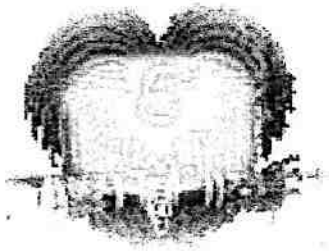
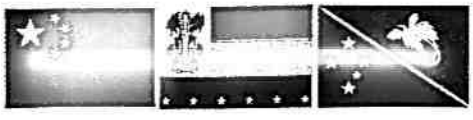


Chapter 7:

Economic Aspect



7.0 RATIONALE

The main objective of the economic analysis is to evaluate the economic viability of the project from the point of view of the country's economy in general and the province of Madang in particular.

The basis of the economic analysis is utilizing the methodology that would make comparison of the situation "With Project" and "Without Project" case terms of investments cost, maintenance and operating cost and comparing these against the benefits attributed to the project.

The "Project" assumes that the proposed project in which the following components will be constructed and fully implemented:

1. Development and Construction of Madang Port to an International Fish Port and Marine Industrial Complex.
2. Development and Construction of Container Port/Transhipment Port with International standard facilities.
3. Development and Construction of Fish Port.
4. Construction of Pier.
5. Development and Construction of Waste Water Treatment Facility.
6. Development and Construction of Modern Communication Facilities.
7. Development and Construction of Water Supply Facility.
8. Development and Construction of Power plant Supply and Distribution.
9. Development and Construction of Fuel Farm (Depot).

7.1 GENERAL ESTIMATES AND ASSUMPTIONS

The economic analysis is based on the following assumptions:

7.1.1 PROJECT ECONOMIC LIFE

The proposed project is assumed to have an economic life of 50 years. The construction period is estimated to be 3 years.

7.1.2 SHADOW PRICING

The prices of imported materials and equipment are adjusted in terms of the shadow price foreign exchange. The Shadow Foreign Exchange Rate (SFER) is 20% higher than the official exchange rate (OER). Thus, the SFER is equivalent to

compute the economic cost; the foreign cost component is multiplied with the conversion factor of 1.2.

7.1.3 ECONOMIC COST ESTIMATE

Several major components comprise the Total Project Cost. These costs are estimated in financial terms. Therefore it is necessary to convert these economic costs to reflect the true cost of the project by deducting the amount of duties, taxes and other transfer payments. The foreign cost components is multiplied by a factor of 1.2 to reflect the shadow exchange rate while the local cost is converted and multiplied by a factor of 0.90 to reflect deductions in duties, taxes and transfer payments to the Government.

7.1.4 TOTAL PROJECT COST

The Total Project Cost is estimated to be Two Hundred Thirty Five Million Dollars ($ 235 Million U.S Dollar). A summary of the cost for each major component and the percentage of foreign and local cost are presented in Chapter 4.

7.1.5 OTHER ESTIMATES AND ASSUMPTIONS

In estimating the project benefits, the following estimates and assumptions were used in quantifying the economic benefits based on the project.

7.1.5.1 Container / Transshipment Port

The Development construction of a new Container and Transshipment Port in Madang Cove is intended to serve as a major regional port to cater to larger vessels (Panamax) and slightly smaller ships. The Port will likewise service the proposed Pacific Marine Industrial Zone shipping facilities both inbound and outbound.

Further, the new Container/Transshipment Port will open-up alternative sea routes from Hong Kong, Singapore, South Korea, Japan and most importantly China. It is planned to be an effective and efficient complement to Pacific Marine Industrial Zone's access to the Transshipment market in the Asia Pacific Region.

This new port at 1,165 linear meters each and a draft of 10 to 12 meters depth which is designed to accommodate one berthing area for Panamax Vessels or can take on two to three smaller ships at anytime.

It is therefore expected to contribute to the generation of foreign benefits of revenue generated from the expected calls of foreign Container Vessels.
The following specific benefits are expected from the operation of the New Container/Transshipment Port Complex.

1.) Revenue from Entry Fees
2.) Revenue from Berthing Fees
3.) Revenue from Transhipment
4.) Foreign currency earnings from foreign vessels

   a. Port Fees in US Dollars
   b. Berthing Fees in US Dollars
   c. Unloading Fees in US Dollars
   d. Fuel Conveyance Fees in US Dollars
   e. Foreign Crew consumptions which is estimated at about 40 to 50 crew/foreign containerized vessels and assume to spend more or less 10 to 15 US Dollars per crew day during their stay at Madang.

5.) Cost savings in view of efficient and faster unloading time of boxes/containers.

7.1.5.2 Pacific Marine Industrial Zone

The development of the Pacific Marine Industrial Zone (PMIZ) will certainly contribute to the economy of the Papua New Guinea and the Province of Madang Due to the expected flow of investors, both foreign and local, which would generate employment opportunities and establish backward and forward linkages among industries in and around the Ecozone.

To achieve the desired objectives of providing a nucleus for sustainable economic and social growth in the area of influence, the following industries will initially be considered locators:

1.) Marine-Based Industries such as:
   a. Locators
   b. Fish Port
   c. Fuel Farm
   d. Container Terminal

e. Power Plant
f. Water Supply Facility
g. Waste Water Treatment Plant
h. Telecommunication Facility

The Following Industrial benefits are expected from the operation of the Locators:

1.) Revenue generated from the food and non-food industries.
2.) Savings in transport
3.) Foreign currency due to importation

The Projected Economic Benefits that the Ecozone will generate in its 30-Years Operation:

1st.	Five-Year Operation :	US $	301,171,124
2nd.	Five-Year Operation :	US $	316,091,158
3rd.	Five-Year Operation :	US $	366,821,704
4th.	Five-Year Operation :	US $	415,309,507
5th.	Five-Year Operation :	US $	473,834,501
6th.	Five-Year Operation :	US $	553,208,411

7.1.5.3 Fish Port Complex

The Pacific Marine Industrial Zone will be constructed with deep-draft berths and integrated Industrial Fish Processing Zone is expected to derive economic benefits to the province of Madang.

Expected Main Benefits to the Provincial Economy:

1. Savings in Fuel cost of Papua New Guinea fish carriers if compared to the trip from other fishing grounds or to foreign ports in the Province.
2. Reductions in fish cost for the canneries and other fish processors resulting from the reduced unloading time and faster turnaround of carriers.
3. Reduction in the rate of rejected and/or under grade fish by more efficient and faster unloading and forwarding transport.

4. Increase in much needed foreign exchange revenue by export marketing of value added processed products.
5. Generating added employment opportunities and increase in wage earnings in construction works during project im0plementation and development of integrated industrial processing units.
6. Higher utilization of unused plant capacity in fish canning and other processing due to stabilization of raw material supply and recovery of loss opportunities.
7. Increase in added value resulting to the increase in production at canneries and processing factories also by stabilizing raw materials fish supply.

The following specific benefits are expected to be derived for the Fish Port Complex:

1. Revenue from Port of Entry Fee.
2. Revenue from Berthing Fee.
3. Fuel Conveyance Fee Earning.
4. Revenue from Water Conveyance.
5. Revenue from Ice Conveyance to Fish Carrier Only.
6. Revenue from Fish Unloading.
7. Revenue from Transhipment.
8. Revenue from Entrance Fee.
9. Revenue from Cold Storage.
10. Foreign Currency earnings from foreign vessels:

    a. Port Fee in U.S Dollars
    b. Berthing Fee in U.S Dollars
    c. Fuel Conveyance Fee in U.S Dollars
    d. Unloading Fee in U.S Dollars
    e. Foreign Crew consumption which is estimated at about 25 crew/foreign vessel and will spend more or less 8 to 10 U.S Dollars per crew per day during their stay at Pacific Marine Industrial Zone Port.

11. Cost Savings due to savings in unloading time.
12. Savings in Transport cost.
13. Reduction of fish spoilage due to reduced transport and unloading time.
14. Better fish prices due to improved fish quality resulting from the reduced fish transport and unloading time.
15. Cost saving due to savings in unloading time.