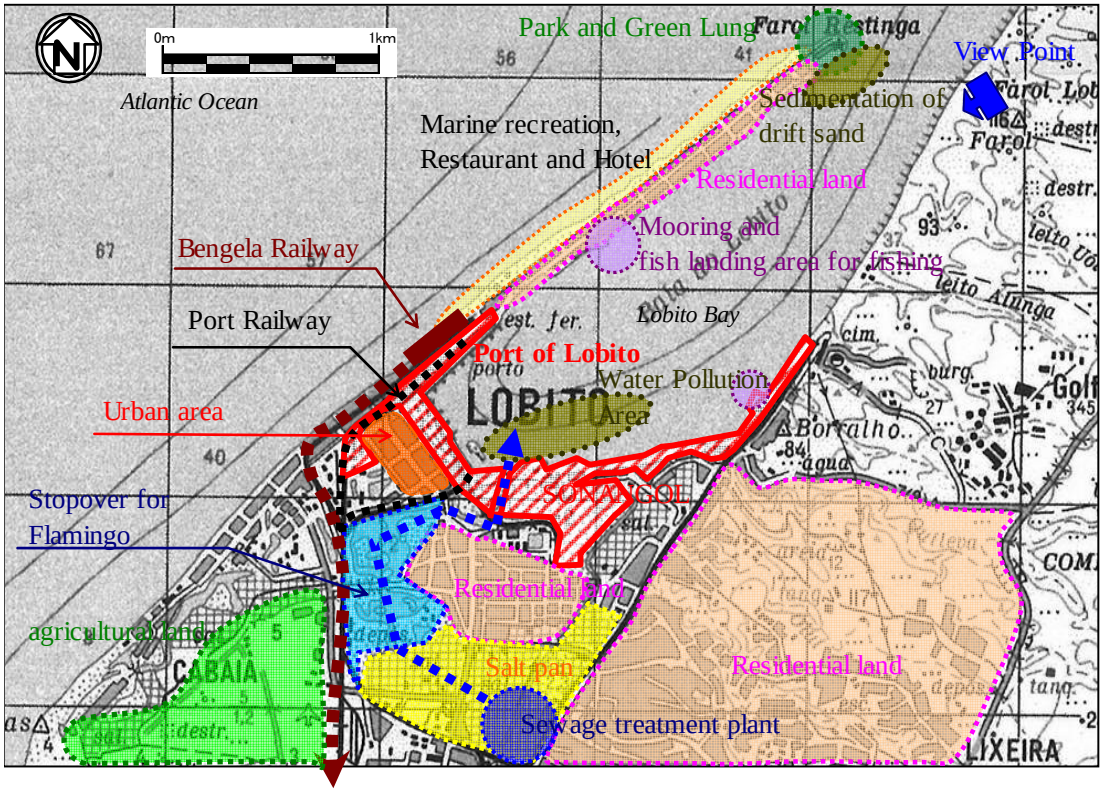

Figure 7-3 Environmental characteristics around Lobito Port

7.2.3 Environmental Conditions of the Port of Namibe

Namibe Bay is about 8km in length from north to south and 5km deep; it has a water depth of 600m at the center of the mouth. The coastal zone has a commercial port and a fishing port; a sand beach has been built up in the center. Water depth in front of the quay of Port of Namibe is 5m to 10m and there is no significant shoaling tendency.

An extensive shoal -3m in depth called “Banco Amelia” is found the south west of the bay. In this shoal, an oil spill occurred on 19th June, 2004 in which oil drifted to the beach throughout the bay. There is a report that swimming has been prohibited for about 6 months to allow the beach to recover. However, the fishing activities are conducted out side of the bay therefore, no influence of fishing activities. Capitania of MINTRANS manages and controls the marine safety within the bay. Private company SONANGOL has provided oil fence and oil recovery equipment to each ship to ensure that such an incident is not repeated.

Port of Namibe was constructed by cutting off sandstone terrace. There is an approx. 40m difference between the height of port level and the backside of the port thus landslides are a potential problem during rainfall. In fact, north side of this area was experienced a landslide due to heavy rain in 2004 and the concrete block wall was damaged.

It took about one month for waters to subside after the great flood in 2001. There were more than 70 casualties due to this flood, most occurring in the area around Bero River running between the Port of Namibe and Port of Sacomar. During the study wild birds such as blue heron, egret, sea swallow, and sea gull were found in the coastal area around the port and a few harbor seals were also seen in the bay. According to the water quality test, water transparency is good and water pollution could not been found although sanitary water has been discharged from residential areas.

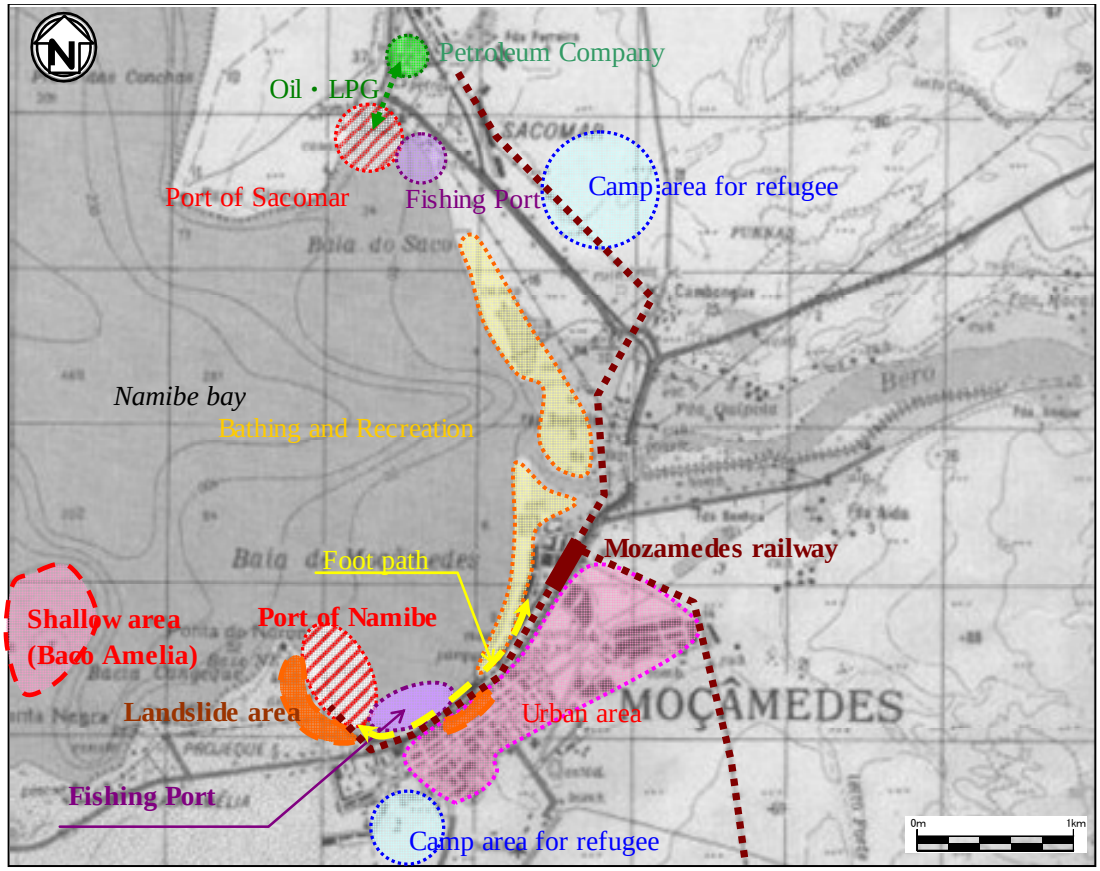

Figure 7-4 Environmental characteristics around Namibe Port

7.2.4 Environmental Conditions of the Port of Cabinda

The water depth around Port of Cabinda is about 3m to 5m which is quite shallow and the port facilities are surrounded by shallow sea. This formation is a result of sedimentation from the Congo River and sunken ship in east side of Port of Cabinda over a 15 years period. In order to maintain the necessary water depth dredging works are carried out around the jetty.

The navigation channel is also shallow, necessitating transshipment 8 to 10miles away from the jetty. This leads to the accidents due to high offshore waves. The rainy season lasts from October to March or May. During this period, they have intense squalls with winds reaching 50 knots and thunders are observed. In the dry season from March or June to September, the Congo River swells from the direction of the southwest. According to the water quality test, the water pollution was not found although transparency is not good due to the sedimentation.

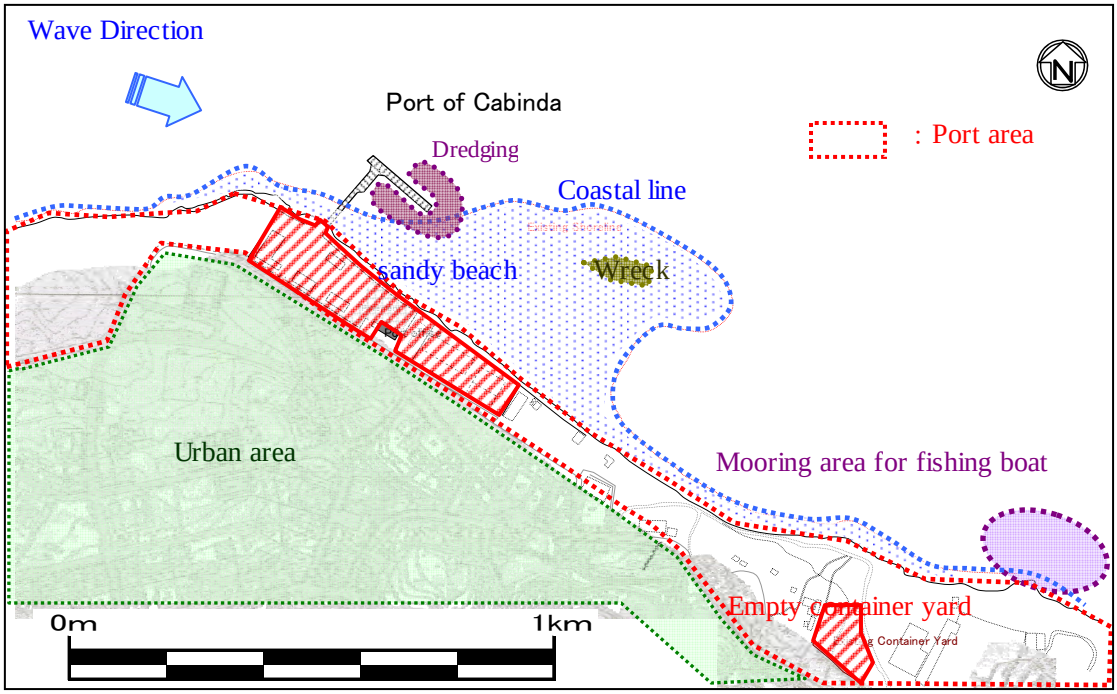

Figure 7-5 Environmental Characteristics around Cabinda Port

7.3 Stakeholders Meeting

Due to the civil war, Angola has not conducted any surveys for water quality, fauna and flora, air, noise and vibration. Therefore, Ministry of Environment now aims for the effectuation of EIA enforced last year before commencing any port-related project. The purpose of the stakeholders meeting in this study is as follows.

Identifying current environmental issues

Public disclosure of the project outline

Selection of impacts of EIA and the mitigation measures for proposed project

Before holding the meeting, the opinions of port-related people, neighboring residents and academic experts were gathered. The following 3 stakeholders meetings have been held.

First Stakeholders Meeting	: June 14, 2005 in Luanda
Second Stakeholders Meeting	: November 17, 2005 in Lobito
Third Stakeholders Meeting	: November 25, 2005 in Luanda

1) The first Stakeholders Meeting

Presentation: Outline of the study and the schedule, Outline of the plan, Purpose of environmental social consideration, Purpose of stakeholders meeting, and Environmental check list (scoping) by preliminary study team

Attendants: MINTRANS, Port of Luanda, Port of Lobito, Port of Namibe, Port of Cabinda, C.F.M, JICA Study Team

2) The second Stakeholders Meeting

Presentation: Purpose of Survey for Environmental Social Consideration and Stakeholders Meeting, Procedure for environment in Angola, Current status of environment, Short term rehabilitation program (Draft) and Urgent rehabilitation program (Draft), and Check list for environmental assessment (Scoping)

Attendants: MINTRANS, Port of Lobito, C.F.B, Lobito Province, Fishery Party, Marine Safety, JICA Study Team

3) The 3rd Stakeholders Meeting

Presentation: Natural and Social Environment around the port, Sort out current issues, The procedures for environment in Angola, The submission of Short term rehabilitation Program (Draft) and Urgent rehabilitation program (Draft), and Environmental Assessment checklist (Scoping) and the mitigation measures.

Attendants: MINTRANS, Environmental Representative (MINUA, UNIVERSITY), Port of Luanda, Port of Namibe, Port of Cabinda, JICA Study Team

8. Basic Policy on Port Rehabilitation

8.1 Viewpoints for the Formulation of Basic Policy

Due to the civil war which lasted for nearly thirty years, the Angolan economy, infrastructure and the lives of citizens have been devastated. For restoring these desperate conditions, the Angolan Government has been preparing the highest priority post-war restoration policy, ECP, which is now in final consultation stage with relevant donors. And in this connection, the Government has initiated a rehabilitation program, PPMRRP, which focuses, among other issues, on infrastructure rehabilitation and institutional strengthening. PPMRRP is designed as a one package project which will be integrated with the comprehensive national project, ECP, which incorporates other post-war restoration projects.

The United Nations adopted the Millennium Declaration on September 2000, which defined the goals of international society in the 21st century specifying African Needs as one of the major issues to be considered. Following the direction of the Declaration, international financial institutions have assisted post-war restoration programs. These programs have currently shifted the focus from basic human needs to mid-term economic growth reflecting the lasting peace conditions since 2002.

Currently authorized programs include the first phase project of the World Bank's EMRP ($US 50 million, project period 2005-2007), UNDP Program ($US 38.7 million, project period 2005-2008) and EU's LRRD (117 million EURO, project period 2002-2007). A similar policy direction has been observed in bilateral cooperation. For instance, China has signed a loan agreement in the amount of $US 2.0 billion for the rehabilitation of infrastructures including railways, and India has assisted the rehabilitation of Mocamedes Railway with a $US 40 million loan.

8.2 Basic Policy

1) To Focus on Short Term Port Rehabilitation

Port rehabilitation plan is proposed as a short-term basis plan with the target year of 2010 ('Short-term Port Rehabilitation Plan'), which could effectively respond to the urgent demand in the post war restoration period. In addition, if any urgent project components to be implemented in a few years would be identified among the facilities in Short-term Plan, these components would be selected and formulated as the 'Urgent Port Rehabilitation Plan'. In these Plans, port facilities are basically rehabilitated to restore capacities up to the original design level. However, adequate level of improvement should be considered in the Plans when substantial change would be expected to happen before 2010.

2) To Support the on-going National Restoration Projects in the Hinterlands

It is essential for the ports to support smooth implementation of several national restoration projects as gateways of socio-economic activities in its hinterlands. In this regard, port rehabilitation plans should be formulated keeping close coordination with concerned organizations in order to create effective integration among several post-war restoration projects in the hinterlands.

3) To Coordinate Facility Rehabilitation and Institutional Strengthening for Effective Port Rehabilitation

An adequate integration of hardware project components (port facilities) and software project components (institution and human resources) is required to create effective port functions. Port rehabilitation plans should take this point into consideration.

4) Functional Allocations among Main Ports and Connection with Roads and Highways

Nationwide functional allocations among main ports are needed for the formulation of rehabilitation plans because of the fact that hinterlands of ports usually extend to considerable areas and, thus, parts of one port hinterland often overlap with another. Further, ports can function well only when they are efficiently connected with roads and railways in the hinterlands. Therefore, smooth coordination with access roads/railways is crucially needed for the formulation of effective port rehabilitation plans.

5) To Highlight the Capacity Development of Main Ports

The Study prepares concrete measures for the development of human resources of port sectors in order to utilize rehabilitated port facilities efficiently with the capacities of existing port staff. The measures consist of short-term to long-term programs. Among others, short-term measures include technology transfer from the experts of Study Team to staff of main ports in Angola. The technology transfer is carried out through on-the-job training and covers such various fields as planning, operation, facility design, and environmental consideration and contract procedures.

6) To Promote Social/Environmental/Safety Considerations

For the formulation of rehabilitation plans, impacts on daily lives of port hinterland inhabitants should be adequately considered and analyzed. The plans should comply with JICA's Guideline. Further, safety considerations should also be well taken into account in the proposed plans.

7) To promote economic development of inland counties

The rehabilitation of Angolan ports can contribute to the promotion of economic activities in Sub-Saharan Africa through providing land-locked countries with a gateway port to the west. In particular, the Benguela railway connects DRC, Zambia, Zimbabwe, and Botswana with the Port of Lobito and makes up the Lobito Corridor. These inland countries expect the railway to resume its service and secure the west gateway to Europe and North/South America. NEPAD has identified several international corridors to be rehabilitated or developed from the viewpoint of economic development of Africa.

While there are three major international corridors from the Sub-Saharan inland countries to the east coast of Africa, namely Beira, Maputo and Dar es Salaam corridors, the Lobito Corridor is the only corridor to the west coast. Since the Lobito Corridor is a shortcut to Europe and North/South America, the Port of Lobito, together with the Benguela Railway, will play a vital role to improve the transportation from/to land-locked countries in the Sub-Sahara.

8.3 Rehabilitation Policy on Each Port

8.3.1 Rehabilitation Policy on the Port of Luanda

The Port of Luanda is located in the waterfront of the capital of Angola and plays an important role in supporting economic activities in the metropolitan area and its hinterland. The port is mainly used for the import of general goods, vehicles, construction materials, food stuffs, machinery and project cargoes related to oil industries. Cargo throughput has dramatically increased in connection with the economic restoration in the recent couple of years. Ships are always waiting for berthing due to insufficient cargo handling capacity. Reasons for the long waiting queue are 1) poor port facilities and low productivity of cargo handling; 2) difficulty in handling containers using old-fashioned port equipment; 3) inefficient port operations due to poor information system and untrained port staff and workers.

As a result of the port congestion and low productivity in cargo handling, ocean freight rates to the Port of Luanda are considerably higher than the rates to nearby ports. It is therefore urgent for the Port of Luanda to improve the productivity and reduce ship congestion. In order to improve the productivity, measures should be taken in the revision of port hardware and software.

In addition, the government invited private companies to rehabilitate and operate a terminal in the Port of Luanda. Terminal concessions were granted to Multi Terminal Co., and UNICARGAS for the general cargo terminal and the multi-purpose terminal respectively. However, UNICARGAS is a state owned company so that it is not private participation in a strict sense. A concession of the container terminal may be granted to a consortium consisting of APM Terminal Co., and a local company subject to the approval of the Supreme Court. In this regard, the rehabilitation of the Port of Luanda is left to concessionaires and the port authority is only responsible for navigational aspects. If concessionaires are slow to move forward with the rehabilitation or are unable to due to financial constraints, the port authority should take necessary action immediately and find a way to restore the port facilities by themselves. Delay in the port rehabilitation will become a bottleneck of Angolan economic restoration.

Urgent requirements for the Port of Luanda are 1) to rehabilitate and improve the port facilities as soon as possible with the participation of the private sector; 2) to expand the container yard and to enhance the capacity of container handling; 3) to improve the access road/railroad to the port and to develop a bypass route on the outskirts of the downtown; and 4) to develop inland container depots to increase the capacity of container storage. Furthermore, it will be necessary for the port authority to make a plan of new container terminal and a program to develop a new terminal with proper participation of the private sector.

8.3.2 Rehabilitation Policy on the Port of Lobito

The Port of Lobito, located in the middle of the Angolan coast, is at the west end of the Benguela Railroad and forms an interchange of maritime and surface transportation. Reopening of the Benguela Railroad will bring a considerable increase in imports and exports through the Port of Lobito. Presently the port is used for the import of general goods, vehicles, construction materials and petroleum products to be distributed to the central area of Angola. Port facilities are however in very poor condition; namely, the yard pavement is severely damaged, and railroads in the port area are uneven and out of order. Since the port was designed for the export of agricultural and mineral products, the layout of port facilities is not suitable for container handling. Warehouses were built near the quay wall, which was suitable for handing break bulk cargoes but not adequate for handling container. Quay cranes were installed on the front line, however the lifting capacity is so poor that they cannot handle loaded containers and rest on the quay wall.

In the restoration of the Port of Lobito, it is crucial for safe and efficient cargo handling to repair the pavement on the surface as well as the quay walls and fenders. Regarding the repair of railroads in the port, the track on the quay head will not be necessary due to changes in cargo handling measures and the tracks in the middle and the back of the yard shall be repaired in accordance with the re-pavement in the yard. Bulk cargo will be once stored in a yard or silo and loaded onto a ship with belt conveyors or pneumatic transport system. Break bulk cargo will be once stored in a shed and loaded onto a ship. Therefore, railroad tracks on the quay front are not required any more and can be removed in the near future. Since the rail transportation is beneficial to containers, break bulk cargoes and bulk cargoes, the railroad shall be connected to the backyard in the port. While quay cranes are well maintained and used for handling break bulk cargoes, those in container terminals shall be removed in the near future and the others shall be removed in accordance with the change in cargo handling equipment. Needs for warehouses will also be reduced in the near future; these shall be changed into a refrigerator warehouse or into another use.

Containerization dominates maritime general cargo transportation, so that efforts should be made to expand container yard, improve container handling equipment, install more reefer plugs

and improve the capacity of container terminal. A modern container terminal has rail mounted gantry cranes (RMGC) and achieves high performance in container handling. Since the installation of gantry cranes requires the consolidation of foundations, it may be necessary to handle more than 50,000 - 100,000 TEU annually in order to redeem the initial investment on the foundations and gantry cranes. Presently, the Port of Lobito handles about 40,000 TEU. It will be appropriate to install gantry cranes at the new container terminal to be developed next to the berth No.8, which shall have a berth length of 300 meters and an area of 10 ha or more.

8.3.3 Rehabilitation Policy on the Port of Namibe

The Port of Namibe is a gateway to the southern region of Angola and the west terminal of the Mocamedes Railroad. Presently the port is used for the import of general goods, food stuff, construction materials and petroleum products, and for the export of granite. Port facilities are in very poor condition; namely, yards are not paved, railroad tracks are uneven and not serviceable, all quay cranes are out of order, all fenders are broken, and the road in the port is very rough.

Urgent rehabilitation of port facilities is firstly necessary for safe and efficient cargo handling. As container cargoes will dramatically increase together with economic restoration in the near future, it will be important to pave the container yard, procure container handling equipment, and install reefer plugs and power generator. While a modern container terminal is equipped with gantry cranes, the container throughput of the Port of Namibe is about 6,000 TEU in 2004, which is too small to install gantry cranes. Gantry cranes will not be necessary for the time being.

Presently, all container ships calling at the ports of Namibe, Lobito and Luanda have ship gears to handle containers, so that container loading and unloading operations are possible without gantry cranes on the quay. However, gearless vessels dominate the container ships and will be introduced in the West Africa services in the future. To cope with the change in calling vessels, the Port of Namibe will need to install gantry cranes in a mid-term or long-term development plan.

Trucks will play a major role in the transportation from/to the Port of Namibe, as the rehabilitation of main roads is in progress. The Mocamedes Railroad will also become a means of transportation to the hinterland after its rehabilitation is completed. Railroad tracks under the quay cranes will not be in use any more due to the fact that direct loading or unloading operations from a freight car into a ship or the reverse have almost disappeared to reduce mooring time at berth. Bulk cargoes are once stocked in a backyard and conveyed onto a ship by belt conveyor or pneumatic transportation. Break bulk cargoes are once stored in a shed. It will therefore be necessary to repair the railroad tracks in the middle and rear of the yard, but those in the quay front can be removed without any inconvenience.

Port Saco, located about 10 km north of the main terminal of the Port of Namibe, has a quay with a length of 325 meters and a depth of 19 meters. The quay was used to export iron ores, however, the operation stopped in mid 1980's due to the civil war. Since the belt conveyor and ship loader have rusted away, it will be difficult to repair the facilities. While the ship loader has a less possibility of the collapse presently, it will be necessary to remove the loader to avoid the collapse into water in the future. Since the steel piles of the quay are not so deteriorated, it is recommended to perform corrosion protection work and maintain the quay for future use.

8.3.4 Rehabilitation Policy on the Port of Cabinda

The Port of Cabinda is located in the shallow water on the coast of Cabinda Enclave, which is quite different from the other three ports in its location. Therefore, the maximum depth of the present jetty is 3.4 meters and it is difficult to develop a deep water berth. Ocean going vessels come to an anchorage 10 km away from the jetty and discharge containers and other cargoes onto a barge, which conveys cargoes to the jetty. The port authority charges twice for the discharging operations from a main ship to the yard. While the government subsidizes a half of discharging cost, it is essential

to develop a new wharf to accommodate ocean going vessels and reduce the maritime transportation cost to Cabinda Province.

The Port of Cabinda has a plan to develop a new concrete jetty with a length of 300 meters along the west side of the present jetty. Navigation channel over 500 meters will be necessary to reach waters with a depth of 6 meters. Since a concrete jetty may disturb the sand drift, sand accumulation and sedimentation shall be carefully studied before actual dredging.

Container vessels serving for smaller ports are about 5,000 DWT or larger and have a capacity of 300 - 500 TEU, whose operating draft is about 6 - 7 meters. In this connection, the port will be required to have a berth depth of 7.5 meters or greater. In order to reach waters with a depth of 7.5 meters, it is necessary to dredge a navigation channel of about 3,000 meters, which requires a big investment initially and maintenance dredging later. If a dredger is allocated in Cabinda area, it will be of great help to the port authority for timely maintenance dredging.

Urgent requirements for the Port of Cabinda are 1) the pavement on the yard surface; 2) maintenance dredging in front of the jetty and navigational channel; 3) the expansion of container storage yard; and 4) the procurement of cargo handling equipment. The port authority has already commenced such rehabilitation work and will finish the work by its own efforts. In this regards, the Study will not propose a short-term rehabilitation plan for the Port of Cabinda. Efforts should be focused on making a study on a deep water port in the Cabinda Enclave and develop a new port to accommodate ocean going vessels.

9. Demand Forecast

9.1 Premise of Demand Forecast

9.1.1 Methodology of Demand Forecast

Future cargo throughput of Angolan ports in 2010 is forecasted by using the relation between GDP of Angola and cargo throughput of each port. Two cases are forecasted using two different GDP growth rates. First, future cargo throughput of all Angolan ports is forecasted. Next, using that as a control total, cargo throughput of each port is predicted. Then, adding cargo of iron ore coming from Cassinga mine to the high case of Namibe port and adding cargo of copper coming from Zambia to the high case of Lobito port, forecast of the future cargo throughput of Angolan ports is finalized.

9.1.2 Associated Data

1) GDP Growth Rate

World Bank predicted Angola's GDP growth rate of 19.4% per year by 2008. Taking into consideration Angola's economic and social potential including the scheduled exploitation of crude oil deposits, this study adopts WB's growth rate by 2008. IMF also predicted GDP growth rate in 2005 (14.7%) and 2006 (27.6%). The two GDP predictions of 2005 and 2006 are almost the same. WB's growth rate of 19.4% for 2009 and 2010 is adopted in the high case of this study. On the other hand, GDP growth rate of 6.4 % in the low case of "Angola 2025" is adopted in the low case of this study.

9.2 Future Cargo Throughput of Angolan Ports

9.2.1 Total Volume of Cargo

Total volume of cargo through Angolan ports since 2000 is shown in Table 9-1. Cargo volume increases more than 15% every year except 2003. Using correlation analysis, relation between GDP and total cargo throughput of Angola ports is determined and R2 is 0.9237.

Table 9-1 Cargo Throughput in Angolan Ports

Year	Tons	Growth (%)
2000	2,583,288	
2001	3,011,757	16.6
2002	3,492,696	16.0
2003	4,171,890	19.4
2004	4,409,770	5.7

Future cargo throughput of Angolan ports in 2010 is calculated by using the proportional relation between GDP and cargo throughput.

Cargo throughput of Angolan ports in 2010 is forecasted as 13.3 m tons in the high case, 3 times greater than the throughput of 2004. In the low case, cargo throughput is forecasted 9.8 m ton and it reaches 2.2 times of that of 2004.

Future cargo throughput of each port is calculated as follows. First, future cargo throughput of each port is calculated by the relation of cargo throughput of each port and GDP of Angola. Second, each port's throughput is adjusted, using total cargo throughput of Angola as a

control total. Third, adding some cargo that cannot be forecasted by GDP such as iron ore coming from Cassinga mine to Namibe port and copper coming from Zambia to Lobito port, forecast of future cargo throughput is finalized.

9.2.2 Container Cargo

Total volume of cargo through Angolan ports since 2001 is shown in Table 9-2. The volume in 2005 is estimated by its 1st semester's throughput. The container throughput of 2005 is 1.9 times that of 2001.

Table 9-2 Container Throughput of Angolan Ports

Year	Container Throughput (Units)	Growth (%)
2001	148,691	
2002	199,579	34.2
2003	238,584	19.5
2004	269,519	13.0
2005	277,321	2.9

The relation of total cargo throughput with GDP is shown in Table 9-3. Using correlation analysis, between relation GDP and future container throughput in Angolan ports is determined as follows.

Y=2694.2X - 86598
Y: Container Throughput (Unit)
X: GDP (Billion AKZ)
R2=0.8935

Table 9-3 Container Throughput And GDP Changes in Angola

Year	Container Throughput (Units)	GDP Billion AKZ
2001	148,691	94.5
2002	199,579	108.2
2003	238,584	111.9
2004	269,519	124.3
2005	277,321	142.6

Future container throughput of each port is calculated as follows. First, future container throughput of each port is calculated by the relation of container throughput of each port and GDP of Angola. Second, each port's throughput is adjusted, using total container throughput of Angola as a control total.

The results of demand forecast are summarized in Table 9-4 and Table 9-5.

Table 9-4 Demand Forecast of Angolan Ports

ton

Year/Ports	Luanda	Lobito	Namibe	Cabinda	Total
2004	3,149,756	872,349	261,065	81,600	4,409,770
2010 (High Case)	8,971,000	3,053,000	6,794,000	249,000	19,067,000
2010/ 2004	2.8	3.5	26.0	3.1	4.3
2010 (Low Case)	7,034,000	1,995,000	618,000	194,000	9,841,000
2010/ 2004	2.2	2.3	2.4	2.4	2.2

Table 9-5 Future Container throughput of Angolan Ports

TEU

Year/Ports	Luanda	Lobito	Namibe	Cabinda	Total
2004	288,981	33,321	7,428	4,491	334,000
2010 (High Case)	906,000	120,000	24,000	16,000	1,066,000
2010/ 2004	3.1	3.6	3.2	3.6	3.2
2010 (Low Case)	698,000	92,000	19,000	12,000	821,000
2010/ 2004	2.4	2.8	2.6	2.7	2.5

9.3 Maximum Size of Calling Vessels (Lobito Port, Namibe Port)

Major vessels calling at Lobito port or Namibe port in 2004 are shown in Table 9-6. Marina Schulte is the biggest container ship and Liberty Grace is the biggest bulk ship. The target year of the Short-term Development plan is 2010, and there will not be new construction of deep sea berth in both ports by then. There will not be a drastic change of calling ships in five years. So, in this study, existing maximum calling ships are assumed to be the maximum calling ships for design of short-term development plan.

Table 9-6 Spec of Major Calling Ships to Lobito Port

Vessel Name	LOA (m)	Draft (m)	Dwt	Gt	Flag	Main Vesse Type	Sub Type
Maria Schulte	**230.9**	**12.0**	**41,500**	**35,697**	**Cyprus**	**Container**	**Container Ship**
Maersk Volos	175.6	10.9	23,508	18,334	Liberia	Container	Container Ship
Maersk Vienna	168.7	9.2	21,152	17,167	Cyprus	Container	Container Ship
Pioner	148.6	8.4	10,442	9,715	Bulgaria	Container	Container Ship
Liberty Grace	**190.0**	**11.9**	**50,601**	**28,836**	**U.S.A**	**Bulker**	**Bulk Carrier Ore Strengthened**
Megalohari	188.0	10.8	37,677	22,009	St Vincent	Bulker	Bulk Carrier Ore Strengthened
Sersou	178.0	10.8	34,100	19,672	Algeria	Bulker	Bulk Carrier Ore Strengthened
Clipper Ipanema	166.0	10.3	22,882	15,992	Bahamas	Dry Cargo	Multi-Purpose Ship
Rosewood-I	161.4	10.0	21,727	13,450	Panama	Bulker	Bulker
Nds Prosperity	154.9	10.1	17,493	13,237	Belize	Dry Cargo	Multi-Purpose Ship
Talos	152.5	9.6	15,884	11,347	Bahamas	Dry Cargo	Multi-Purpose Ship
Hua Tuo	155.1	9.6	15,753	14,163	China	Dry Cargo	Multi-Purpose Ship
Pioner	105.7	6.8	4,638	3,736	Russia	Dry Cargo	General Cargo Ship
Talos	81.7	4.5	2,503	1,681	Netherlands	Bulker	Bulker