4
12. Navigation Aids	4.3	4.4	4.6
13. Sub-total (2)	17.1	49.0	11.0
14. Total (Sub-total(1) + Sub-total(2))	203.1	289.7	290.4
15. Physical Contingency (8% \times 9 +3% \times 13)	15.4	20.7	22.7
16. Engineering Services	27.0	30.8	22.8
17. Total Construction Cost (14. to 16.)	245.5	341.2	355.9
18. Tax (6%)	12.2	17.4	17.4
19. Resettlement and Compensation Costs	ST	0.1	ST
20. Total Project Cost (17. to 19.)	258	359	353

Notes : Based on costs in December 1997

Exchange rate : USD1.00 = JPY 13 = VND 12,280

Excluding price contingency

NA : Not available

ST : To be studied in the next stage

The scale of development of each master plan is different from each other, which resulted in the above mentioned cost. Planned port facilities and cargo throughput are summarized in the table below.

Table 18. Scale of development of Master Plans

	Chan May	Lien Chieu	Dung Quat
Projected cargo throughput	5,400,000 tons	8,500,000 tons	30,600,000 tons
Planned port facilities			
Deep sea berths :	2	3	4
	(660 m)	(930 m)	(600 m & 2 dolphins)
Medium size berths :	5	8	9
	(700 m)	(1,020 m)	(1,200m & 6 dolphins)

Table 19. Preliminary Cost Estimates of Initial Stage Plans

(Unit : Million USD)

Description	Chan May	Lien Chieu	Dung Quat
1. Protective Facility	51.6	42.2	33.5
2. Dredging	6.5	14.8	3.9
3. Bridge	NA	1.9	5.0
4. Berthing Facility	29.1	18.4	20.0
5. Yard	21.0	20.1	15.8
6. Access Road	2.6	4.4	2.7
7. Building and Utilities	5.3	5.3	NA
8. Oil Treatment Pond and Pile Line	NA	NA	5.7
9. Sub-total (1)	116.1	107.1	86.6
10. Cargo Handling Equipment	0.5	14.1	NA
11. Loading Arm	NA	NA	4.1
12. Navigation Aids	4.2	4.4	4.2
13. Sub-total (2)	4.7	18.5	8.3
14. Total (Sub-total(1) + Sub-total(2))	120.8	125.6	94.9
15. Physical Contingency (8% \times 9 +3% \times 13)	9.4	9.1	7.2
16. Engineering Services	13.5	15.4	11.4
17. Total Construction Cost (14. to 16.)	143.7	150.1	113.5
18. Tax (6%)	7.2	7.5	5.7
19. Resettlement and Compensation Costs	ST	0.1	ST
20. Total Project Cost (17. to 19.)	151	158	119

Notes : Based on costs in December 1997

Exchange rate : USD1.00 = JPY 13 = VND 12,280(1996)

Excluding price contingency

NA : Notavailable

ST : To be studied in the next stage

Table 20. Scale of development of ISP

	Chan May	Lien Chieu	Dung Quat
Projected cargo throughput	2,655,000 tons	4,020,000 tons	13,300,000 tons
Planned port facilities			
Deep sea berths :	1	1	1
	(330 m)	(270 m)	(1 dolphins)
Medium size berths :	2	2	6
	(300 m)	(320 m)	(600m & 4 dolphins)

Table 21. Economic and Financial Analyses

	Chan May	Lien Chieu	Dung Quat
Economic Internal Rate of Return of ISP - EIRR	17.2 %	19.4 %	20.8 %
Sensitivity Tests of EIRR	14.7 %	16.3 %	18.2 %
Financial internal rate of return		5.7 % (High Growth Scenario)	
FIRR		5.1 % (Low Growth Scenario)	

4 - THE VIETNAM MOT's PROJECTS FOR THE AREAS :

Based on current development demand of the key areas and considering domestic finance ability and finance region crisis Vietnam has planned to develop two only projects Chan May and Dung Quat in the next future (to 2005 year).

4.1 - Chan May Port

Table 22. Cost Estimate for first berth

N ^o	Items	Unit	Volume	Cost (thousand USD)
A	Civil works			329.7
1	Yard CFS (Dà Nẵng)	m ²	1980	286.7
	Garages, Weightbridge, Defence, WC house	total	-	43.0
B	Infrastructure			438.3
1	Buildings (watersupply system, transformator, lighttower)	Total	-	179.5
2	Power supply line	Total	-	93.9
3	Water supply and drainage system	Total	-	164.9
C	Dredging and reclamation			1,764.4
1	Dredging	m ³	600.000	697.9
2	Reclamation	m ³	200.000	1,066.4
D	Berth	m	180	4,137.8
E	Revetment	m	580	1,915.3
F	Road and pavement	m ²	22.000	564.2
I	A ÷ F			9,123.9
G	Equipment			1,308.9
1	Offices and technical service	Total		29.1
2	Handling	Total		882.7
3	Boards	Total		397.1
II	A ÷ G			10,459.5
H	Congtigncy		10% II	1,052.0
	Grand Total			11,510.5

Notes : Exchange rate : USD 1.00 = VND 13,900 (1998)

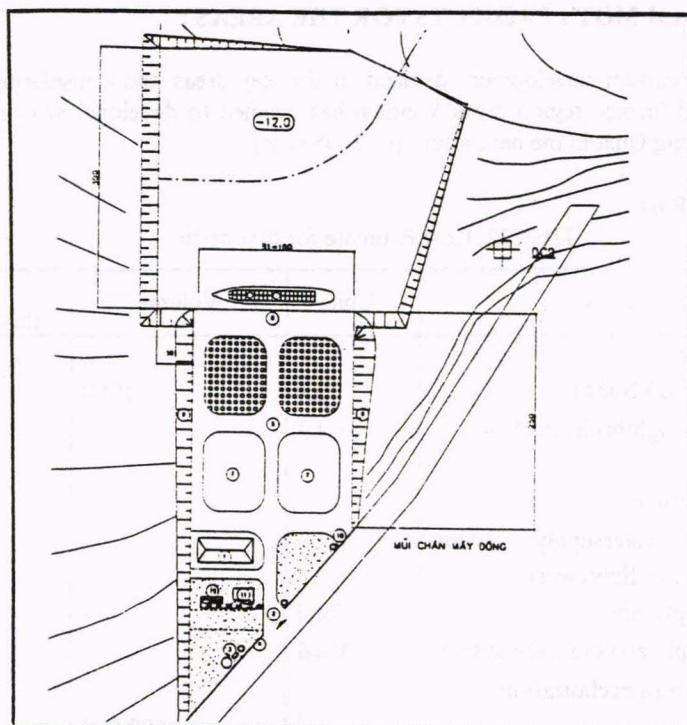


Figure 6. Development Plan for first berth

4.2 - Dung Quat Port

Table 23. Preliminary cost Estimate for Development plan to 2000 year

N ^o	Items	Unit	Volume	Cost (Thousand USD)
1	Berth	Berth	1	6,856
2	Breakwater North	md	1300	46,693
3	SPM	berth	1	20,863
4	Jetty for 30000 DWT tanker	-	1	6,605
5	Jetties for 5000 DWT tanker	-	2	7,115
6	Pavement	Total		6,215
8	Dredging	m ³	1,359,000	3,217
9	Navigation System	-		589
10	Equipment	-		4,338
	Total :			102,497

Table 24 - Cost Estimate for Stage Development

N ^o	Items	Cost (Thousand USD)		
		2000	2010	Total
1	Structure	93,798	86,607	180,405
2	Equipment	8,699	22,993	31,692
	Total	102,497	109,600	212,097

Notes : Exchange rate : USD 1.00, = VND 13,900(1998)

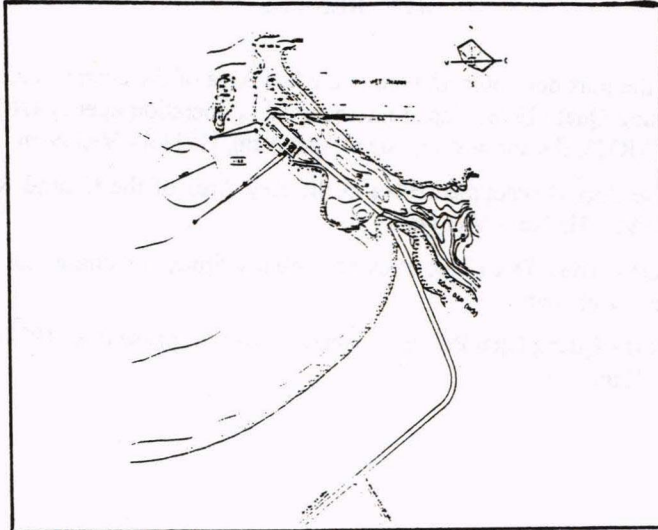


Figure 7. Development Plan for first berth

5 - DISCUSSION :

5.1 - On JICA'S Study :

- + The JICA's Study is done without considering finance crisis affecting in Asia region.
- + The location of Chan May and Lien Chieu is very nearly so that is not reasonable specially when the Haivan tunnel was completed.
- + The benefit of the projects is generally based on cargo cost; decreasing by increasing tonnage of ships used for cargo. But the benefit based on this way not comes to Vietnamese side.

5.2 - On Vietnamese MOT's Study

Vietnamese studies are considered current finance crisis in the Asia Region including Vietnam and Hinterland Countries of the key areas.

In the Iniatial Stage MOT's study don't have any planing in the Lien Chieu location. It is a right decision because in the first development step of the key areas the cargo demand will be not hight and Chan May project is very nearly to Lien Chieu location and the Hai Van tunnel project now is under progress.

In the economic analysis, project benefit calculation of Vietnamese study is based not on the cargo cost decreasing by the ships but only by the inland transport cost decreasing and also by other items ,for example,by the land use price increasing and that comes to local government at project location.

6 - CONCLUSIONS :

For reasonable formulating long-term port development plans and initial stage plan must be consider more current low growth economic condition in the Region.

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