

## Chapter 15 Cost Estimates

## CHAPTER 15 COST ESTIMATES

### 15.1 BASIC ASSUMPTIONS

The project costs are estimated based on the following assumptions:

- a) Costs are based on the 1996 prices.
- b) The costs are broken-down into the local and foreign portions. The local portion include (i) construction materials produced in the Philippines, (ii) wages of local workers, (iii) overhead and profit for the local contractors. The foreign portion include (i) imported construction materials, (ii) wages of foreign workers, (iii) operation costs of construction equipment and plant except wages of local operators, (iv) overhead and profit for the foreign contractors.
- c) Costs are indicated in Philippine Pesos (PHP). Exchange rates are fixed at US\$ 1.00 = PHP 26.00 = Yen 110.
- d) Price escalation (inflation) is not included.
- e) Cost for engineering services is estimated to be about 10% of the construction cost.
- f) Contingencies are estimated to be about 10% of the total cost.

### 15.2 PROJECT COSTS

Total estimated cost of the Medium Term Development Project is PHP 2,481 million consisting of land acquisition and compensation cost (PHP 27 million), construction cost (PHP 2,231 million), and engineering services cost (PHP 223 million). Table 15.2.1 summarizes the estimated costs of the Project. A breakup of the cost estimates is shown in Appendix 15.2.1.

Annual fund requirement is prepared based on the project implementation schedule in Chapter 16, and shown in Table 15.2.2.

Table 15.2.1 Cost Estimates for Medium Term Development of New Bacolod Airport

Item	Foreign Portion (Yen '000)	Local Portion (PHP '000)	Combined Total (PHP '000)
<b>I. Land Acquisition and Compensation</b>			
1. Land Acquisition	0	18,261	18,261
2. Compensation for Houses	0	7,000	7,000
Sub Total	0	25,261	25,261
Contingency (10%)	0	2,526	2,526
Total of I.	0	27,787	27,787
<b>II. Construction Cost</b>			
1. Preliminary and General	251,153	67,373	126,736
2. Civil Works			
Earthwork	0	401,103	401,103
Pavement Work	550,757	130,179	260,358
Drainage Work	24,916	54,761	60,650
Miscellaneous Works	37,485	22,840	31,700
Total of 2.	613,158	608,883	753,811
3. Building Works			
Passenger Building	385,000	136,500	227,500
Cargo Building	46,962	25,900	37,000
Administration Building	49,754	21,840	33,600
Control Tower	15,992	7,020	10,800
Fire Station	15,637	8,624	12,320
Other Buildings	8,462	8,000	10,000
Total of 3.	521,806	207,884	331,220
4. Special Equipment			
Rescue and Fire Fighting Vehicles	162,000	0	38,291
Other Special Equipment	108,000	0	25,527
Passenger Loading Bridges	114,231	3,000	30,000
Total of 4.	384,231	3,000	93,818
5. Utilities			
Power Supply System	394,212	62,118	155,296
Water Supply System	16,923	4,000	8,000
Telephone System	9,519	250	2,500
Sewerage System	30,462	16,800	24,000
Incinerator	31,500	2,482	9,927
Total of 5.	482,616	85,650	199,723
6. Fuel Supply System	800,000	47,273	236,364
7. Air Navigation Systems			
Aeronautical Ground Lights	515,850	6,417	128,345
ATC and Communications	31,654	394	7,876
Radio Navigation Aids	149,625	1,861	37,227
Weather Observation Equipment	88,957	1,107	22,133
Total of 7.	786,086	9,779	195,581
8. Miscellaneous	179,395	48,123	90,526
Subtotal	4,018,444	1,077,965	2,027,779
Contingency (10%)	401,844	107,796	202,778
Total of II.	4,420,289	1,185,761	2,230,557
<b>III. Consultancy Services</b>			
Consultancy Services	401,844	107,796	202,778
Contingency (10%)	40,184	10,780	20,278
Total of III.	442,029	118,576	223,056
<b>Total Project Cost (I+II+III.)</b>	<b>4,862,318</b>	<b>1,332,125</b>	<b>2,481,400</b>

Note 1: Estimated based on 1996 prices. No price escalation is included.

Note 2: Exchange rates US\$1.00=PHP26.00=Yen110

Table 1.5.2.2 Annual Fund Requirement for Medium Term Development of New Bacolod Airport

Item	1998		1999		2000		2001		2002		2003		Total	
	Foreign Portion (Yen '000)	Local Portion (PHP '000)	Foreign Portion (Yen '000)	Local Portion (PHP '000)	Foreign Portion (Yen '000)	Local Portion (PHP '000)	Foreign Portion (Yen '000)	Local Portion (PHP '000)	Foreign Portion (Yen '000)	Local Portion (PHP '000)	Foreign Portion (Yen '000)	Local Portion (PHP '000)	Foreign Portion (Yen '000)	Local Portion (PHP '000)
I. Land Acquisition and Compensation	0	25,261	0	100%	0	0	0	0	0	0	0	0	0	25,261
II. Construction Cost														
1. Preliminary and General	0	0	0	0	200,922	53,898	0	0	50,231	13,475	0	0	251,153	67,373
					80%	80%			20%	20%			100%	100%
2. Civil Works	0	0	0	0	214,605	213,109	275,921	273,997	122,632	121,777	0	0	613,158	608,883
					35%	35%	45%	45%	20%	20%			100%	100%
3. Building Works	0	0	0	0	130,452	51,971	286,993	114,336	104,361	41,577	0	0	521,806	207,884
					25%	25%	55%	55%	20%	20%			100%	100%
4. Special Equipment	0	0	0	0	0	0	76,846	600	307,385	2,400	0	0	384,231	3,000
					0	0	20%	20%	80%	80%			100%	100%
5. Utilities	0	0	0	0	96,523	17,130	289,570	51,390	96,523	17,130	0	0	482,616	85,630
					20%	20%	60%	60%	20%	20%			100%	100%
6. Fuel Supply System	0	0	0	0	240,000	14,182	560,000	33,091	0	0	0	0	800,000	47,273
					30%	30%	70%	70%	0	0			100%	100%
7. Air Navigation Systems	0	0	0	0	235,826	2,934	393,043	4,890	157,217	1,956	0	0	786,086	9,779
					30%	30%	50%	50%	20%	20%			100%	100%
8. Miscellaneous	0	0	0	0	62,788	16,843	80,728	21,656	35,879	9,625	0	0	179,395	48,123
					35%	35%	45%	45%	20%	20%			100%	100%
Total of II.	0	0	0	0	1,181,116	370,067	1,963,101	499,959	874,227	207,938	0	0	4,018,444	1,077,965
					29%	34%	49%	46%	22%	19%			100%	100%
III. Consultancy Services	140,646	37,729	20,092	5,390	60,277	16,169	100,461	26,949	60,277	16,169	20,092	5,390	401,844	107,796
	35%	35%	5%	5%	15%	15%	25%	25%	15%	15%	5%	5%	100%	100%
Total of I, II and III (not including contingency)	140,646	37,729	20,092	30,651	1,241,393	386,236	2,063,562	526,909	934,504	224,108	20,092	5,390	4,420,289	1,211,022
	3.2%	3.1%	0.5%	2.5%	28.1%	31.9%	46.7%	43.5%	21.1%	18.5%	0.5%	0.4%	100.0%	100.0%
Contingency (10%)	14,065	3,773	2,009	3,065	124,139	38,624	206,356	52,691	93,450	22,411	2,009	539	442,029	121,102
Total Project Cost	154,710	41,502	22,101	33,716	1,365,532	424,860	2,269,918	579,599	1,027,954	246,519	22,101	5,929	4,862,318	1,332,125

Note 1: Estimated based on 1996 prices. No price escalation is included.

Note 2: Exchange rates US\$1.00=Yen110.0=PHP26.0

## Chapter 16 Project Implementation Plan

## CHAPTER 16 PROJECT IMPLEMENTATION PLAN

### 16.1 PROJECT IMPLEMENTATION SCHEDULE

Table 16.1.1 shows a project implementation schedule, which would be applicable if the financial assistance from a foreign country is sought for both the design and construction of the Project at once.

Table 16.1.1 Project Implementation Schedule

Item	1997	1998	1999	2000	2001	2002	2003
Financial Arrangement	██████████						
Selection of Consultant		██████████					
Engineering Services		██████████	██████████				
Land Acquisition	██████████	██████████	██████████	██████████			
Pre-qualification			██████████				
Tendering			██████████				
Construction Works				██████████	██████████	██████████	██████████
Defect Liability Period						██████████	██████████

As the safety and capacity problems of the existing airport should be solved urgently, the following are assumed in the scheduling:

- a) Approval of the Project immediately after this feasibility study.
- b) Financial arrangement within 1997.

### 16.2 PROJECT EXECUTING AGENCY

The project executing agency shall be responsible for the implementation of the Project, after Project approval by the Government. Consultants are usually employed for the design and construction phases of the project to assist the executing agency especially in the management and the technical fields. The executing agency shall give the information, guidance and approvals necessary for the services of the consultants, and monitor and control the quality, schedule and budget of the Project. It is also the responsibility of the executing agency to coordinate with the other organizations concerned.

The DOTC has been executing the airport development projects. By the Department Order No.96-964, the ATO became responsible for not only operation and maintenance but also planning and construction of the national government airports. Therefore, the ATO will be the executing agency of the Project. It is recommended to create a project team in the ATO and an interagency committee for monitoring and controlling of the Project.

## **Chapter 17 Economic and Financial Analyses**

## 17.1 ECONOMIC ANALYSIS AND EVALUATION

### 17.1.1 General

This section evaluates the economic viability of the Medium Term Development of New Bacolod Airport (the Project), as a separate analysis from the combined evaluation of the Medium and Long Term Developments in Section 5.5.6. The economic returns of the Project are calculated in terms of the economic rate of returns (EIRR) and net present value (NPV) as the base case, and then the sensitivity tests are carried out to indicate the effects of slower air traffic growth and increased construction cost on the EIRR of the Project.

### 17.1.2 With Project (WP) Case and Without Project (WOP) Case

The investments required to implement the Medium Term Development will be additional investments for the expansion of airport capacity; therefore, the returns of the Project should be evaluated as incremental benefits derived from the expansion of airport capacity. Benefits and costs should, therefore, be compared between the following two cases:

- With Project (WP) Case: The Medium Term Development will be implemented and airport capacity will be expanded to handle increases in air traffic up to the design capacity for the year 2005.
- Without Project (WOP) Case: No investments will be made on the existing airport facilities. Since many of the existing facilities lack in capacity, there will be no increase in air traffic volume after the year 1996.

### 17.1.3 General Assumptions

The same general assumptions established in Section 5.5.7 apply to the analysis in this section.

### 17.1.4 Economic Costs of the Project

The costs of the project includes the following:

- a) **Construction Costs:** The estimated costs in Section 15.2 excluding contingency are used with a standard conversion factor (SCF) of 0.84.
- b) **Maintenance Costs:** These costs are estimated by multiplying the construction costs by percentage rate which differs between different groups of facilities as already explained in Section 5.5.6. The SCF of 0.84 is applied.
- c) **Personnel, Overhead and Other Personnel Related Costs:** These costs have been calculated for the number of incremental staff (14) by the Project and annual cost of PHP65,000 per person. The SCF of 0.90 is applied.



- d) **Utilities Cost:** The incremental utilities cost is accounted by applying an increasing rate on the present utilities cost. The economic prices for the utilities cost are assumed to be equal to the nominal prices.

**17.1.5 Economic Benefits of the Project**

The following economic benefits, explained in Section 5.5.6, are considered in the analysis.

- a) Time Saving Benefit for Business Passengers
- b) Benefit from Increased Number of Tourist Passengers
- c) Benefit from Increased Volume of Air Cargo
- d) Economic Value of Existing Airport Assets

The calculation details and results for the first three benefits are shown in Appendix 17.1.1. Refer to economic value of existing airport area in Section 5.5.6.

**17.1.6 Economic Internal Rate of Returns (EIRR) and Net Present Value (NPV)**

The comparison of costs and benefits which will be incrementally incurred by implementing the project is indicated in Table 17.1.1.

The IRR and NPV of the Project are estimated as follows:

**Table 17.1.2 EIRR and NPV of the Project: Medium Term Development of New Bacolod Airport**

EIRR	NPV at 15% discount rate (PHP million)
18.8%	271

The Project's EIRR of 18.8% is higher than the opportunity cost of capital of 15% which is suggested from NEDA. The project is therefore expected to produce economic returns to the national economy great enough to justify its implementation.



### 17.1.7 Sensitivity Tests

The sensitivity test of the economic analysis is undertaken to evaluate how the EIRR varies against the rise in construction cost and the slower growth of air traffic. The following two cases related to the base case have been studied:

- Increase of the construction costs by 20%
- Low forecast of air traffic volumes (equivalent to a decrease of incremental revenues by 20%)

The estimated EIRR of the respective cases appears in Table 17.1.2.

Table 17.1.3 Sensitivity Test: Economic Analysis

Case	EIRR	Table or Appendix No. to be Referred
• Base Case	18.8%	Table 17.1.1
• Construction Cost up by 20%	15.9%	Appendix 17.1.2
• Low Forecast of Air Traffic Volumes	15.7%	Appendix 17.1.3

These results indicate that the feasibility of the Project is sound even when the construction cost is 20% higher than estimated or air traffic volumes grow in line with the low forecast, meaning that the Project will be of clear benefits for the Philippine economy.

## 17.2 FINANCIAL ANALYSIS AND EVALUATION

### 17.2.1 General

This section provides a detailed financial analysis of the Medium Term Development of New Bacolod Airport (the Project). The Medium Term Development will represent an additional capacity building compared to the capacity of the existing Bacolod Airport, and therefore only incremental costs and revenues generated by the expanded capacity have been calculated in the analysis as described in the Without Project (WOP) case and With Project (WP) case in Section 17.1.2 above.

A financial analysis comprising calculations of the financial internal rate of returns (FIRR) and the net present value (NPV) is performed to analyze the financial returns of the Project by comparing incremental costs and revenues generated by the Project. Income and fund statements are prepared to display how the

Project actually can be financed and to evaluate whether the project will generate sufficient profit to cover the interest and the principal repayments of the loans.

Sensitivity tests are also made to estimate how the feasibility of the project will be affected by changes in the estimated construction costs and level of air traffic growth.

Finally, privatization and commercialization of airport facilities are discussed as alternative methods of financing airport construction and operation.

### **17.2.2 General Assumptions**

The same general assumptions established in Section 5.5.7 apply to the analysis in this section. Some other assumptions are added here for more detailed financial analysis.

#### **1) Project Evaluation Period**

- FIRR and NPV Calculations: 1998 - 2026

The period from first year of investment (1998) up to the 25th year (2026) of the operation of the new facilities as assumed in Section 5.5.7. The inauguration of the new airport is schedule to be in 2002 as explained in Section 16.1.

- Income and Fund Statements: 1998 - 2028

The evaluation period is extended to 2028 to indicate income and financial statements up to the last year of the repayment of the assumed loan.

#### **2) Project Costs and Revenues**

All costs and revenues are calculated in Philippine Peso at 1996 constant prices. General increases in price are assumed to be met by timely increases in airport charges and improvement in productivity.

#### **3) Financing Conditions**

The following financing conditions are assumed in the financial analysis. The composition of foreign/local fund and lending conditions of the assumed loan is those of the OECF loans to the Philippines.

- 25 % of the total construction costs are financed by the government's general account.
- 75 % of the total construction costs are financed by a soft loan with an interest rate of 2.7 % per annum and a repayment period of 20 years after a grace period of 10 years.

- Temporary cash deficit will be financed from the accumulated cash in hand. In the case where accumulated cash in hand is not sufficient to cover the current deficit, the difference will be borrowed from the government's general account with no interest.
- No interest is accounted on the accumulated cash in hand.

#### 4) Depreciation Costs

The construction costs are allocated in the income statement over the following time periods:

- Civil and building works: 30 years
- Other facilities: 15 years

The residual value of the investments is accounted in the last year of the cash flow table for IRR and NPV calculations.

#### 17.2.3 Costs of the Project

The costs of the project includes :

The costs of the project includes the following:

- Construction Costs: The estimated costs in Section 15.2 excluding contingency are used.
- Maintenance Costs: These costs are estimated by multiplying the construction costs by percentage rate which differs between different groups of facilities as already explained in Section 5.5.6.
- Personnel, Overhead and Other Personnel Related Costs: These costs have been calculated for the number of incremental staff (14) by the Project and annual cost of P11P65,000 per person.
- Utilities Cost: The incremental utilities cost is accounted by applying an increasing rate on the present utilities cost.

It is noted that no conversion of financial costs to economic costs is required for the financial analysis.

#### 17.2.4 Revenues of the Project

The following operating revenues are considered in the analysis.

[Traffic Related Services]

- Landing fee
- Operational charge
- Aircraft parking charge
- Passenger service charge

**[Commercial Services]**

- e) Passenger terminal space rental
- f) Cargo terminal space rental
- g) Concession privilege fee
- h) Aviation fuel surcharge

**[Miscellaneous]**

- i) Utilities services

When calculating the revenue of the Project in this analysis, two cases of the price levels of airport charges are considered as follows:

- Current price level (Refer to Appendix 17.2.1 for calculation details of incremental revenues.)
- All prices increased by 700% when the new facilities will become operational (Refer to Appendix 17.2.2 for calculation details of incremental revenues.)

The present analysis assumed a once-for-all 700% increase in the prices of airport charges. With this assumed price increase, the landing and aircraft parking fees will be about the same level as current international landing and parking fees at Manila and Cebu International Airports. Passenger service charge will be PHP80, which is more expensive than the current domestic rate of PHP50 at Manila, but much lower than the international rate of PHP500 at Manila.

In addition to the above, sale value of the existing airport property area is included in the revenue of the Project. ATO's existing airport property area of Bacolod Airport is 24 ha (out of 43 ha total area) and the trade price is PHP 1,500 per sq.m. PHP 100 per sq.m is deducted as a cost for clearing the site.

**17.2.5 Financial Internal Rate of Returns (FIRR) and Net Present Value (NPV)**

The cost and revenues which will be incrementally incurred by implementing the Project are calculated for the two cases, at current price level of airport charges and at an increased price level as described in the previous section. The cash flow table is indicated for those two cases in Tables 17.2.1 and 17.2.2 respectively. The FIRR and NPV are calculated as shown in Table 17.2.3.

A discount rate of 1.8% is used in consideration of the assumed financing condition of 25% from the government's general account and 75% from the loan with 2.7% interest rate.

Table 17.2.1 FIRR and NPV Calculations for the Medium Term Development of New Bacolod Airport

[0% Price Increase of Airport Charges]

Unit: PHP '000 at 1996 prices

Year	Costs				Revenues				Total Incremental Revenue (10)=(6)+(7) -(8)+(9)	Net Cash Flow (11)=(10)-(5)
	Construction Cost (1)	Maintenance Cost (2)	Personnel, Overhead & Other Cost (3)	Utilities Cost (4)	Total Incremental Costs (5)=(1)+(2)+(3)+(4)	Traffic Related Services (6)	Commercial Services (7)	Miscellaneous Revenue (8)		
1995					0	0	0	0	0	0
1996					0	0	0	0	0	0
1997					0	0	0	0	0	0
1998	70,972				70,972	0	0	0	0	-70,972
1999	35,400				35,400	0	0	0	0	-35,400
2000	679,657				679,657	0	0	0	0	-679,657
2001	1,014,660				1,014,660	0	0	0	0	-1,014,660
2002	444,991	30,260	910	625	476,766	9,097	2,206	688	336,000	347,990
2003	10,139	30,260	910	625	41,934	10,029	2,233	688		12,950
2004		30,260	910	625	31,795	11,029	2,261	688		13,978
2005		30,260	910	625	31,795	12,115	2,289	688		15,091
2006		30,260	910	625	31,795	12,115	2,289	688		15,091
2007		30,260	910	625	31,795	12,115	2,289	688		15,091
2008		30,260	910	625	31,795	12,115	2,289	688		15,091
2009		30,260	910	625	31,795	12,115	2,289	688		15,091
2010		30,260	910	625	31,795	12,115	2,289	688		15,091
2011		30,260	910	625	31,795	12,115	2,289	688		15,091
2012		30,260	910	625	31,795	12,115	2,289	688		15,091
2013		30,260	910	625	31,795	12,115	2,289	688		15,091
2014		30,260	910	625	31,795	12,115	2,289	688		15,091
2015		30,260	910	625	31,795	12,115	2,289	688		15,091
2016		30,260	910	625	31,795	12,115	2,289	688		15,091
2017		30,260	910	625	31,795	12,115	2,289	688		15,091
2018		30,260	910	625	31,795	12,115	2,289	688		15,091
2019		30,260	910	625	31,795	12,115	2,289	688		15,091
2020		30,260	910	625	31,795	12,115	2,289	688		15,091
2021		30,260	910	625	31,795	12,115	2,289	688		15,091
2022		30,260	910	625	31,795	12,115	2,289	688		15,091
2023		30,260	910	625	31,795	12,115	2,289	688		15,091
2024		30,260	910	625	31,795	12,115	2,289	688		15,091
2025		30,260	910	625	31,795	12,115	2,289	688		15,091
2026	-302,998	30,260	910	625	-271,203	12,115	2,289	688		15,091
										288,294

FIRR = negative  
NPV (at 1.8% discount rate) = -1,903,467

Table 17.2.2 FIRR and NPV Calculations for the Medium Term Development of New Bacolod Airport  
 [700% Price Increase of Airport Charges]  
 Unit: PHP '000 at 1996 prices

Year	Costs			Revenues					Total Incremental Revenue	Net Cash Flow	
	Construction Cost	Maintenance Cost	Personnel, Overhead & Other Cost	Utilities Cost	Total Incremental Costs	Traffic Related Services	Commercial Services	Miscellaneous Revenue			Sale of Existing Airport Land
	(1)	(2)	(3)	(4)	(5)=(1)+(2)+(3)+(4)	(6)	(7)	(8)	(9)	(10)=(6)+(7)+(8)+(9)	(11)=(10)-(5)
1996					0	0	0	0	0	0	0
1997					0	0	0	0	0	0	0
1998	70,972				70,972	0	0	0	0	0	-70,972
1999	35,400				35,400	0	0	0	0	0	-35,400
2000	679,657				679,657	0	0	0	0	0	-679,657
2001	1,014,660				1,014,660	0	0	0	0	0	-1,014,660
2002	444,991	30,260	910	625	476,786	107,510	17,938	688	336,000	462,136	-14,650
2003	10,139	30,260	910	625	41,934	114,972	18,160	688		133,819	91,385
2004		30,260	910	625	31,795	122,971	18,381	688		142,039	110,244
2005		30,260	910	625	31,795	131,656	18,603	688		150,946	119,151
2006		30,260	910	625	31,795	131,656	18,603	688		150,946	119,151
2007		30,260	910	625	31,795	131,656	18,603	688		150,946	119,151
2008		30,260	910	625	31,795	131,656	18,603	688		150,946	119,151
2009		30,260	910	625	31,795	131,656	18,603	688		150,946	119,151
2010		30,260	910	625	31,795	131,656	18,603	688		150,946	119,151
2011		30,260	910	625	31,795	131,656	18,603	688		150,946	119,151
2012		30,260	910	625	31,795	131,656	18,603	688		150,946	119,151
2013		30,260	910	625	31,795	131,656	18,603	688		150,946	119,151
2014		30,260	910	625	31,795	131,656	18,603	688		150,946	119,151
2015		30,260	910	625	31,795	131,656	18,603	688		150,946	119,151
2016		30,260	910	625	31,795	131,656	18,603	688		150,946	119,151
2017		30,260	910	625	31,795	131,656	18,603	688		150,946	119,151
2018		30,260	910	625	31,795	131,656	18,603	688		150,946	119,151
2019		30,260	910	625	31,795	131,656	18,603	688		150,946	119,151
2020		30,260	910	625	31,795	131,656	18,603	688		150,946	119,151
2021		30,260	910	625	31,795	131,656	18,603	688		150,946	119,151
2022		30,260	910	625	31,795	131,656	18,603	688		150,946	119,151
2023		30,260	910	625	31,795	131,656	18,603	688		150,946	119,151
2024		30,260	910	625	31,795	131,656	18,603	688		150,946	119,151
2025		30,260	910	625	31,795	131,656	18,603	688		150,946	119,151
2026	-302,998	30,260	910	625	-271,203	131,656	18,603	688		150,946	-422,149

FIRR = 3.9%  
 NPV (at 1.8% discount rate) = 541,000



Table 17.2.3 FIRR and NPV of the Project: Medium Term Development of New Bacolod Airport

Cases/Financial Indicators	FIRR	NPV at 1.8% discount rate (PHP million)
• At Current Level of Charges	negative	-1,903
• At Increased Prices of Charges*	3.9%	541

Note\*: Increase all charges by 700% when new facilities start operation.

The results indicate that the construction of the new airport is financially feasible with the assumed increases in the prices of airport charges. In the case of no increase in the price level, both FIRR and NPV will be negative. It is of great importance to take necessary measures to safeguard the assumed operating profit levels as well as to use a low interest loan for the Project to be financial feasible.

A more detailed analysis indicates minimum levels of price increase to balance required funding requirements depending on policy objectives of the GOP as follows:

- 1) Minimum level of price increase to cover operation and maintenance costs
  - Once-for-all 90% increase of prices by the inauguration of the new airport.
- 2) Minimum level of price increase to cover investment cost as well as operation and maintenance costs
  - Once-for-all 550% increase of prices by the inauguration of the new airport, or
  - 10% annual increase of prices from the year 1997.

The analysis in 1) above assumes that the GOP will concern only operation and maintenance of the new airport. Investment expenditures will continued to be paid from the national budget. Even in this case, the minimum required price level is almost twice the present one.

If the GOP adopts a cost recovery principle at the new airport, a high price increase will be resulted as shown in 2) in the above. However, since Bacolod Airport is a relatively high traffic airport among the ATO operated airports, even higher price increase will need to be justified if cost recovery at the ATO level is considered.

#### 17.2.6 Income Statements and Fund Statements

Income and fund statements are prepared for the above-mentioned two cases. Tables 17.2.4 and 17.2.5 indicates those with the current price level, while Tables 17.2.6 and 17.2.7 for those with the assumed increase in price level.

Table 17.2.4 Income Statement for the Medium Term Development of New Bacolod Airport

[0% Price Increase of Airport Charges]

Financing Conditions		25% of the Total Construction Cost		75% of the Total Construction Cost		Working Capital (for deficit financing):		0% per annum	
State Budget:		2.7% per annum		20 years (after grace period)		Interest Rate=		1 year	
Soft Loan:		10 years				Repayment Period=			
Year	Operating Revenue	Sale of Existing Airport	Operating Cost	Operating Profit /Loss	Depreciation	Soft Loan	Working Capital	Current Profit /Loss	Accumulated Current Profit
	(1)	(2)	(3)	(4)=(1)-(2)-(3)	(5)	(6)	(7)	(8)=(4)-(5)-(6)-(7)	(9)
1996	0	0	0	0	0	0	0	0	0
1997	0	0	0	0	0	0	0	0	0
1998	0	0	0	0	0	0	0	0	0
1999	0	0	0	0	0	1,437	0	-1,437	-1,437
2000	0	0	0	0	0	2,154	0	-2,154	-3,591
2001	0	0	0	0	0	15,917	0	-15,917	-19,508
2002	11,990	336,000	31,795	-19,805	89,662	36,464	0	-145,931	-165,440
2003	12,950	0	31,795	-18,845	89,662	45,475	0	-153,982	-319,421
2004	13,978	0	31,795	-17,817	89,662	45,680	0	-153,160	-472,581
2005	15,091	0	31,795	-16,704	89,662	45,680	0	-152,046	-624,627
2006	15,091	0	31,795	-16,704	89,662	45,680	0	-152,046	-776,674
2007	15,091	0	31,795	-16,704	89,662	45,680	0	-152,046	-928,720
2008	15,091	0	31,795	-16,704	89,662	45,680	0	-152,046	-1,080,766
2009	15,091	0	31,795	-16,704	89,662	45,680	0	-152,046	-1,232,812
2010	15,091	0	31,795	-16,704	89,662	43,396	0	-149,762	-1,382,575
2011	15,091	0	31,795	-16,704	89,662	41,112	0	-147,476	-1,530,053
2012	15,091	0	31,795	-16,704	89,662	38,828	0	-145,194	-1,675,247
2013	15,091	0	31,795	-16,704	89,662	36,544	0	-142,910	-1,818,157
2014	15,091	0	31,795	-16,704	89,662	34,260	0	-140,626	-1,958,784
2015	15,091	0	31,795	-16,704	89,662	31,976	0	-138,342	-2,097,126
2016	15,091	0	31,795	-16,704	89,662	29,692	0	-136,058	-2,233,184
2017	15,091	0	31,795	-16,704	89,662	27,408	0	-133,774	-2,366,958
2018	15,091	0	31,795	-16,704	89,662	25,124	0	-131,490	-2,500,448
2019	15,091	0	31,795	-16,704	89,662	22,840	0	-129,206	-2,633,654
2020	15,091	0	31,795	-16,704	89,662	20,556	0	-126,922	-2,766,576
2021	15,091	0	31,795	-16,704	89,662	18,272	0	-124,638	-2,900,214
2022	15,091	0	31,795	-16,704	89,662	15,988	0	-122,354	-3,034,568
2023	15,091	0	31,795	-16,704	89,662	13,704	0	-120,070	-3,169,638
2024	15,091	0	31,795	-16,704	89,662	11,420	0	-117,786	-3,305,424
2025	15,091	0	31,795	-16,704	89,662	9,136	0	-115,502	-3,441,926
2026	15,091	0	31,795	-16,704	89,662	6,852	0	-113,218	-3,579,144
2027	15,091	0	31,795	-16,704	89,662	4,568	0	-110,934	-3,717,078
2028	15,091	0	31,795	-16,704	89,662	2,284	0	-108,650	-3,855,728
Total	401,103	336,000	858,455	-457,352	1,774,362	809,492	0	-3,041,457	-

Table 17.2.5 Fund Statement for the Medium Term Development of New Bicolod Airport

<p>Financing Conditions:                  State Subsidy: 25% of the Total Construction Cost                  75% of the Total Construction Cost                  Interest Rate = 2.7% per annum                  Repayment Period = 20 years (after grace period)                  Grace Period = 10 years</p>	<p>Working Capital: (for deficit financing)                  Interest Rate = 0% per annum                  1 year</p>
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Unit: PHP '000 at 1996 Prices

10% Price Increase of Airport Charges

Year	Operating Revenue (1)	Sale of Existing Airport (2)	Cash Inflow			Total (6)=(1)+(3)+(5)	Operating Cost (7)	Interest Payment			Cash Outflow			Net Cash Inflow (15)=(6)-(14)	Accumulated Net Cash Inflow (16)	Soft Loan Outstanding (17)	Working Capital Borrowing Outstanding (18)
			State Budget (3)	Use of Cash in Hand (4)	Borrowing (5)			Soft Loan (8)	Working Capital (9)	State Budget (10)	Investment (11)	Principal Repayment (12)	Working Capital (13)				
1996	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1997	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1998	0	0	0	0	0	74,521	0	0	0	0	0	0	0	0	0	0	0
1999	0	0	0	0	0	21,292	0	0	0	0	0	0	0	0	0	53,229	0
2000	0	0	0	0	0	10,620	0	0	0	0	0	0	0	0	0	79,779	1,437
2001	0	0	0	0	0	203,897	0	0	0	0	0	0	0	0	0	589,522	3,591
2002	11,990	336,000	0	0	19,508	1,084,901	0	0	0	0	0	0	0	0	0	1,350,517	19,508
2003	12,950	0	0	0	0	815,230	31,795	36,464	0	0	0	0	0	260,222	260,222	1,684,260	0
2004	13,978	0	0	0	0	87,916	31,795	45,475	0	0	0	0	0	195,903	195,903	1,691,864	0
2005	15,091	0	0	0	0	77,475	31,795	45,680	0	0	0	0	0	132,405	132,405	1,691,864	0
2006	15,091	0	0	0	0	77,475	31,795	45,680	0	0	0	0	0	70,021	70,021	1,691,864	0
2007	15,091	0	0	0	0	77,475	31,795	45,680	0	0	0	0	0	7,636	7,636	1,691,864	0
2008	15,091	0	0	0	0	132,223	31,795	45,680	0	0	0	0	0	0	0	1,691,864	54,748
2009	15,091	0	0	0	0	279,201	31,795	45,680	0	0	0	0	0	0	0	1,691,864	117,132
2010	15,091	0	0	0	0	423,894	31,795	45,680	0	0	0	0	0	0	0	1,607,271	264,110
2011	15,091	0	0	0	0	566,304	31,795	41,112	0	0	0	0	0	0	0	1,522,678	408,903
2012	15,091	0	0	0	0	706,429	31,795	38,828	0	0	0	0	0	0	0	1,438,085	551,213
2013	15,091	0	0	0	0	844,271	31,795	36,544	0	0	0	0	0	0	0	1,353,491	691,338
2014	15,091	0	0	0	0	979,828	31,795	34,260	0	0	0	0	0	0	0	1,268,898	829,180
2015	15,091	0	0	0	0	1,113,101	31,795	31,976	0	0	0	0	0	0	0	1,184,305	964,737
2016	15,091	0	0	0	0	1,244,091	31,795	29,692	0	0	0	0	0	0	0	1,099,712	1,098,010
2017	15,091	0	0	0	0	1,372,796	31,795	27,408	0	0	0	0	0	0	0	1,015,119	1,229,000
2018	15,091	0	0	0	0	1,499,218	31,795	25,124	0	0	0	0	0	0	0	930,525	1,357,705
2019	15,091	0	0	0	0	1,623,355	31,795	22,840	0	0	0	0	0	0	0	845,932	1,484,126
2020	15,091	0	0	0	0	1,745,208	31,795	20,556	0	0	0	0	0	0	0	761,339	1,608,264
2021	15,091	0	0	0	0	1,864,777	31,795	18,272	0	0	0	0	0	0	0	676,746	1,730,117
2022	15,091	0	0	0	0	1,982,063	31,795	15,988	0	0	0	0	0	0	0	592,152	1,849,686
2023	15,091	0	0	0	0	2,097,064	31,795	13,704	0	0	0	0	0	0	0	507,559	1,966,972
2024	15,091	0	0	0	0	2,209,781	31,795	11,420	0	0	0	0	0	0	0	422,966	2,081,973
2025	15,091	0	0	0	0	2,320,215	31,795	9,136	0	0	0	0	0	0	0	338,373	2,194,590
2026	15,091	0	0	0	0	2,428,364	31,795	6,852	0	0	0	0	0	0	0	253,780	2,305,123
2027	15,091	0	0	0	0	2,534,229	31,795	4,568	0	0	0	0	0	0	0	169,786	2,419,273
2028	15,091	0	0	0	0	2,637,810	31,795	2,284	0	0	0	0	0	0	0	84,593	2,519,138
Total	401,103	336,000	0	0	0	33,732,529	858,465	809,492	0	0	0	0	0	0	0	0	2,622,719

Cover Ratio =  
Maximum Working Capital Outstanding =

-0.06  
2,622,719

Table 17.2.6 Income Statement for the Medium Term Development of New Bacoold Airport  
[700% Price Increase of Airport Charges]

Financing Conditions		25% of the Total Construction Cost		Working Capital (for deficit financing):		0% per annum				
State Budget:		75% of the Total Construction Cost		Interest Rate=		1 year				
Soft Loan:		2.7% per annum		Repayment Period=						
Interest Rate=		20 years (after grace period)								
Repayment Period=		10 years								
Grace Period=										
Year	Operating Revenue (1)	Sale of Existing Airport (2)	Operating Cost (3)	Operating Profit/Loss (4)=(1)-(2)-(3)	Depreciation (5)	Interest Payment (6)		Working Capital (7)	Current Profit/Loss (8)=(4)-(5)-(6)-(7)	Accumulated Current Profit (9)
						Soft Loan	Capital			
1996	0	0	0	0	0	0	0	0	0	0
1997	0	0	0	0	0	0	0	0	0	0
1998	0	0	0	0	0	0	0	0	0	0
1999	0	0	0	0	0	1,437	0	0	-1,437	-1,437
2000	0	0	0	0	0	2,154	0	0	-2,154	-3,591
2001	0	0	0	0	0	15,917	0	0	-15,917	-19,508
2002	126,136	0	31,795	94,341	89,662	36,464	0	0	-31,795	-51,293
2003	133,819	0	31,795	102,024	89,662	45,475	0	0	-33,113	-84,406
2004	142,039	0	31,795	110,244	89,662	45,680	0	0	-25,098	-109,504
2005	150,946	0	31,795	119,151	89,662	45,680	0	0	-16,191	-125,695
2006	150,946	0	31,795	119,151	89,662	45,680	0	0	-16,191	-141,887
2007	150,946	0	31,795	119,151	89,662	45,680	0	0	-16,191	-158,078
2008	150,946	0	31,795	119,151	89,662	45,680	0	0	-16,191	-174,269
2009	150,946	0	31,795	119,151	89,662	45,680	0	0	-16,191	-190,460
2010	150,946	0	31,795	119,151	89,662	43,396	0	0	-13,907	-204,367
2011	150,946	0	31,795	119,151	89,662	41,112	0	0	-11,623	-215,990
2012	150,946	0	31,795	119,151	89,662	38,828	0	0	-9,339	-225,329
2013	150,946	0	31,795	119,151	89,662	36,544	0	0	-7,055	-232,384
2014	150,946	0	31,795	119,151	89,662	34,260	0	0	-4,771	-237,155
2015	150,946	0	31,795	119,151	89,662	31,976	0	0	-2,487	-235,642
2016	150,946	0	31,795	119,151	89,662	29,692	0	0	-203	-239,845
2017	150,946	0	31,795	119,151	35,806	27,408	0	0	55,937	-183,908
2018	150,946	0	31,795	119,151	35,806	25,124	0	0	58,221	-125,687
2019	150,946	0	31,795	119,151	35,806	22,840	0	0	60,505	-65,182
2020	150,946	0	31,795	119,151	35,806	20,556	0	0	62,789	-2,393
2021	150,946	0	31,795	119,151	35,806	18,272	0	0	65,073	62,680
2022	150,946	0	31,795	119,151	35,806	15,988	0	0	67,357	130,037
2023	150,946	0	31,795	119,151	35,806	13,704	0	0	69,641	199,679
2024	150,946	0	31,795	119,151	35,806	11,420	0	0	71,925	271,604
2025	150,946	0	31,795	119,151	35,806	9,136	0	0	74,209	345,813
2026	150,946	0	31,795	119,151	35,806	6,852	0	0	76,493	422,306
2027	150,946	0	31,795	119,151	35,806	4,568	0	0	78,777	501,083
2028	150,946	0	31,795	119,151	35,806	2,284	0	0	81,061	582,145
Total	4,024,704	336,000	858,465	3,166,239	1,774,502	809,492	0	0	582,145	-

Unit: PHP '000 at 1996 Prices

Table 17.2.7 Fund Statement for the Medium Term Development of New Bacolod Airport

Year	Cash Inflow										Cash Outflow					Net Cash Inflow (14)=(7)-(13) (15)=(14)-(6)	Accumulated Net Cash Inflow (16)	Soft Loan Outstanding (17)	Working Capital Borrowing Outstanding (18)	
	Operating Revenue (1)	Sale of Existing Airport (2)	State Budget (3)	Borrowing (4)		Use of Cash in Hand (5)	Total (6)=(1)-(5)	Operating Cost (7)	Interest Payment (8)		Working Capital (9)	Principal Repayment (10)		Total (11)	Working Capital (12)					Working Capital (13)
				State Budget (3)	Soft Loan (4)				Soft Loan (8)	Working Capital (9)		State Budget (10)	Soft Loan (11)							
1996	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
1997	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
1998	0	0	21,292	53,229	0	74,521	0	0	0	0	0	0	0	0	0	0				
1999	0	0	10,620	26,550	1,437	38,607	0	1,437	0	0	0	0	0	0	0	53,229				
2000	0	0	203,897	509,743	3,581	717,231	0	2,154	0	0	1,437	0	0	0	0	79,779				
2001	0	0	304,398	760,995	19,508	1,084,901	0	15,917	0	0	3,591	0	0	0	0	589,522				
2002	126,136	336,000	133,487	333,743	0	929,376	31,795	36,464	0	0	0	0	0	0	0	1,350,517				
2003	133,819	0	0	7,604	0	144,465	31,795	45,475	0	0	0	0	0	0	0	1,684,260				
2004	142,039	0	0	0	0	142,039	31,795	45,680	0	0	0	0	0	0	0	1,691,864				
2005	150,946	0	0	0	0	150,946	31,795	45,680	0	0	0	0	0	0	0	1,691,864				
2006	150,946	0	0	0	0	150,946	31,795	45,680	0	0	0	0	0	0	0	1,691,864				
2007	150,946	0	0	0	0	150,946	31,795	45,680	0	0	0	0	0	0	0	1,691,864				
2008	150,946	0	0	0	0	150,946	31,795	45,680	0	0	0	0	0	0	0	1,691,864				
2009	150,946	0	0	0	0	150,946	31,795	45,680	0	0	0	0	0	0	0	1,691,864				
2010	150,946	0	0	0	0	150,946	31,795	45,680	0	0	0	0	0	0	0	1,691,864				
2011	150,946	0	0	0	0	150,946	31,795	45,680	0	0	0	0	0	0	0	1,691,864				
2012	150,946	0	0	0	0	150,946	31,795	45,680	0	0	0	0	0	0	0	1,691,864				
2013	150,946	0	0	0	0	150,946	31,795	45,680	0	0	0	0	0	0	0	1,691,864				
2014	150,946	0	0	0	0	150,946	31,795	45,680	0	0	0	0	0	0	0	1,691,864				
2015	150,946	0	0	0	0	150,946	31,795	45,680	0	0	0	0	0	0	0	1,691,864				
2016	150,946	0	0	0	0	150,946	31,795	45,680	0	0	0	0	0	0	0	1,691,864				
2017	150,946	0	0	0	0	150,946	31,795	45,680	0	0	0	0	0	0	0	1,691,864				
2018	150,946	0	0	0	0	150,946	31,795	45,680	0	0	0	0	0	0	0	1,691,864				
2019	150,946	0	0	0	0	150,946	31,795	45,680	0	0	0	0	0	0	0	1,691,864				
2020	150,946	0	0	0	0	150,946	31,795	45,680	0	0	0	0	0	0	0	1,691,864				
2021	150,946	0	0	0	0	150,946	31,795	45,680	0	0	0	0	0	0	0	1,691,864				
2022	150,946	0	0	0	0	150,946	31,795	45,680	0	0	0	0	0	0	0	1,691,864				
2023	150,946	0	0	0	0	150,946	31,795	45,680	0	0	0	0	0	0	0	1,691,864				
2024	150,946	0	0	0	0	150,946	31,795	45,680	0	0	0	0	0	0	0	1,691,864				
2025	150,946	0	0	0	0	150,946	31,795	45,680	0	0	0	0	0	0	0	1,691,864				
2026	150,946	0	0	0	0	150,946	31,795	45,680	0	0	0	0	0	0	0	1,691,864				
2027	150,946	0	0	0	0	150,946	31,795	45,680	0	0	0	0	0	0	0	1,691,864				
2028	150,946	0	0	0	0	150,946	31,795	45,680	0	0	0	0	0	0	0	1,691,864				
Total	4,024,704	336,000	676,746	1,691,864	24,537	32,771,678,622	858,465	809,492	0	676,746	1,691,864	1,691,864	24,537	5,785,740	1,000,882	19,508				

Unit: PHP '000 at 1996 Prices

[700% Price Increase of Airport Charges]

Financial Conditions  
 State Subsidy: 25% of the Total Construction Cost  
 75% of the Total Construction Cost  
 Interest Rate = 0% per annum  
 2.7% per annum  
 Repayment Period = 20 years (after grace period)  
 10 years  
 Working Capital: (for deficit financing)  
 Interest Rate = 0% per annum  
 1 year  
 Repayment Period =

Cover Ratio =  
 Maximum Working Capital Outstanding =  
 1.40  
 19,508

The major observations made from the income and fund statement are as follows:

a) At the Current Price Level

All financial indicators in this case are negative. The anticipated operating revenues are even insufficient to cover operating costs.

b) With 700% Price Increase

- The income statement indicates a positive single-year current profit in 2017, in the 16th year of its operation.
- The income statement shows that the accumulated current profit will become positive in 2021, 20 years after the operation of the new airport.
- The fund statement indicates that the net cash flow will shift between being positive and negative during the period between 2002 and 2013. From 2014 the surplus of net cash flow will permanently be increasing, after 13 years of operation.
- The fund statement also implies that the accumulated net cash flow will exceed the soft loan outstanding in 2019, 18 years after the operation of the new airport, implying that debt can be cleared with the accumulated cash in hand in that year.
- Anticipated requirements for deficit financing can be considered very low mainly depending on the substantial cash inflow from the sale of the existing airport property.
- The cover ratio<sup>1</sup> which gives indication of the security of financing from the lenders point of view is 1.40. This value is higher than the minimum requirements of 1.0, but under the level of normal requirements of 1.5 to 2.0 for commercial projects.

### 17.2.7 Sensitivity Tests

The purpose of the sensitivity tests is to provide information of how the feasibility of the project will be affected by possible changes in the construction costs and the growth of air traffic volumes. In the sensitivity tests, the case with assumed increase of prices by 700 % has been considered as the base case.

The following two cases are studied in relation to the base case:

- Increase of the construction costs by 20%
- Low forecast of air traffic volumes (equivalent to a decrease of incremental revenues by 20%)

<sup>1</sup> Accumulative net cash flow cover ratio (AC-NC CR) is used in the present analysis. It is defined as:

$$\text{AC-NC CR} = \frac{\text{Accumulated Operating Profit}}{(\text{Soft Loan Principal} + \text{Accumulated Soft Loan Interest Payments})}$$

The cover ratio of 1.0 means that the project will generate revenues just enough to pay operating cost, interest and principal repayment of the soft loan.

The IRR approach analyzes the financial returns of the Project assuming a rise of construction costs and a slower growth of the revenues as in the table below.

Table 17.2.8 Sensitivity Test: IRR Approach

Case	FIRR	Table or Appendix No. to be Referred
• Base Case	3.9%	Table 17.2.2
• Construction Cost up by 20%	2.7%	Appendix 17.2.3
• Low Forecast of Air Traffic Volumes	2.3%	Appendix 17.2.4

The FIRR will, as anticipated, fall to a lower level in the test cases than in the base case. However, the FIRR is still greater than the assumed financing condition of 1.8% (0% x 25% + 2.7% x 75%), thus the Project is financially feasible against assumed adverse conditions.

The corresponding analysis with income and fund statements is presented in Table 17.2.9 below.

Table 17.2.9 Sensitivity Test: Income and Fund Statements

Case	Accumulated Current Profit turns Positive	Net Cash Inflow becomes Positive	Accumulated Net Cash Inflow Greater than Soft Loan Outstanding	Maximum Single-Year Deficit Financing Requirement	Cover Ratio	Table or Appendix No. to be Referred
• Base Case	After 20 years of operation	After 13 years of operation	After 18 years of operation	PHP20 million	1.40	Tables 17.2.6 and 17.2.7
• Construction Cost up by 20%	27 years	22 years	23 years	PHP23 million	1.17	Appendices 17.2.5 and 17.2.6
• Low Forecast of Air Traffic Volumes	Not within evaluation period	27 years	25 years	PHP20 million	1.08	Appendices 17.2.7 and 17.2.8

The test cases pointed out above the financial indicators will worsen, as anticipated. However, the cover ratio will remain greater than the minimum requirement of 1.0.

According to the above observations it is essential for the feasibility of the Project that the assumed favorable financing plan should be maintained in consideration of possible increase of the construction costs and decrease of the revenues.

The analysis also indicates that the feasibility of the project is sensitive as to changes of the assumed revenue level. Therefore it is essential to improve the financial conditions, financial management and control and the business and marketing efforts in order to safeguard the revenue level and the profit requirements.

Special attention to the following steps is therefore essential for the feasibility of the Project :

- a) Introduce cost-based pricing on traffic related fees and charges according to the principle of cost recovering as ICAO recommendations.<sup>2</sup>
- b) Increase the number of possible and profitable commercial services.
- c) Set up profit goals for the management.
- d) Keep record of all costs and revenues on airport basis in order to calculate the true profit or loss.
- e) Increase productivity by intensifying training and organizational integration described in Section 14.3.
- f) Set up various cost reduction goals.

#### **17.2.8 Privatization and Commercialization**

##### **1) General**

The financial analysis generally indicates that the construction costs are relatively high as compared to the potential operating profit which can be generated by the Project. Therefore it is suggested to further investigate possible ways to reduce the total construction cost within the Project. Such a way could be considering privatizing or contracting out specified facilities and activities. Some general and preliminary aspects as to privatizing the fuel supply facility and the cargo building and contracting out some commercial services in the passenger terminal building are described in the this section..

During the last decade there has been an ongoing trend almost all over the world towards privatization of airport infrastructure. The main reason for privatization is to reduce the government investment expenditures on airport infrastructure, and to improve efficiency by letting operations to specialized operators. This trend seems to be exaggerated worldwide in the next ten to fifteen years due to the expected growth in air traffic and associated needs of reinvestments.

Many different ways and kinds of privatization and commercialization including among others sales, management contracts and long term leases have been tested depending on the national economy, and the competition rules and regulations in each country. A wide range of different experiences of privatization have been made in a number of countries. In a few cases the whole airport has been privatized and in other

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<sup>2</sup> Refer to ICAO, Airport Economic Manual (Doc 9562)



cases special functions or facilities at the airport have been privatized. Traditionally many commercial activities at airports are performed by private entities on the basis of concession agreements.

The main basis for privatization is that the establishment, facility or activity considered for privatization can be managed and performed in a profitable way. The conditions of profitability as to airport infrastructures and operations depend very much on traffic volume - number of passengers and aircraft movements - and on type of traffic e.g., domestic, international or mixed traffic. Normally profitability can be expected at airports with a volume of international traffic of about 1- 1.5 million passengers a year and for a domestic airport with higher traffic volumes.

At least three levels of privatization at an airport can be distinguished:

- The whole airport
- A facility, function or operation activity
- One or many commercial services

What level to be considered for privatization depends very much on the profitability conditions.

Relevant reasons or objectives for privatization of airport infrastructure can of course differ from country to country and from airport to airport but some reasons seem to be of a more basic and general nature :

- Keep the governmental airport infrastructure investment expenditures at the lowest possible level.
- Achieve a more competitive and efficient airport management, administration and business development.

When an airport, a function or a facility at an airport has been privatized, it is, however, of great importance that the government retain the regulatory control of the airport infrastructure and the use of it.

In considering privatization of airport infrastructure at rather small airports with mainly domestic traffic, it might be practical to commence with single and separated facilities, functions or activities at the airport. The privatization is best used if the facility or function under consideration is independent of all other airport operations.

There are many ways or modes to perform privatization or commercialization but the most usual and maybe preferable ways at small airport with mostly domestic traffic are contracting out specified services and financing cooperation when constructing buildings or facilities well-separated from and independent of other airport operations.

There are some key factors to be considered when entering into privatization as to the conditions of the agreement:

- Conditions of the concession (period, fees, penalty etc.).
- Quality of the operator.
- Definitions of the responsibility of the management (degree of autonomy).
- A clear and reasonable economic regulation scheme.
- An equal or reasonable distribution of risks.

If any privatization or further commercialization of airport infrastructure at New Bacolod Airport will be under consideration the volume of traffic in the next at least five to ten years will be at a level that normally excludes privatization of the whole airport. However, some facilities, operations and activities will be more or less suitable for privatization. A further investigation for the conditions of privatizing the following facilities is recommended:

- Fuel supply facility
- Cargo building
- Passenger terminal building

These three examples above have been chosen to illustrate that - although they are all single airport facilities - they have different conditions as to privatization. For the three facilities the following short and preliminary description of the advantages and disadvantages by privatization can be made.

## 2) Fuel Supply Facility

Planning, constructing and operating a fuel supply facility is normally apart from the more common airport operations performed by general airport staff and demands special qualifications and education in the fuel handling business area. A fuel supply service can to some degree be operated separately from other airport operations.

Possible advantages by and conditions for privatization are as follows:

- Reduce the amount of total governmental investment expenditures.
- The operations of the fuel supply operations can be more efficient if the concessionaire is chosen by bidding among experienced competitors.
- The airport can benefit from revenues of concession fees without needing to enter a new business area.
- The airlines have usually contracted fuel companies for the supply of fuel at many airports - often nationwide.
- Profitability conditions and prognosis are favorable.

In the case of privatizing the fuel supply facility - for instance through long term leasing - there are almost no special disadvantages to be found. However, it should be regarded as a disadvantage if an airline company would be a dominating or sole owner or operator of the facility, since such an ownership could affect competition negatively in a way that could reduce efficiency. This is the case widely observed in the Philippine airports at present. At the four airports under this Study, PAL is operating their own fuel supply system, and other airlines cannot refuel at those airports.

Therefore, adequate option may be either construct the fuel supply facility and lease it to a specialized operator or let construction and operation of the facility to a specialized operator. However, in order to enable operation of the fuel supply facility at New Bacolod Airport at the same time as other airport facilities, it would be better to include it in the whole airport project. In this case, it is suggested to choose a qualified concessionaire by bidding among qualified agents (for instance oil companies) before the construction is completed. The lease could be based on a concession agreement with conditions generally described in 1) above.

In any case, it is of great importance that the government - either directly or through the national airport authority (ATO) - retain the regulatory control of the operations involved as to general airport regulations, environmental reasons, safety and security.

### 3) Cargo Terminal Building.

The operations and functions of a cargo building are usually and mostly performed by airline companies, cargo forwarding agents and staff from handling companies. The cargo building and the operations within the building are well separated from and independent of other airport operations except for the ramp handling.

The possible advantages by privatizing the cargo building and the operations within it are mainly the same as for the fuel supply facility.

- Reduce the amount of total governmental investment expenditures.
- The operations can be more efficient if the concessionaire is chosen by bidding among experienced competitors.
- The airport can benefit from revenues of concession fees without needing to enter a new business area.
- Profitability conditions and prognosis depend very much on capacity utilization.

In the case of privatization of the cargo building there are also situations that could be considered as a disadvantage.

If one cargo forwarding agent or an airline company will become a dominant owner of the cargo building this could effect the competition negatively in a way that limits efficiency. Since all operators in a cargo

terminal compete with the same services on the same market, such an ownership should be considered as a disadvantage. Due to the high fixed cost the operations of a cargo terminal building can only be profitable at high degree of capacity utilization.

The regulatory authority in this case must also be retained by the government or the ATO of the same reasons mentioned under 2).

#### **4) Passenger Terminal Building**

The main purpose with the passenger terminal building is to handle the passengers when transferring between the access roads at landside to the aircraft parked at airside and vice versa. In addition many different operations and activities are taken place in the passenger terminal building and these operations and activities are normally performed by many different bodies or organizations. Of that reason the passenger terminal building can not be regarded as distinctively separated from and independent of other airport operations.

The advantages by privatization of the passenger terminal building are partly the same as those of the fuel supply facility :

- Reduce the amount of total governmental investment expenditures.
- The airport can benefit from revenues of various concession fees.

In the case of privatization of the passenger terminal building there are some disadvantages which ought to be observed.

- The passenger terminal building is often regarded as a public building with free admission for the public.
- The handling of the passengers in the terminal includes, among other things, security control which is regulated by the national laws.
- Other airport operations such as ground handling including passenger check-in and baggage handling, security control, aircraft parking and docking and a variety of commercial services in the building are closely linked to the passenger terminal building. Therefore the passenger building can not be regarded separated from and independent of all other airport operations
- If an airline company will become a dominant owner of the building such an ownership could affect the conditions of competition in a way that could reduce efficiency.
- The terminal building as a whole can normally not be operated in a profitable way at low traffic levels.

#### **5) Conclusions**

Some most preliminary conclusions can be made by the three examples above as to the provisions of privatization.

The fuel supply facility and the operations connected to handling of the facility can without any special disadvantages be wholly privatized. In the case of New Bacolod Airport, the construction of the facility as a part of the whole project and a long-term lease to qualified agent through competitive bidding are deemed adequate in order to enable its operation at the same time as other airport facilities

The cargo terminal and the operations performed within it can almost without any disadvantages be privatized provided that rules protecting competition are agreed upon. The profitability of the building, owning and operating of the cargo building is, however, questionable at low levels of utilization.

In the passenger terminal building a variety of operations and activities are linked together. Of that reason the terminal building can not be regarded as independent of other airport operations. There will be difficulties to operate the terminal building with all the services within it in a profitable way as a complete unit under the rather low traffic level at New Bacolod Airport at least during the next five to ten years. However, some commercial services in the building can be suitable for contracting out by concession agreements mostly depending on that they are separate activities and can normally be operated in a profitable way. Contracting out various commercial services - often considered as a form of privatization - can be a useful and efficient means to business development including increased total revenues and improved service to the public.

In any case, it is of great importance that the government directly or through the ATO retains the regulatory control of the facilities, services and operations under consideration of privatization.

## **Chapter 18 Conclusions and Recommendations**



## **CHAPTER 18 CONCLUSIONS AND RECOMMENDATIONS**

### **18.1 CONCLUSIONS**

As a result of comprehensive study of the development of Bacolod Airport, including alternative airport site selection, long term master development planning and a feasibility study on the medium term development plan, it can be concluded that the new airport development at approximately 5km east of Silay City is the most effective, efficient and sustainable airport development scheme of Negros Occidental. The existing Bacolod Airport has various safety problems, limited opportunities of operations for the airlines other than PAL, and constraints for further developments. Therefore, the development of the new airport is one of the most urgent requirements for the civil aviation of the Philippines, especially for ensuring safe and reliable air transportation to/from Negros Occidental.

The existing airport area should be redeveloped for non-aviation purposes. A part of the benefits from the redevelopment (approximately equal to the land price of the existing airport area) should be regarded, in the GOP's financial accounting, as a benefit of the new airport development.

The Study also includes master development planning for Iloilo, Tacloban and Legaspi Airports. It can be concluded that the development of these three airports are also important and urgent requirements for the balanced development of the civil aviation of the Philippines.

### **18.2 RECOMMENDATIONS**

- a) Approve the medium term development plan of the new airport at about 5km east of Silay City by the Government of the Philippines.
- b) Initiate financial arrangement at the earliest possible time including both the low interest rate soft loan from the foreign country and the local counterpart finance.
- c) Create, as soon as possible, a project team in the ATO and an interagency committee for the implementation of the Project.
- d) Employ as soon as possible a consultant for the basic and detailed designs of the airport facilities and environmental mitigation measures, and preparation of tender documents.
- e) Coordinate with all national and local government units related to the Project so that all government's activities are harmonized with the Project. Special attentions should be given to the road network, city water supply system, and land use zoning around the new airport and in the region.



- f) Initiate, as soon as possible, monitoring and controlling the migration of people and transaction of land ownership at and around the new airport site so as to avoid unnecessary increase of costs for land acquisition and compensation.
- g) Review the levels of airport charges so as to improve the financial status of the airport.

Recommendations for Iloilo, Tacloban and Legaspi Airports are presented in Chapter 11.

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