

# **SECTION 8**

## **Poverty and Social Impact Appraisal**

## **8 POVERTY AND SOCIAL IMPACT APPRAISAL**

### **8.1 Socio Economic Profile**

8.1.1 The subproject's zone of influence (ZOI) includes the entire province of Palawan, which is the largest province in the Philippines with a total land area of 1,489,655 ha. The 650 km long province is subdivided into 22 municipalities, 1 city and 431 barangays. The city of Puerto Princesa and 10 municipalities are located on the main island while the other 12 are island municipalities. The capital city of Puerto Princesa (year 2000 population of 161,912), is the province's prime seaport and center of trade, commerce and education.

#### **8.1.1 Population**

8.1.2 From 1975 to 2000, the population of Palawan rose from 300,065 to 755,412 (**Table 8.1.1-1**) indicating a crude rate increase of 17.88 % or an average annual growth rate of 3.34 %.

**Table 8.1.1-1: Population of Palawan, 1975 – 2005**

Year	1975	1980	1990	1995	2000	2005
Population	300,065	371,782	528,287	640,486	755,412	891,000

*Source of Data: 2002 Philippine Statistical Yearbook*

8.1.3 Historically, the population of Palawan has been growing at a faster rate than the national population due to in-migration as summarized in **Table 8.1.1-2**.

**Table 8.1.1-2: Annual Average Growth Rate, Philippines and Palawan**

	1970-1975	1975-1980	1980-1990	1990-1995	1995-2000	2000-2005
Philippines	2.8 %	2.7 %	2.4 %	2.3 %	2.4 %	2.3 %
Palawan	4.9 %	4.4 %	3.6 %	3.7 %	3.6 %	3.7 %

*Source of Data: 2002 Philippine Statistical Yearbook*

#### **8.1.2 Socio – Economic Profile**

8.1.4 The provincial economy is largely dependent on agriculture, fisheries and natural resource –based economic activities. In 2001, the sector contributed 45.5% to the province's gross provincial product, with fisheries accounting for about 65% of the sector's output. Tourism plays an increasingly important role in the province's economy as Palawan has a number of world-class natural attractions and its proven tourism potential is highlighted in the Philippines' tourism master plan. In recent years, domestic tourists comprised some 80% of annual visitors with foreign tourists, particularly from Korea, comprising the remaining 20% (**Table 8.1.2-1**).

8.1.5 The industry and manufacturing sector, which includes mining and quarrying, manufacturing, construction, and electricity, gas and water, contributed about 14% to the provincial gross product. The sector's output increased 3% in 2001 from its 2000 output level. Services gross value added (GVA) posted a growth rate of 16% from 2000 to 2001, higher than the Gross Provincial Domestic Product (GPDP) growth rate of 10% for the same period. The sector's GVA accounted for 41% of the GPDP.

**Table 8.1.2-1: Tourist Arrivals in Palawan, 1992 – 2003**

<b>Year</b>	<b>Domestic</b>	<b>Foreign</b>	<b>Total</b>	<b>Change</b>
2003	84,488	21,278	105,766	-7
2002	93,140	20,555	113,695	-3
2001	86,708	30,808	117,516	-8
2000	96,598	31,772	128,370	8
1999	80,945	38,255	119,200	41
1998	57,857	26,451	84,308	-15
1997	64,361	34,251	98,612	8
1996	57,308	34,295	91,603	

*Source of Data: Palawan Provincial Tourism Office*

## **8.2 Poverty Issues**

8.2.1 Palawan is not included in the listing of the Philippine's poorest 44 provinces which is a common reference for measuring poverty at the provincial level. The unemployment level in 2000 was 17.9 % of the population and some 27.9 % of people lived below the year 2000 poverty threshold of PhP 11,700 per month.

8.2.2 As described in the ITDP Initial Poverty and Social Analysis provided in the 2nd Interim Report, it is difficult to derive accurate estimates of poverty benefits from the proposed airport subprojects because such facilities and air travel typically serve better off and higher income people and broader ZOIs. Poverty benefits can, however, be inferred from:

- Direct benefits from construction work provided by poor laborers. As summarized in **Table 8.2-1** these benefits over the estimated 2 year construction period may be in the range of 513 person-years of employment, involving an estimated total of US\$ 1.4 million in wage earnings.

**Table 8.2-1: Summary of Projected Direct Poverty Benefits from Construction Work provided by Poor Labourers**

<b>Total Cost</b>	<b>US\$ 47,892,192</b>
Estimated Labor Share	0.10 %
Estimated Labor Cost	US\$ 4,789,219
Estimated Poor Labor Share	0.30 %
Estimated Total Poor Labor Income	US\$ 1,436,766
Average Length of Construction	2.0 years
Average Poor Wage Bill per Year	US\$ 718,383
Average Annual Wage	US\$ 1,400
Number of Poor Worker Jobs	257 jobs per year
Total Jobs for Poor Workers	513 person-years

- Indirect “multiplier benefits” benefits from the total wage injection into the communities surrounding the Puerto Princesa Airport, which are estimated to be 2 to 3 times as large as the initial total wage bill of US\$ 4.7 million. At least 30 % of this induced income, or some US\$ 1.4 million, may accrue to poor households based on the population profile of the ZOI.
- Direct benefits from improved/ expanded air cargo handling capacities. In 2005, over 90 % of the cargo carried out of Puerto Princesa Airport by the largest airline serving this facility (Philippine Airlines) involved fresh/ live marine fish (**Table 8.2-2**). Air transport to market areas makes this is a high valued commodity, of which an estimated 30 % may be produced by poor fishermen. The value added by air transport to poor fishermen is estimated to be in the range of PhP 50 – 100 per kilo, total 2005 poverty benefits may be in the range of US\$ 180,000 – 360,000.

**Table 8.2-2: Summary of 2005 Air Cargo Types Carried by Philippine Airlines and Estimated Volumes Produced by Poor Population**

<b>Cargo Type</b>	<b>Total (kg)</b>	<b>Estimated % of Cargo Produced by Poor Population</b>	<b>Estimated Kilos of Cargo Produced by Poor Population</b>
1. Fresh Fish	1,204,910	30	361,473
2. Live Animals	54,434	20	10,887
3. Documents	2,329	10	233
4. Foodstuffs	13,219	20	2,644
5. Others	46,481	20	9,296
<b>Total</b>	<b>1,321,373</b>		<b>384,533</b>

- The increased access, direct and indirect economic impact of the airport should help to address the alleviation of poverty, particularly through increased tourism to the province. **Table 8.2-3** summarizes some of the key types of expenditures and possible sources of poverty benefits from travellers and tourists passing through the Puerto Princesa Airport, which handled some 271,950 passengers in 2004. Average reported length of stay of non-resident visitors/ tourists in Palawan was 4 – 7 days (average of 5 days).

### **8.3 Possible Interventions**

8.3.1 No specific poverty alleviation initiatives (PAIs) were identified for the proposed airport subprojects in accordance with the ITDP Initial Poverty and Social Analysis (IPSA) and the 2nd Interim Report. General consideration should be made to introducing poor farmers and fishermen to the potential benefits of shipping high-value products by air to new markets through project coordination with concerned government agencies, NGOs and other aid providers in these areas.

**Table 8.2-3: Summary of Key Types of Local Expenditures from April 2004 Surveys of Puerto Princesa Airport Users (sample size: 365 respondents)**

Type of Reported Expenditure	Average Amount Reportedly Spent (PhP)
Accommodations (per day)	PhP 500 – 1,000
Meals (per day)	PhP 150 – 300
Transportation (per day)	PhP 200 – 500
Souvenirs (per visit)	PhP 500 – 1,000
Average Length of Stay in Palawan or Puerto Princesa	PhP 4 – 7 days

*Source: Third Airports Development Project Feasibility Study, Puerto Princesa Airport, 2004.*

8.3.2 The proposed types of airport subproject improvements are considered to be gender neutral and women were well represented and directly involved in the subproject evaluation and selection bodies and process. Based on passenger records, women are projected to comprise a significant proportion of the transport users and beneficiaries of the completed facilities.

#### **8.4 Need for Land Acquisition and Resettlement**

8.4.1 The need and status of land acquisition and resettlement is summarized in **Table 8.4-1**. These land acquisition and resettlement activities were conducted based on the 2002 Resettlement Action Plan (RAP) prepared by the DOTC and approved by the ADB for these previously proposed TADP investments.

8.4.2 In summary, land acquisition and resettlement is well-advanced with resettlement 98 % complete and land acquisition 86 % complete.

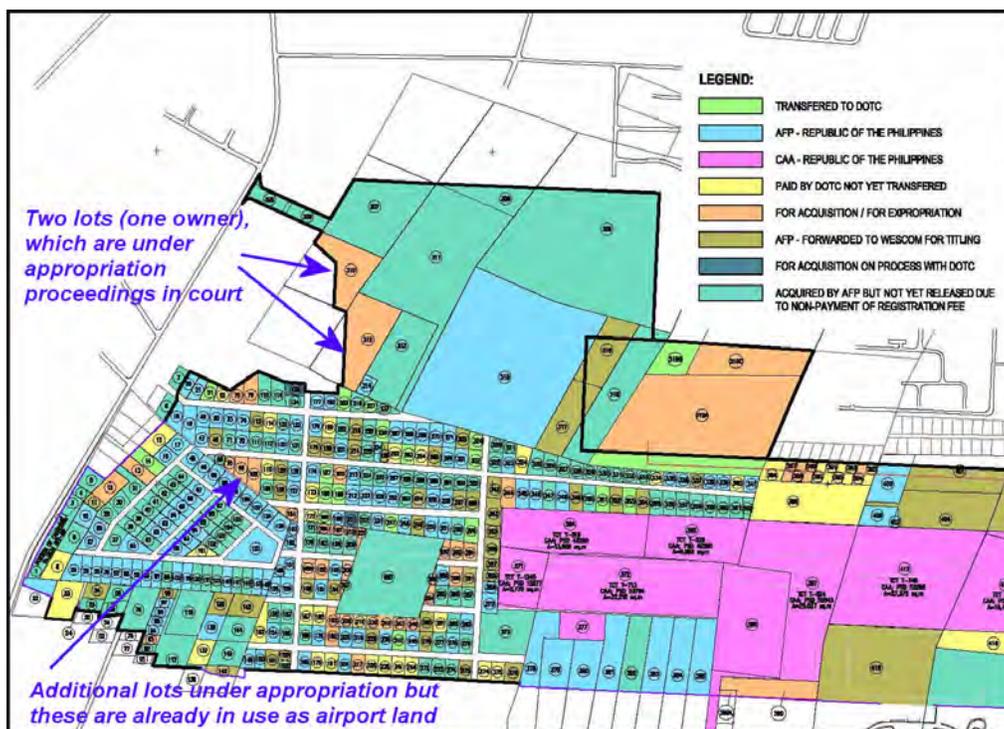
8.4.3 Based on Table 8.4-1 below, an estimated budget of PhP 55.43 million will remain for land acquisition and resettlement requirements after TADP activities were officially completed in December 2005. It is proposed that this outstanding budget amount be included as DOTC counterpart funding under the ITDP loan package. The actual outstanding budget for land acquisition and resettlement needs to be confirmed as part of the RAP external monitoring which remains to be completed by the DOTC to date. In addition, Table 8.4-1 includes a summary of the Supplemental LARP that was prepared during ITDP Phase 2 studies to assess and address Affected Peoples (APs) not included in the 2002 RAP.

8.4.4 Portions of two key lots, totalling some 2 ha in area, have reportedly been under expropriation proceedings since 2003 with no apparent progress. As part of the RAP, the Fair Market Value of these lot portions was independently appraised in early 2002 by Cuervo Appraisers, Inc., leading to a proposed compensation value of PhP 1,100 per sq. m. This same Market Value was applied to nearly all 456 lots included in the RAP appraisal. In comparison, the appraised value of several nearby lots located along the National Highway (Rizal Avenue) was in the range of PhP 4,500 – 5,000 per sq. m. An updated appraisal of the comparative market values of these two lots is recommended as an alternative to potentially lengthy expropriation proceedings (see **Figure 8.4.1**).

**Table 8.4-1: Summary Need and Status of Land Acquisition and Resettlement  
– Puerto Princesa Airport**

<b>1</b>	<b>Status of Land Acquisition (sq. m.)</b>	
1.1	Total Land Area Required	361,180 sq. m.
1.2	Area Paid For / Acquired to Date	310,940 sq. m.
1.3	Area under Expropriation Proceedings	50,240 sq. m.
<b>2</b>	<b>Fencing Works to Protect Acquired Land</b>	Program of fencing works has been approved by City Mayor and start of work is pending the signing of MOA
<b>3</b>	<b>Status of Structure Acquisition (% complete)</b>	
3.1	Percent complete - private structures	100 %
3.2	Percent complete - Philippine Air Force structures	62.85 %
<b>4</b>	<b>Status of Resettlement (number of households)</b>	
4.1	Total Number of Households to be Resettled	119 households
4.2	Number of Households Resettled to Date	112 households
4.3	Remaining Number of Households to be Resettled	7 households
<b>5</b>	<b>Status of LARP Expenditures (PhP million)</b>	
5.1	Original / Agreed RAP Estimated Budget	PhP 472.91 million
5.2	Actual / Revised Budget	PhP 561.51 million
5.3	RAP Expenditures to Date	PhP 485.13 million
5.4	Estimated Budget to Complete all RAP Activities outside TADP's currently available funds	PhP 76.38 million
<b>6</b>	<b>Summary Results of Supplemental LARP</b>	
6.1	Additional Land Area to be Acquired (sq. m)	0
6.2	Additional Number of Structures to be Acquired	21
6.3	Additional Number of Households to be Resettled	14
6.4	Estimated Budget to Complete Supplemental LARP	PhP 8.94 million
<b>7</b>	<b>Summary Total of Remaining LARP Activities</b>	
7.1	Land Area under Expropriation Proceedings (sq. m)	50,240
7.2	Additional Land Area to be Acquired (sq. m)	0
7.3	Total Number of Structures to be Acquired	21
7.4	Total Number of Households to be Resettled	21
7.5	Estimated Budget to Complete All LARP Activities	PhP 85.32 million

Source: Third Airports Development Project (TADP) Project Management Office (PMO) and ITDP Supplemental LARPs



**Figure 8.4-1: Location of Remaining Land Areas to be Acquired, Puerto Princesa Airport Subproject**

8.4.5 During the consultant’s due diligence review of RAP implementation, the following concerns were raised on the status and subsequent requirements for completing the land acquisition and resettlement requirements for the Puerto Princesa Airport subproject in accordance with Government and ADB requirements:

- Schedule and budget requirements for completing the agreed replication of Philippine Air Force (PAF) facilities as a subproject prerequisite;
- Detailed inventory and budgeting of relocation costs for some 14 households who continue to rent land from the PAF and will be affected along the new airport access road and its’ intersection with the national highway; Based on the Supplemental LARP, the 2,400 sq. m. area of the access road includes a total of 21 structures with a total area of 606 sq. m. The estimated replacement cost for relocating these structures is in the range of PhP 8.9 million; and
- Demarcation and fencing of all acquired land to avoid possible resettlement of these areas prior to project implementation.

8.4.6 Based on field surveys conducted on 29-30 April 2006 by representatives of the ATO, WESCOM and DPWH, the draft Supplement for amending the Puerto Princesa Airport RAP for the 11 households renting lots within the new access road is provided in Volume V. A key consideration in this Supplemental LARP is the rental status of these households and the relevant provisions of the current rental contracts with the PAF, which include the requirement for a three month notice prior to termination of the rental contract

8.4.7 Subject to more detailed investigations in later design stages, widening of the national highway may also be required in the vicinity of the access road intersection. This activity should be closely coordinated with the DPWH and the City Government which have indicated that plans already exist to upgrade the national highway.

8.4.8 In summary, land acquisition and resettlement is nearly complete but a balance of PhP 65.43 million will be applied under the ITDP loan to fund remaining land acquisition costs.

8.4.9 In addition to the requirements of the 2002 LARP, the Project Team prepared Supplemental LARP (refer to Appendix W of Volume V) to address the relocation of 21 structures /households which remain to be removed from the approximately 2,400 sq. m. land area of the new access road. These 21 remaining structures involve a total of 14 households, with 78 household members and 15 employees. The estimated budget for relocating these renters, including replacement costs for existing structures and fixed assets, compensation for lost income, disturbance allowance and external monitoring, plus monitoring and administrative and contingency costs is PhP 8.94 million. Since the Affected People (APs) involve renters, the project is not required to provide for formal resettlement.

## **8.5 Compensation Policy Framework**

8.5.1 The ITDP Land Acquisition and Resettlement Policy Framework and Procedural Guidelines (LARPFPG) are provided in Volume VII, which includes the compensation policy framework. In summary, the objectives of this policy framework are:

- Providing for a proper and humane resettlement of informal settlers;
- Due compensation and other assistance to those families who will be displaced, when their houses will be demolished, or when their land will be acquired;
- Minimizing negative impacts as much as possible;
- Carrying out the resettlement/compensation so as to improve or at least restore the APs pre-project living standards;
- Informing and consultation with APs on compensation options and RAP design;
- Compensation rates of affected lands and structures in accordance with the ADB's policy and the country's relevant laws; and
- Compensation for lost assets and subsidies prior to ground levelling and demolition.

8.5.2 To arrive at a Fair Market Value for land and Replacement Cost for structures, the DOTC had engaged the services of Private Appraiser (Cuervo Appraisers, Inc.) to provide an independent valuation of land and structures affected. Entitlement for compensation and assistance to different categories of APs, which are defined as those who stand to lose, as a consequence of the project, all or part of their physical and non-physical assets as summarized in **Table 8.5-1**.

**Table 8.5-1: Compensation Entitlement Matrix**

<b>Type of Loss</b>	<b>Application</b>	<b>Compensation</b>
Residential / Commercial Land	Actual Area needed by the project and the remaining land is still viable for continued used. Remaining residential area not viable for continued used	Cash compensation equivalent to the reproduction / replacement cost ("market value") of the affected area.
Residential and Residential with Shop / Store	Main structure affected and the remaining portion not viable for continued use	Cash compensation equivalent to the reproduction/ replacement cost ("market value") and subsistence allowance if business is loss and disturbance allowance equivalent to PhP 15,000
Independent Shops and/or Store	Main structure affected and the remaining portion not viable for continued use	Cash compensation equivalent to the reproduction/ replacement cost and subsistence allowance
Other Fixed Structures	Partially or severally affected	Cash compensation equivalent to the reproduction/ replacement cost.
Public Infrastructures and Other Assets	Partially or severally affected	Replacement of functional replication on a turnkey basis with temporary facilities during construction works.
Plants / trees	Partially or severally affected	Cash compensation at market value and sufficient time to harvest crops (or a minimum of 30 days notice)

# **SECTION 9**

## **Management and Operation**

## **9 AIRPORT MANAGEMENT AND OPERATION**

### **9.1 MANAGEMENT AND OPERATIONAL PHILOSOPHY**

9.1.1 Completed in 1992, the first Civil Aviation Master Plan (CAMP), which was funded by United Nation Development Program (UNDP) with the assistance of ICAO reviewed the then prevailing civil aviation policies and recommended necessary institutional reforms. It also focused on airport physical infrastructure and air traffic services and support facilities. After identifying short and long term investment requirements, it submitted for government consideration investment programs for the aviation sector.

9.1.2 Under TA No. 2559-PHI granted by ADB, the 1992 Civil Aviation Master Plan (1992 CAMP) was revised and updated. CAMP II discussed the impact of air transport on the economy, analyzed the prevailing organizational and institutional arrangements in the aviation sector, tackled human resources, the financial issues and traffic demand, proposed policy and regulatory reforms and considered the potential role of the private sector therein. The plan also dwelt on airports, air services networks and the CNS/ ATM Systems. On infrastructure and service provision, it proposed the transfer of project planning and implementation functions from the DOTC to the ATO whose corporatization was then recommended as the most essential strategy in the institutional restructuring process. The corporatized ATO was envisioned to perform infrastructure and service functions.

9.1.3 The recently completed JICA *Airport Master Plan Study on the Strategy for the Improvement of National Airports in the Republic of the Philippines* analyzed the structure of the aviation sector in the Philippines, identified the problems besetting it, reviewed past studies and plans and made recommendations to improve the sector. Among the recommendations of the study is the restructuring of the aviation sector through the creation by law of two airport authorities – the Airport Authority of the Philippines (AAP) and the Civil Aviation Authority of the Philippines (CAAP). The restructuring is primarily aimed at ensuring the financial autonomy and financial viability of airport owners/ operators, thereby ensuring a steady and reliable source of funds to defray the costs of airport infrastructure development and construction, operation and maintenance. The proposed restructuring was based on the following criteria: a) financial autonomy; b) separation of regulatory and operation functions; c) financial sustainability of airport operators; d) financial sustainability of the civil aviation regulator; and separation of airport and air navigation services.

9.1.4 The civil aviation policy reform program and the attendant institutional strengthening initiatives are presented in full in Chapter 6 of the Main Report.

### **9.2 REQUIREMENTS FOR SUCCESSFUL PRIVATE SECTOR PARTICIPATION (PSP)**

9.2.1 Most Governments have realized that airports, especially gateway airports, are critical to the attractiveness and the economic development of the country. Any country that wants to compete and be a part of this global economy and community has to take the necessary steps to adequately develop airports as a key strategic step. Accessibility is the reason why airports are so important.

9.2.2 Airports need high levels of capital investment. This is a common factor for any country. Many countries have insufficient capital for airport development as they have other demands on their limited financial resources. Despite this financial constraint, they have not lost

sight of the potential benefits of not just developing but in fact "accelerating" their airport development programs, if they want to gain a "competitive edge" in the global economy.

9.2.3 Due to the strategic importance of the airport sector, many national governments have at least invested significantly in the gateway airports. Other countries have solved the financial constraint problem by inviting the private sector to invest the necessary capital and take out long-term leases or other PSP arrangements so that the private sector can enjoy a capital return over time. These governments know they are missing out on certain direct airport revenues by doing this, but they also know that they save capital and it is they who are getting all the substantial and accelerated "indirect" benefits that airport development brings.

### **9.3 OPTIONS FOR PSP**

9.3.1 The legal and institutional framework for PSP and Public-Private Partnership (PPP) is provided by Republic Act No. 7718, An Act Amending Certain Sections of Republic Act No. 6957, Entitled An Act Authorizing financing, construction, operation and maintenance of infrastructure projects by the private sector, and for other purposes and its implementing rules and regulations, establishes the legal framework for private sector participation in infrastructure and development projects normally financed and undertaken by the Government.

9.3.2 The eligible types of projects for Build Operate Transfer (BOT) includes construction, rehabilitation, improvement, betterment, expansion, modernization, operation, financing and maintenance of the many types of projects which are normally financed and operated by the public sector which will now be wholly or partly financed, constructed and operated by the private sector, including transport infrastructure and development projects as may be authorized by the appropriate agencies provided that such projects have a cost recovery component which covers at least 50% of the project cost.

9.3.3 For all such PSP projects, a realistic appreciation of the willingness of the private sector to participate in these subprojects has to be considered. Where private sector participation is initially difficult to implement, it might be possible to take a first step towards privatization through creating a state-owned enterprise or strengthen an existing one. If commercial practices are followed by this organization over a period of time and the revenue streams are good, it could be privatized on a competitive tender basis.

9.3.4 Over the years, the decline in private sector interest is widely observed in many parts of the world. The Public-Private Infrastructure Advisory Facility (PPIAF) of the World Bank (WB) reported that the decline is an international trend and is brought about by several underlying factors: the more developed middle-income countries had reached the end of the private participation cycle; the financial crises during the '90s brought about a climate of uncertainty; and controversial transactions brought to the limelight the complex political economy of private involvement in infrastructure. The last explanation for investment decline is something to which the Philippines can immediately relate.

### **9.4 HISTORICAL PSP**

9.4.1 The Philippines has had successes in attracting private sector investment in what had previously been considered public infrastructure, especially in the early 1990s in the power sector. The transportation sector has been spotty in achieving completed infrastructure projects with private participation, although there have been some successes. Such successful

arrangements, however, have been structured at the cost of large government subsidies or contingent liabilities.

9.4.2 Because the government has been unable to raise revenues for infrastructure investments, it relied on private sector participation in the sector, especially in the power and energy and transport sectors. The biggest private expenditures on infrastructure were in telecommunications, roads and transport in 1994 and in water resources development and flood control in 1997. The private sector also made substantial investments in power and energy in response to the power crisis in the early 1990s. Unfortunately, private sector participation in infrastructure seems to have waned as an aftermath of the 1997 Asian financial crisis and the lack of confidence in the Philippine economy.

9.4.3 Some progress has been achieved in setting new procedures to facilitate transactions and establishing acceptable criteria for risk allocation. However, the recent judicial interventions on power projects and the pure BOT arrangement for the NAIA International Passenger Terminal 3 Project have thinned the lines of infrastructure investors, and posed a major challenge to the Philippine government in creating a rational environment to promote successful PPP initiatives.

## **9.5 RECOMMENDED PSP COMPONENTS**

9.5.1 Based on recent experience in the Philippines, and considering the perceived investment climate in Mindanao due to peace and order "problems", the investment by the private sector in basic infrastructure such as a runway and air navigational facilities for an airport is probably not a realistic assumption to make. Importantly, the relatively low volumes of traffic that exist at most of the subproject airports do not justify the investment and the user charges that would have to be collected fall far short of the amount needed to obtain a reasonable rate of return, say, 20 percent for the private sector.

9.5.2 Therefore, no new PSP components are expected for the Puerto Princesa Airport, except the continued concessioning of commercial areas within the airport complex and mainly within the passenger and cargo terminal buildings.

# **SECTION 10**

## **Project Costs**

## **10 PROJECT COSTS**

### **10.1 Introduction**

10.1.1 The Project cost estimates include all categories of expenditures that are expected to occur in connection with the implementation of a project. These are (a) the investment or development costs and (b) the operating and maintenance (O&M) costs. The investment or development costs refer to expenditure requirements that attend the investment phase of the project while O&M costs are expenses that accompany the operation of the project facility after its completion.

10.2.2 The detailed description and the derivation of the related estimates of the various expenditure items that comprise the project investment costs corresponding to the scope of the works as identified in Section 6 above, including the subsequent O&M cost requirements for the operation of the facility are presented and discussed in the following sections.

### **10.2 Investment Costs**

10.2.1 Investment or development costs cover all project development related expenses and include costs for the following:

- a) The cost of construction of all civil works, building components and equipment identified earlier in Section 6 as part of the scope of the proposed development works, including the supply and installation costs of airfield lighting, navigational facilities and air traffic control systems. This will include the cost of construction materials, equipment, labor and other related inputs required for the execution of the works and will involve both local and foreign currency costs.
- b) The cost of the procurement and installation of airport equipment identified as part of the scope of the development works under Section 6 above. This cost mostly consists of foreign currency costs (90%). Together, the civil works and equipment costs are the base costs.
- c) The cost of consulting services for the preparation of the detailed engineering design, specifications and tender documents, assistance in tendering and construction management and supervision.
- d) The cost of additional land acquisition and resettlement representing the remaining land to be expropriated, relocation/replacement of structures since the TADP and other payments to affected persons as detailed in Section 8.4;
- e) The cost of project administration expenses of the Government, which covers the operation and maintenance of the project management office, created to supervise the day-to-day management of the project.
- f) The cost of taxes and duties prescribed under applicable local revenue regulations that are expected to be imposed during the implementation of the Project, which include the extended value-added-tax (EVAT) and duties on imported items. These are denominated solely in local currency; and
- g) The cost of physical contingencies to cover possible upward adjustments in the quantities and unit costs of local and foreign currency costs.

10.2.2 In the estimation of the costs corresponding to each of the expenditure items described in the foregoing, the following parameters and assumptions were adopted:

- a) The unit costs used to estimate the base costs for the civil works and building components, as well as the acquisition of all related airport equipment were estimated by using the unit rates and prices of work items as derived under the SPADP feasibility study report (2004 price levels) and adjusted to March 2006 prices using the General Construction Price Indexes published by the National Statistics and Coordination Board (NSCB). The resulting unit rates and prices were then applied to the items of work that comprise the scope of the developmental works for civil works and buildings, as well as airport equipment identified in this Study. Relevant equipment required for incorporation in the permanent works includes related airfield ground lighting (AGL) facilities, navigational aids (NavAids) and air traffic control (ATC), communications and meteorological facilities. Labour cost is taken to be 30% of the estimated total cost of the works, and with unskilled and skilled labour having share of 20% and 10% of the total cost of the works, respectively. Moreover, owing to the fact that detailed engineering design plans and specification have already been prepared under the TADP, the breakdown of the local and foreign currency requirements of the base costs of construction that were arrived at under the TADP shall be adopted for the purpose of this Study. In accordance with the latest version of the "Master Budget" prepared under the TADP in August 2001, the breakdown of the local and foreign currency costs for the base cost of construction is taken at 45% and 55% on the average of the total cost of the works, respectively. On the other hand, all related airport equipment (i.e., airfield ground lighting (AGL) facilities, navigational aids (NavAids), air traffic control (ATC), communications and meteorological facilities, airfield maintenance equipment and crash, fire fighting and rescue vehicles) are assumed to be 90% imported abroad.
- b) For the purposes of preparing a budgetary estimate, the cost of consulting services assume the extensive use of the designs of the proposed facilities prepared in 2004 under the Third Airport Development Project. The consulting services estimates have been prepared for all three airports (Puerto Princesa, Cotabato and Butuan) as if done as a single contract. In the case of Puerto Princesa, a limited master planning effort will be undertaken prior finalizing the designs of the airport. Of these costs, 45 percent are allocated to Puerto Princesa. A detailed description of the services required and budgetary cost estimates are found elsewhere in this report.
- c) The cost of project administration is estimated at three-and-a-half percent (3.5%) of the estimated total base cost, and shall be paid purely in local currency.
- d) A twelve percent (12%) EVAT was applied to all expenditure items (except the land acquisition and resettlement costs and project administration costs). An additional three percent (3%) duties/tariff on all imported items was added. All taxes and duties are to be paid in local currency.
- e) The cost of physical contingencies is valued at seven percent (7%) of all costs associated with the project.

10.2.3 A summary estimate of the total investment cost requirements for the proposed project in terms of the expenditure items earlier discussed based on the foregoing parameters and assumptions is presented in **Table 10.2-1** below. A more detailed presentation of the estimates of the base cost of civil works and building construction and the acquisition of airport equipment is provided in **Appendix D**.

**Table 10.2-1: Estimated Total Project Cost (PhP'000)**

Project Component		Project Cost, PhP'000		
		Local Cost	Forex Cost	Total
1.	<b>Civil Works, Buildings &amp; Intermodal</b>	<b>858,502</b>	<b>1,365,580</b>	<b>2,224,082</b>
	a. Materials	600,951	1,365,580	1,966,531
	b. Labor	257,551	0	257,551
	i. Skilled	85,850	0	85,850
	ii. Unskilled	171,700	0	171,700
2.	<b>Airport Equipment Packages</b>	<b>11,205</b>	<b>100,843</b>	<b>112,048</b>
	a. Maintenance	246	2,214	2,460
	b. Crash, Fire Fighting and Rescue	10,959	98,629	109,588
3.	<b>Consulting Services</b>	<b>60,331</b>	<b>60,331</b>	<b>120,662</b>
4.	<b>Land Acquisition &amp; Resettlement</b>	<b>85,320</b>	<b>0</b>	<b>85,320</b>
5.	<b>Project Administration (DOTC/ATO)</b>	<b>65,412</b>	<b>16,353</b>	<b>81,765</b>
6.	<b>Taxes and Duties</b>	<b>298,177</b>	<b>0</b>	<b>298,177</b>
5.	<b>Physical Contingencies</b>	<b>96,526</b>	<b>108,018</b>	<b>204,544</b>
<b>Total</b>		<b>1,475,473</b>	<b>1,651,125</b>	<b>3,126,598</b>

### 10.3 Operating and Maintenance Costs

10.3.1 In the estimation of the O&M cost requirements that are expected to ensue during the operation of the project, the following assumptions that were considered under the feasibility study conducted for the SPADP, which were arrived at in consultation with the concerned airport management, shall be adopted for the purpose of this Study:

- (a) Additional personnel shall be required for the operation of the improved airport, which will result to a fifty percent (50%) increase in the cost of personnel services from the 2006 level of PhP 13,627. The annual increase in personnel services cost is estimated at 2% p.a., which is about 25% of the annual passenger growth rate of 7.2% for Puerto Princesa Airport. However, no increases in annual personnel costs starting 2020 are assumed when the apron and terminal capacities would have been reached;
- (b) Other operating expenses, such as the cost of utilities, office supplies, etc., are taken collectively to be equal to twenty percent (20%) of the cost of personnel services at the start of project operation. These are based on earlier estimates under the TADP; and
- (c) The cost of maintenance for buildings, other civil work components and equipment is estimated at 1% of the total project cost of PhP 3.13 billion, which is based on ICAO airport planning guidelines. These are expected to increase by 2% every year following historical trends for ATO-operated airports until 2020 when the apron and terminal capacities would have been reached.

10.3.2 **Table 10.3-1** below shows a summary of the total O&M cost requirements with the project starting its operational stage (Year 2012) based on the above parameters and assumptions. Note that the years when airport apron and terminal congestion without and with the Project were forecasted to be 2009 and 2020, respectively.

**Table 10.3-1: Estimated Airport Operating & Maintenance Costs (PhP'000)**

Year	Incremental O&M Costs with Project				Projected O&M Cost without Project	Total O&M Cost with Project
	Personal Services	Other Operating Costs	Maintenance	Total		
2012	6,814	1,363	31,266	39,442	23,640	63,082
2013	6,950	1,390	31,891	40,231	23,640	63,871
2014	7,089	1,418	32,529	41,036	23,640	64,675
2015	7,231	1,446	33,180	41,856	23,640	65,496
2016	7,375	1,475	33,843	42,693	23,640	66,333
2017	7,523	1,505	34,520	43,547	23,640	67,187
2018	7,673	1,535	35,211	44,418	23,640	68,058
2019	7,827	1,565	35,915	45,307	23,640	68,946
2020	7,983	1,597	36,633	46,213	23,640	69,852
2021	7,983	1,597	36,633	46,213	23,640	69,852
2022	7,983	1,597	36,633	46,213	23,640	69,852
2023	7,983	1,597	36,633	46,213	23,640	69,852
2024	7,983	1,597	36,633	46,213	23,640	69,852
2025	7,983	1,597	36,633	46,213	23,640	69,852
2026	7,983	1,597	36,633	46,213	23,640	69,852
2027	7,983	1,597	36,633	46,213	23,640	69,852
2028	7,983	1,597	36,633	46,213	23,640	69,852
2029	7,983	1,597	36,633	46,213	23,640	69,852
2030	7,983	1,597	36,633	46,213	23,640	69,852
2031	7,983	1,597	36,633	46,213	23,640	69,852

10.3.3 The operation and maintenance cost without the Project is estimated at PhP 23.6 million, which is the escalated 2009 figure using the historical average annual growth rate of 1.8% from 2006 (PhP 22.4 million). As noted in Sections 4.3 and 6.7, the maximum passenger and aircraft traffic that could be served are equivalent to the 2009 forecasted traffic. With the Puerto Princesa Airport reaching capacity limits by 2009, there would be no additional air traffic, even during the off-peak times.

10.3.4 With the Puerto Princesa Airport improvement, the operation and maintenance cost will increase from PhP 22.4 million in 2006 to PhP 63 million in 2012 when the Project is completed. The incremental O&M cost would increase from PhP39.4 million in 2012 to PhP46.2 million in 2020. Thereafter, since the airport would have reached its revised design capacity (Section 6.7), the O&M cost would be held constant until further improvements and capacity upgrades are undertaken outside of the proposed ITDP loan.

# **SECTION 11**

## **Project Implementation and Disbursement Schedules**

## **11 PROJECT IMPLEMENTATION AND DISBURSEMENT SCHEDULES**

### **11.1 Project Implementation Schedule**

11.1.1 The various works that comprise the scope of the project shall be implemented under three (3) contract packages, as follows:

- a) Consulting Services;
- b) Civil Works and Buildings; and
- c) Airport Maintenance and Rescue and Fire Fighting Equipment.

11.1.2 The relevant equipment required for incorporation in the permanent works consisting of related airfield ground lighting (AGL), navigational aids and air traffic control (ATC), communications and meteorological facilities shall be included and form part of the civil works and buildings contract package.

11.1.3 The Project will be implemented over a period of four (4) years and six (6) months starting from the sector loan date of effectivity. The estimated time durations for each milestone activities relative to the implementation of the project are given in the table below:

**Table 11.1-1: Estimated Time Durations per Milestone Activity**

<b>Milestone Activity</b>	<b>Estimated Time Duration</b>
1. Detailed Engineering Design Works	12.2 months
2. Tendering and Contract Award	10.7 months
3. Contract Execution/Completion	24.4 months

11.1.4 The detailed engineering design works is expected to commence by May 2008 and the completion of the works is targeted by the end of April 2012.

11.1.5 The project implementation schedule in the form of a bar chart is given in **Figure 11.1-1** below:

<b>Activity</b>	<b>Timeline Schedule</b>
1. Engineering Design	→ (12.2 mos., May 2008 – May 2009)
2. Tender & Award	→ (10.7 mos., July 2009 – May 2010)
3. Contract Execution	
a. Civil Works & Bldgs.	→ (24 mos., May 2010 – April 2012)
b. Rescue & Fire Fighting	→ (10 mos., March – December 2011)
c. Maintenance Equip't	→ (6 mos., July – December 2011)

**Figure 11.1-1: Implementation Schedule, Puerto Princesa Airport**

## **11.2 Project Financing Plan**

11.2.1 The estimated total investment cost amounting to PhP 3.13 billion, excluding price contingencies and financial charges during construction, is proposed to be financed through a mixture of local/ Government funds and loan assistance from the ADB.

11.2.2 Under the proposed arrangement, the Government of the Philippines, through the DOTC/ ATO as the lead Executing Agency, shall finance only the costs of project administration and all applicable duties and taxes. ADB on the other hand is expected to provide financing for all the identified developmental works, as follows:

- a) Cost of consulting services for engineering design and construction supervision works;
- b) Cost of the civil works and buildings components, which includes airport equipment for incorporation into the permanent works consisting of related AGL, navigational aids and ATC, communications and meteorological facilities; and
- c) Cost of airport equipment consisting of maintenance equipment and Rescue and Fire Fighting vehicles.

11.2.3 Overall, ADB will be financing 65% of the estimated total project investment cost. This will mean that the proposed ADB loan will likewise be used to finance the local currency cost requirements of the project, except the costs of project administration and applicable duties and taxes.

11.2.4 The proposed financing plan with a breakdown of the estimated total project investment cost by funding source following the arrangement cited in the above is shown in **Table 11.3-1**.

## **11.3 Annual Project Cash Disbursement Schedule**

11.3.1 The estimated annual cash disbursement requirements of the Project consistent with the proposed implementation schedule and broken down by local and foreign currency components are provided in **Table 11.3-1**.

Table 11.3-1: Cash Disbursement Schedule (PhP'000)

Cost Component	2007		2008		2009		2010		2011		Total	
	Local	Forex	Local	Forex	Local	Forex	Local	Forex	Local	Forex	Local	Forex
1. Land Acquisition / Resettlement	85,320	0									85,320	0
2. Consulting Services			15,083	15,083	15,083	15,083	15,083	15,083			60,331	60,331
3. Civil Works and Bldgs							343,401	546,232	515,101	819,348	858,502	1,363,580
4. Airport Equipment									11,205	100,843	11,205	100,843
5. Project Administration			16,353	4,088	16,353	4,088	16,353	4,088	16,353	4,088	65,412	16,353
6. Taxes & Duties			3,620	0	3,620	0	116,375	0	174,562	0	298,117	0
7. Physical Contingencies	5,972	0	2,454	1,342	2,454	1,342	34,385	39,578	51,261	65,755	96,526	108,018
Total	91,292	0	37,510	20,513	37,510	20,513	525,596	604,981	783,565	1,005,118	1,475,473	1,651,125
<b>Total Project Cost</b>											<b>3,126,598</b>	

# **SECTION 12**

## **Financial Analysis and Evaluation**

## **12 FINANCIAL ANALYSIS AND EVALUATION**

### **12.1 Methodology and Approach**

12.1.1 Financial analysis, as one of the criteria for decision-making, determines the revenues to be generated to cover the capital cost and operation and maintenance costs to be incurred by the project. Financial analysis is undertaken on the total project/investment point-of-view (all-capital/ cost approach) as well as from the viewpoint of the government agency concerned. The total project/investment point-of-view examines the returns on the total invested capital and from the amount of funds (equity) invested by the agency or Government itself. It evaluates whether or not financial receipts generated from the Puerto Princesa Airport operations are adequate to cover the investment and operational and maintenance expenditures.

12.1.2 The financial internal rate of return (FIRR) is estimated using the “with” and “without” subproject comparison. The major assumptions are:

- financial analysis to cover a period of 20 years from the start of operation is based on costs and revenues at constant March 2006 prices;
- capital costs include all incremental capital expenditures associated with the airport, including taxes and physical contingencies, but not interest during construction and price escalation;
- projected traffic growth attributable to the subproject is as presented in Section 4; and
- airport tariffs and charges are based on the prevailing fee structure of MIAA, MCIAA and SBMA.

12.1.3 The main indicator of financial viability for this airport project is the FIRR. This is computed considering only the incremental costs and revenues due to the implementation and operation of the project. For purposes of the financial analysis, the prevailing Manila International Airport Authority (MIAA)/ Mactan-Cebu International Airport Authority (MCIAA)/ Subic Bay Metropolitan Authority (SBMA) tariff rates as applied to the total expected traffic were taken to estimate the incremental revenues. The project is viable if the computed FIRR is at least equal to or greater than the weighted average cost of capital (WACC) of 7.4% as estimated for the project (refer to Section 12.4.1). Capital costs will be financed through an ADB sector loan (65%) carrying an interest rate of 6% p.a. and the Government counterpart funds with cost of capital of about 10% p.a.

12.1.4 At the present tariff levels, even those airport projects undertaken by international airport authorities are not financially viable. The sensitivity analysis is undertaken to test the effects of possible unfavorable scenarios with respect to changes in the main parameters that determine subproject costs and revenues. These scenarios include the levels of tariff increase to cover the capital cost and the operating and maintenance costs (break-even analysis).

**12.2 Present Financial Performance of the Airport**

**12.2.1 Existing Level of Airport Charges**

12.2.1 The prevailing level of airport charges is as prescribed by Department Order 99E-002 effective January 1, 1999 for air navigation facilities and D.O. 98-1178 effective 1997 for other fees and charges (**Table 12.2.1-1**). As noted by the JICA National Airport Master Plan, airport tariffs would need to be revised to achieve full cost recovery for provision of airport services. For purposes of the financial evaluation, the higher tariff charged at MIAA, MCIAA and SBMA are assumed to be allowed by a corporatized ATO (**Appendix E**).

**Table 12.2.1-1: ATO and Assumed Schedule of Fees and Charges**

<b>Fees and Charges</b>	<b>ATO Charges</b>	<b>Based on MIAA, MCIAA and SBMA Charges</b>
1. Air Navigational Charges	1/2 of the charge in US\$ or its peso equivalent is equal to the distance flown by an aircraft in km divided by 100 and multiplied by the aircraft weight factor Ave. PhP 600/ arrival or departure	Foreign aircraft - \$ 225/ arrival or departure Domestic aircraft - PhP 1000/ arrival or departure
2. Landing and Take-off Fees	For Alternate International Airports: PhP 70.00/ 1,000 kgs. or a fraction thereof upto 160,000 kgs and PhP 50.00/ 1,000 kgs or a fraction thereof in excess of 100,000 kgs For National Airports: PhP 55.00/ 1,000 kgs, (PCC paved runway) PhP 45.00/ 1,000 kgs (AC paved runway)	Foreign aircraft – Ave. \$ 4/ ton or PhP 208/ ton  Domestic aircraft – PhP 53.74 – PhP 101.72/ ton
3. Aircraft Parking Charges	First hour free of charge, additional fee of 10% of landing fees for every additional 15 minutes	Beyond one hour free period: Foreign aircraft - \$ 3-21 per 30 min Domestic- Ave. PhP 195.50 per 30 min
4. Passenger Service Charge	PhP 40 per departing passenger	Foreign – PhP 550/ passenger Domestic-PhP 200/ passenger
5. Rental of Floor Space	PhP 50/ sq.m./ month	PhP 150-250/sqm/month

<b>Fees and Charges</b>	<b>ATO Charges</b>	<b>Based on MIAA, MCIAA and SBMA Charges</b>
6. Rental of Land Space	Developed area – PhP 10.00/ sq.m./ month Undeveloped area – PhP 5.00/ sq.m./ month	Developed area – PhP 50/ sq.m./ month Undeveloped area – PhP 25/ sq.m./ month
7. Concession Privilege Fee	Passenger service – PhP 200.00 to PhP 600.00/ month Food service – PhP 100.00 to PhP 450.00/ month Transportation utilities – PhP 150.00/ month Miscellaneous business – PhP 50.00 to PhP 300.00/ month	Passenger service – PhP 1000/ month Food service – PhP 1,000/ month Transport service – PhP 500/ month Other business – PhP 800/ month
8. Advertising	Lighted signboards or displays – PhP 60.00/ sq.m./ month Unlighted signboards or displays – PhP 40.00/ sq.m./ month Circulars and posters – PhP 30.00/ sq.m./ month	PhP 250/ sq.m./month  PhP 100/ sq.m./month PhP 50/sq.m./ month
9. Aviation, Fuel, Oil and Lubricant Services	Royalty fee: Aviation fuel – PhP 0.03/ liter Oil – PhP 0.07/ liter Grease – PhP 0.06/ 100 gram	PhP 0.50/ liter
10. Other Fees and Charges	Utilities and other services: Average – PhP 100.00/ month/ concessionaire	PhP 500/ month/ concessionaire

### **12.2.2 Historical Level of Incomes and Expenditures**

12.2.2 Airport revenues at Puerto Princesa Airport for the past six (6) years have increased by about 15% from PhP 8.86 million in 2000 to PhP 10.21 million in 2005 with an average annual growth rate of 2.4% per year (**Table 12.2.2-1**). On the other hand, operating expenditures increased from PhP 14.29 million to PhP 22.41 million for the same period or an average annual growth rate of 7.8%. In 2005, personal services accounted for 61% of total expenditures, with the rest comprised of repair and maintenance costs and other operating expenses (supplies, utilities, and miscellaneous expenses).

**Table 12.2.2-1: Income and Expenditure Statement, Puerto Princesa Airport, 2000-2006**

	'000 Pesos						
	2000	2001	2002	2003	2004	2005	2006
	Actual	Actual	Actual	Actual	Actual	Estimated	Proposed
<b>1. Airport Revenue</b>							
<b>Aeronautical Charges</b>							
Landing and Takeoff Fees	5,318.78	6,100.24	3,581.51	2,674.65	4,054.75	4,263.15	4,481.99
Terminal Parking Fees	365.90	792.05	218.88	84.27	147.89	217.15	217.15
Lighting Charges							
Air Navigational Charges	623.05	3,789.14	2,750.69	1,476.47	2,615.89	2,751.50	2,889.04
Sub-Total	6,307.73	10,681.43	6,551.08	4,235.39	6,818.53	7,231.80	7,588.18
<b>Passenger Service Charges</b>							
Passenger Terminal Fees	2,087.14	1,893.96	1,479.96	1,900.31	2,635.27	2,597.44	2,727.31
Aviation Security Fees <sup>(1)</sup>							
Sub-Total	2,087.14	1,893.96	1,479.96	1,900.31	2,635.27	2,597.44	2,727.31
<b>Airport Business Revenues</b>							
Water/Electric/Telephone	9.05	10.50	1.50	1.97	1.65	1.65	1.65
Rental of Floor Areas	311.39	360.63	255.98	100.01	203.26	203.26	203.26
Rental of Land Area							
Concession Privilege Fees	146.04	175.21	132.30	271.74	163.86	173.57	173.57
Vehicle Parking Fees							
Royalties for Aviation Fuel							
Advertising Fees							
Sub-Total	466.48	546.33	389.78	373.71	368.76	378.47	378.47
<b>Total Airport Revenues</b>	<b>8,861.35</b>	<b>13,121.72</b>	<b>8,420.82</b>	<b>6,509.41</b>	<b>9,822.56</b>	<b>10,207.71</b>	<b>10,693.96</b>
<b>2. Airport Expenditure</b>							
Personal Services	12,098.17	12,321.33	13,164.54	12,867.36	13,627.10	13,627.10	13,627.10
Maintenance and Other Operating Expenses	2,187.79	3,690.79	3,801.55	4,879.74	7,888.12	4,414.63	8,780.48
<b>Total</b>	<b>14,285.96</b>	<b>16,012.12</b>	<b>16,966.09</b>	<b>17,747.10</b>	<b>21,515.22</b>	<b>18,041.73</b>	<b>22,407.59</b>
<b>3. Profit (Loss)</b>	<b>(5,424.61)</b>	<b>(2,890.41)</b>	<b>(8,545.27)</b>	<b>(11,237.69)</b>	<b>(11,692.66)</b>	<b>(7,834.02)</b>	<b>(11,713.63)</b>

12.2.3 Puerto Princesa Airport's financial performance has been deteriorating since 2000. For 2005, the national government provided operating subsidy of about PhP 11.71 million.

## **12.3 Impact of the Project on the Finances of the Airport**

### **12.3.1 Capital Investment**

12.3.1 The project's main investment components are civil works, buildings, airport equipment, engineering studies, construction supervision, physical contingencies, financing charges during construction, taxes, additional land acquisition/ resettlement and project administration. The estimated total investment cost amounting to PhP 3.126 billion (see Table 10.2-1), excluding financial charges and price contingencies, will be financed through a mixture of foreign loan and government equity as presented in Section 10.2.

### **12.3.2 Projected Incremental Expenditures**

12.3.2 Personnel expenses and other operating expenses, such as repair and maintenance, supplies and utilities, dominate the Airport's cost structure. The cost of personal services in the "with project" scenario will increase due to the additional airport personnel needed for the expanded facilities. This would result to an increase in personnel cost by about 50% from the 2006 cost for personal services. The incremental operation and repair and other O&M costs were earlier presented in Table 10.3-1.

## 12.4 Financial Viability of the Project

### 12.4.1 Weighted Average Cost of Capital

12.4.1 Based on current borrowings and loan interest rates of ADB (6% p.a), the coupon rates of the 10-year Philippine treasury bonds issued in February 2006(10% p.a.) and financing ratio of 65:35, the weighted average cost of capital is estimated at 7.4% p.a.

### 12.4.2 Airport Revenues

12.4.2 Incremental airport revenues were calculated based on the incremental forecasted traffic (passengers, cargo flows, aircraft movements) and the prevailing schedule of airport fees as discussed earlier (**Table 12.2.1-1** and detailed in Appendix E). These rates are higher than those currently charged at ATO-operated airports. The airport operating data for the evaluation period of 2012 to 2031 are presented below.

**Table 12.4.2-1: Projected Operating Performance, 2012-2031**

	2012	2015	2020	2025	2031
<b>Incremental Aircraft Movements</b>					
International (A330)-arrivals & departures	241	282	370	370	370
Domestic (mixed aircraft type)-Departures only	1456	2,912	3,640	3,640	3,640
A330 (PAL)	0	0	0	0	0
A320 (PAL)	0	728	728	728	728
A319 (CPAir)	0	0	728	728	728
B737 (Air Phils)	0	0	0	0	0
Bae 146 (Asian Spirit)	728	728	728	728	728
Dornier 328	0	728	728	728	728
LET 410	728	728	728	728	728
General Aviation-arrivals and departures	22	67	139	139	139
<b>Incremental No. of Aircraft Parking</b>					
International (A330)	60	70	92	92	92
Domestic					
A330 (PAL)	0	0	0	0	0
A320 (PAL)	0	146	146	146	146
A319 (CPAir)	0	0	146	146	146
B737 (Air Phils)	0	0	0	0	0
Bae 146 (Asian Spirit)	146	146	146	146	146
Dornier 328	0	146	146	146	146
LET 410	146	146	146	146	146
<b>Incremental No. of Aircraft (Night Operations)</b>					
Off-peak A320 flight	364	364	364	364	364
<b>Incremental Passenger Traffic</b>					
International	42,252	49,307	64,749	64,749	64,749
Domestic	42,666	91,421	203,517	203,517	203,517
General Aviation	67	200	418	418	418
<b>Departing Passengers</b>					
International (50% departures)	21,126	24,654	32,375	32,375	32,375
Domestic (48.5% departures)	20,693	44,339	98,706	98,706	98,706
GA (34.8% departures)	23	70	145	145	145

12.4.3 For the national government, additional VAT income from foreign tourist arrivals on the direct international flights to Puerto Princesa Airport was also included in the financial analysis. These were estimated by applying the 12% VAT on the average foreign tourist expenditure of US\$ 55.45 per day for a 5-day stay or PhP 14,417 per visit. The VAT receipts would total PhP 1,730 per foreign visitor on the projected direct international flights.

12.4.4 **Table 12.4.2-2** indicates the estimates of airport revenues associated with the Puerto Princesa Airport improvement (with Project scenario).

**Table 12.4.2-2: Projected Airport Revenues, P'000**

	2012	2015	2020	2025	2031
<b>1. Incremental Airport Revenues</b>					
Aeronautical Charges	9,654.09	22,117.97	28,185.17	28,185.17	28,185.17
Landing and Takeoff Fees (Refer to Annex 2)					
International (A330)	3,771.96	8,803.55	11,560.66	11,560.66	11,560.66
Domestic	1,605.66	5,244.87	6,507.51	6,507.51	6,507.51
General Aviation	1.20	7.16	14.97	14.97	14.97
Terminal Parking Fees (Refer to Annex 2)					
International (A330)	43.94	102.56	134.68	134.68	134.68
Domestic	77.23	460.63	689.59	689.59	689.59
Lighting Charges (Refer to Annex 2)	1,425.70	109.20	109.20	109.20	109.20
Air Navigational Charges (Refer to Annex 2)					
International (A330)	1,412.42	3,296.53	4,328.93	4,328.93	4,328.93
Domestic	1,310.40	4,076.80	4,804.80	4,804.80	4,804.80
General Aviation	5.58	16.66	34.83	34.83	34.83
Passenger Service Charges	20,676.79	48,035.29	63,175.60	63,175.60	63,175.60
International	5,809.65	13,559.43	17,805.98	17,805.98	17,805.98
Domestic	14,761.79	34,252.81	45,126.13	45,126.13	45,126.13
General Aviation	105.35	223.05	243.50	243.50	243.50
Airport Business Revenues	9,479.18	27,289.82	32,009.56	32,009.56	32,009.56
Water/Electric/Telephone	1,375.20	2,750.40	2,750.40	2,750.40	2,750.40
Rental of Floor Areas					
Intl: Ticket Counters (4)	376.65	879.07	1,154.38	1,154.38	1,154.38
CIP Lounge Rental (PAL)	180.00	360.00	360.00	360.00	360.00
Dom: Ticket Counters (8 non-dedicated)	2,184.00	8,736.00	10,920.00	10,920.00	10,920.00
CIP Lounge Rental (CPAir)	90.00	180.00	180.00	180.00	180.00
Airline Offices (4)	144.00	288.00	288.00	288.00	288.00
VIP Lounge (100 sqm)	187.50	375.00	375.00	375.00	375.00
Concession Areas (300 sqm)	360.00	720.00	720.00	720.00	720.00
Cargo Terminal	780.00	1,560.00	1,560.00	1,560.00	1,560.00
Concession Privilege Fees					
Porterage	110.04	316.96	536.79	536.79	536.79
Banks/hotels/Insurance/etc.	60.00	120.00	120.00	120.00	120.00
Taxi/car rentals/travel agencies, etc	90.00	180.00	180.00	180.00	180.00
Shops/coffee & snack bars/etc.	120.00	240.00	240.00	240.00	240.00
Aviation fuel, oil, and lubricants	2,121.80	7,984.39	10,024.99	10,024.99	10,024.99
Rental of developed land area (5,000 sqm)	1,050.00	2,100.00	2,100.00	2,100.00	2,100.00
Advertising fees and other income	250.00	500.00	500.00	500.00	500.00
<b>Total Airport Revenues</b>	<b>39,810.06</b>	<b>97,443.08</b>	<b>123,370.33</b>	<b>123,370.33</b>	<b>123,370.33</b>

### 12.4.3 Financial Viability Indicators

12.4.5 **Table 12.4.2-3** presents the financial analysis for the base case. Using the all-capital approach, the Puerto Princesa Airport Project is not financially viable given a FIRR of 0.6% and Net Present Value (NPV) of negative PhP 1.17 billion at a WACC of 7.4% per annum.

12.4.6 Taking the DOTC/ ATO point-of-view, the computed FIRR is 1.99%. This means that DOTC/ ATO will lose on its equity for the project with cost of capital of 10%.

**Table 12.4.2-3: Financial Evaluation: Base Case, PhP '000**

Year	Capital Cost	O & M Cost	Aeronautical Fees	Passenger Service Charges	Airport Business Incomes	Additional Govt Taxes (VAT) from Foreigners	Net Financial Benefits
2007	91,292						-91,292
2008	58,022						-58,022
2009	58,022						-58,022
2010	1,130,577						-1,130,577
2011	1,788,683						-1,788,683
2012		39,442	9,654	20,677	9,479	36,548	36,916
2013		40,231	18,971	43,581	19,066	77,165	118,552
2014		41,036	19,678	45,808	22,491	81,232	128,173
2015		41,856	22,118	48,035	27,290	85,301	140,888
2016		42,693	23,294	51,063	28,164	90,643	150,471
2017		43,547	24,487	54,091	29,071	95,987	160,090
2018		44,418	25,700	57,119	30,014	101,330	169,744
2019		45,307	26,932	60,148	30,993	106,674	179,439
2020		46,213	28,185	63,176	32,010	112,016	189,173
2021		46,213	28,185	63,176	32,010	112,016	189,173
2022		46,213	28,185	63,176	32,010	112,016	189,173
2023		46,213	28,185	63,176	32,010	112,016	189,173
2024		46,213	28,185	63,176	32,010	112,016	189,173
2025		46,213	28,185	63,176	32,010	112,016	189,173
2026		46,213	28,185	63,176	32,010	112,016	189,173
2027		46,213	28,185	63,176	32,010	112,016	189,173
2028		46,213	28,185	63,176	32,010	112,016	189,173
2029		46,213	28,185	63,176	32,010	112,016	189,173
2030		46,213	28,185	63,176	32,010	112,016	189,173
2031		46,213	28,185	63,176	32,010	112,016	189,173
	3,126,598					FIRR =	0.5897%
						NPV (7.4%)=	-1,169,910

12.4.7 It is noted that airport fees and charges more than cover the incremental operation and maintenance costs and make a small contribution to cover the initial investment costs. The net operating ratio, excluding capital cost recovery, is about 2.4 over the analysis period.

12.4.8 The national government would gain about PhP 970 million (2006 present value) from VAT collection from foreign tourist receipts.

#### **12.4.4 Sensitivity Analyses**

12.4.9 As noted earlier, the operational and financial performance of domestic airports in the Philippines, except for the capital airport at Manila, tend to result in unprofitable operations. National government capital subsidies are required to maintain their vital role in the socio-economic development of the country. As can be seen from Table 12.4.2-3, the generated revenues more than cover the marginal O&M costs. As such, the proposed fee structure does not contribute to covering most of the investment. The national capital subsidy level can be reduced if the airport tariff levels are adjusted to account for the real cost of operations and recoup the proposed airport investments, including future investments in capacity expansion.

12.4.10 For the Puerto Princesa Airport, the break-even analysis indicated positive prospects for financial sustainability with the proposed investments if the prevailing MIAA, MCIAA, SBMA-based airport fees and charges are to be increased by 90% (FIRR of 7.94% and NPV of PhP 107.8 million).

12.4.11 The increase in airport fees of up to about 90% is recommended and appears feasible to implement, noting the previous commitment of the Government to ADB for the Davao International Airport Development Project (Loan 1333-PHI) to increase these fees in the range of 100-250 percent for various categories by January 1998. To this date, however, the next round of tariff increases committed had not been implemented by the DOTC/ ATO.

# **SECTION 13**

## **Economic Analysis and Evaluation**

## **13 ECONOMIC ANALYSIS AND EVALUATION**

### **13.1 Methodology and Approach**

#### **13.1.1 Methodology**

13.1.1 The economic analysis of this subproject compares the incremental costs (capital and operation and maintenance costs) and benefits under the “with” and “without” project scenario basis. The “without” subproject scenario refers to the continued operation of the existing facility with only minor physical improvements. The “with” project scenario assumes the implementation of the project resulting in improvements in airport operational efficiency, safety and security. The Puerto Princesa Airport Project was evaluated over a period of 20 years after completion of construction from the estimated opening date of April 2012 to the year 2031. The difference in the projected operation and maintenance cost in the “with” and “without” project scenarios (incremental O&M costs) were included in the evaluation.

13.1.2 All financial costs and revenues were converted to economic costs and revenues by excluding taxes and duties, and by applying shadow pricing for foreign exchange and local unskilled labor. Taxes and fees (representing user charges) imposed on foreign tourists were included as they represent net gain to the Philippine economy. Price escalation contingencies and interest during construction were also excluded from the project costs.

#### **13.1.2 Economic Costs**

13.1.3 The economic costs of implementing the Project included airside and landside civil works, maintenance and other related equipment for air traffic control and navigation, land acquisition/relocation and consulting services. Price escalation components, interest during construction, and taxes and duties were deducted from the financial costs derived in Section 12.3.

#### **13.1.3 Economic Benefits**

13.1.4 For this airport subproject, the improvement of the airport facilities will directly lead to improved aircraft utilization, reduced incidence of cancellations and diversions and travel-time savings. Through the improvement of facilities to accommodate increased traffic volume and more advanced aircraft, the airport subproject will generate incremental aircraft operating cost savings. The airport subproject at Puerto Princesa will also produce economic benefits by attracting more tourists, whose net expenditure will be treated as a benefit. With the improved airport facilities, higher safety and security levels, and better passenger handling services are realized.

### **13.2 Economic Investment and O&M Costs**

#### **13.2.1 Investment Costs**

13.2.1 The Project economic costs were derived by eliminating transfer payments (taxes and duties) and applying the following factors:

- Shadow exchange rate of 1.2 for foreign currency costs; and
- Shadow labor rate of 0.6 for unskilled labor used during construction.

13.2.2 The conversion factors used in the economic evaluation is presented in **Table 13.2.1-1**. The resulting Project economic costs are indicated in **Table 13.2.1-2**.

**Table 13.2.1-1: Conversion Factors to Economic Values**

Cost Components	Economic Cost Elements for Airport Facilities				
	Civil works	Equipment	Consulting Services	Maintenance	Operation
Foreign Currency Goods/Services	55%	90%	50%	20%	5%
Local Currency Goods/Services	45%	10%	50%	80%	30%
Material	70%	50%	50%	35%	35%
Skilled labor	10%	50%	50%	5%	5%
Unskilled labor	20%	0%	0%	60%	60%
<b>Conversion Factor</b>	<b>1.07</b>	<b>1.18</b>	<b>1.10</b>	<b>0.85</b>	<b>0.85</b>
Taxes and Duties	Deduct from Costs				

**Table 13.2.1-2: Project Economic Costs, PhP '000**

Project Components	Economic Cost, PhP'000					
	Total Investment Cost	2007	2008	2009	2010	2011
1. Civil Works, Buildings & Intermodal	2,388,110				955,244	1,432,866
2. Airport Equipment Packages	132,217					132,217
3. Consulting Services	132,728		33,182	33,182	33,182	33,182
4. Land Acquisition and Resettlement	72,351	72,351				
5. Project Administration	69,485		17,371	17,371	17,371	17,371
6. Taxes and Duties	0	0	0	0	0	0
7. Physical Contingencies	219,635	6,414	4,076	4,076	79,419	125,649
<b>Total</b>	<b>3,014,526</b>	<b>78,765</b>	<b>54,630</b>	<b>54,630</b>	<b>1,085,216</b>	<b>1,741,285</b>

### 13.2.2 Operating and Maintenance Costs

13.2.3 The O&M costs in **Table 10.3-1** were also converted into economic values using a conversion factor of 0.85 as in **Table 13.2.2-1** below.

## 13.3 Project Benefits

### 13.3.1 Economic Benefits

13.3.1 Firstly, the Puerto Princesa Airport Project will improve aviation operational and safety standards by upgrading the facilities to comply with ICAO safety standards. Secondly, the airport improvements will expand the capacity of the airport in order to serve future air travel demand, particularly the expected revival of direct international flights to Palawan. As cited in Sections 4.3 and 6.7, without these improvements, the airport capacity limits will be reached by 2009 and there would be no additional air traffic, even during the off-peak times. For air passengers, they will have to experience delays at check-in counters, security inspection at the airport entrance and pre-departure areas, and at the baggage reclaim area for arriving passengers. On the other hand, with no addition aircraft stands for peak-hour arrivals and departures, airlines would have to defer offering new flight schedules.

**Table 13.2.2-1: Economic O&M Costs, PhP'000**

<b>Year</b>	<b>Incremental Financial O&amp;M Cost</b>	<b>Incremental Economic O&amp;M Cost</b>
2012	39,442	33,447
2013	40,231	34,116
2014	41,036	34,798
2015	41,856	35,494
2016	42,693	36,204
2017	43,547	36,928
2018	44,418	37,667
2019	45,307	38,420
2020	46,213	39,188
2021	46,213	39,188
2022	46,213	39,188
2023	46,213	39,188
2024	46,213	39,188
2025	46,213	39,188
2026	46,213	39,188
2027	46,213	39,188
2028	46,213	39,188
2029	46,213	39,188
2030	46,213	39,188
2031	46,213	39,188

13.3.2 There are, in general, six categories of economic benefits generated from the airport investments. These are:

- Benefits associated with aviation safety and security;
- Aircraft operating cost savings resulting from direct international flights, quicker turnaround times, and the use of larger and more economical aircraft;
- Benefits from international tourism;
- Passenger travel cost savings;
- Air freight cost savings; and
- Indirect benefits of increased trade of fish products and new employment.

13.3.3 **Benefits associated with aviation safety and security.** One of the most important project benefits would be those associated with improved aviation safety and enhanced airport security. As there is no established methodology to directly quantify and measure safety and security benefits, the “willingness to pay” approach was applied using the air navigational charges and landing/take-off fees to estimate airline benefits and the passenger terminal fees to estimate the passenger convenience, safety and security benefits of passengers. To avoid double counting, the willingness to pay approach was used only for domestic passengers and aircraft traffic which will not divert or be affected by the airport congestion by 2009. Based on traffic estimates, these consist of 352,602 scheduled and general aviation passengers, of which 48.5% are departing from Puerto Princesa Airport and 3,640 aircraft movements for scheduled flights.

13.3.4 The estimated annual incremental revenues are presented below:

- Annual Passenger Terminal Fees = 352,602 x 0.485 x (PhP 200-P40) x 0.88 (EVAT) or PhP 24,078,485
- Annual Aeronautical Fees = 3,640 x (PhP 1,000 – PhP 600) x 0.88 (EVAT) + 3,640/2 x (PhP 3,424 – PhP 3,118) x 0.88 or PhP 1,771,380

13.3.5 **Aircraft operating cost savings.** The benefits from aircraft operating cost (AOC) savings accrue mainly from the introduction of direct international flights from East Asia for foreign tourists. No significant savings in AOCs for domestic operations are anticipated considering that the types of aircraft of the airlines operating in the airport will not change. While it can be argued that, night-time operations will allow airlines to improve their fleet operation, the level of air traffic remains relatively low to gain significant airline benefits from right operations.

13.3.6 The AOC savings were estimated as the difference in the operating expenses in economic terms between, for example, direct flights from Seoul, Korea to Puerto Princesa and two-leg flights via Manila. The difference in AOCs is estimated at US\$5,509/movement for the 55-minute flight between Seoul and Puerto Princesa. It should be noted that the year 2012 benefits were taken at 50% of the annual estimate considering the opening year of April 2012. **Table 13.3.1-1** shows the AOC savings during the 20-year evaluation period.

**Table 13.3.1-1: Annual Aircraft Operating Cost Savings, PhP'000**

Year	Flight Time Saved, hour	Fuel-Related AOC Savings
2012	0.9	104,271
2013	0.9	208,543
2014	0.9	208,543
2015	0.9	208,543
2016	0.9	208,543
2017	0.9	208,543
2018	0.9	208,543
2019	0.9	208,543
2020	0.9	208,543
2021	0.9	208,543
2022	0.9	208,543
2023	0.9	208,543
2024	0.9	208,543
2025	0.9	208,543
2026	0.9	208,543
2027	0.9	208,543
2028	0.9	208,543
2029	0.9	208,543
2030	0.9	208,543
2031	0.9	208,543

*Note: 2013 Capacity constraint “with” project domestic traffic.*

13.3.7 **Tourism Benefits.** The benefits from tourism (for holiday-makers) are quantified on the basis of incremental foreign tourists to the Philippines that would be brought to the country because of the improved and upgraded Puerto Princesa Airport. There would be additional benefits arising from the added length of stay of foreign tourists under the Project, but these were not included in the analysis and the average stay of five days as reported by the local city tourism office was used. The economic benefits were calculated using the DOT average foreign tourist expenditures less the cost of providing the tourism service of US\$ 55.45/ day of stay.

13.3.8 While the share of foreign tourist arrivals in the Philippines visiting Puerto Princesa has been increasing (Table 8.1.2-1) from 2002 after declining as a result of the Dos Palmas kidnapping in 2001, it would be difficult to quantify future shares from the total foreign visitors to the country, despite the national tourism growth targets included in the Medium-Term Philippine Development Plan (MTPDP), 2004-2010. In this regard, the foreign tourists derived from the estimate of international passengers were used, assuming 80% of these passengers are foreign nationals. The estimate of incremental foreign tourists and the resulting tourism benefits are presented in **Table 13.3.1-2**.

**Table 13.3.1-2: Annual Foreign Tourist Benefits, PhP'000**

Year	Projected International Passengers (Arrivals & Departures)	Foreign Tourists on International Flights	Tourism Benefits, PhP'000
2012	42,252	16,901	214,420
2013	44,604	17,842	226,356
2014	46,955	18,782	238,286
2015	49,307	19,723	250,222
2016	52,395	20,958	265,893
2017	55,484	22,194	281,569
2018	58,572	23,429	297,240
2019	61,661	24,664	312,916
2020	64,749	25,900	328,587
2021	64,749	25,900	328,587
2022	64,749	25,900	328,587
2023	64,749	25,900	328,587
2024	64,749	25,900	328,587
2025	64,749	25,900	328,587
2026	64,749	25,900	328,587
2027	64,749	25,900	328,587
2028	64,749	25,900	328,587
2029	64,749	25,900	328,587
2030	64,749	25,900	328,587
2031	64,749	25,900	328,587

*Note: 2020 Capacity constraint "with" Project*

13.3.9 **Passenger travel cost savings.** The domestic passenger travel cost savings were estimated as the incremental savings in fare (economic terms) between air travel and the alternative of sea travel for Puerto Princesa passengers and the value of time due to delayed departures when using ferry vessels. (Vessels depart three times a week to and from Puerto Princesa.) The difference in passenger fares was estimated at PhP 1,204, while the value of

time for Puerto Princesa passengers was estimated at PhP 122.1 per hour using the air passenger survey results of October 2004 undertaken for the JICA Survey of Inter-Regional Passenger and Freight Flow. The travel time savings were only estimated for the 42% social/leisure/ business/ work-related air travellers. **Table 13.3.1-3** shows the annual passenger travel cost savings.

**Table 13.3.1-3: Annual Domestic Passenger Travel Cost Savings, PhP'000**

Year	Domestic Passengers on Scheduled Flights			Passenger Travel Cost Savings, PhP'000
	With Project	Without Project	Incremental Passengers	
2012	369,792	327,126	42,666	59,043
2013	386,044	327,126	58,918	163,068
2014	402,295	327,126	75,169	208,045
2015	418,547	327,126	91,421	253,026
2016	440,966	327,126	113,840	315,075
2017	463,385	327,126	136,259	377,124
2018	485,805	327,126	158,679	439,176
2019	508,224	327,126	181,098	501,225
2020	530,643	327,126	203,517	563,275
2021	530,643	327,126	203,517	563,275
2022	530,643	327,126	203,517	563,275
2023	530,643	327,126	203,517	563,275
2024	530,643	327,126	203,517	563,275
2025	530,643	327,126	203,517	563,275
2026	530,643	327,126	203,517	563,275
2027	530,643	327,126	203,517	563,275
2028	530,643	327,126	203,517	563,275
2029	530,643	327,126	203,517	563,275
2030	530,643	327,126	203,517	563,275
2031	530,643	327,126	203,517	563,275

*Note: 2020 Capacity constraint "with " Project*

**13.3.10 Savings in Air Freight Cost.** Similarly, the savings in air freight costs were estimated on the assumption that the incremental high-value air cargo volumes, principally fish and other aquatic products, will have to be shipped by chartered flights. The estimated savings in transport cost is about PhP 9.33 per kg. (current PAL rates of PhP 26/ ton/ air distance in km and Aboitiz Air charter rates of PhP 42/ ton/ air distance in km). The distance by air between Manila and Puerto Princesa Airport is 583 km.

**13.3.11** For the "without Project" case, the 2009 air cargo traffic of 6,536 tons was taken as the limit of cargo shipped by air using the scheduled flights of airlines. **Table 13.3.1-4** shows the air cargo forecast from the JICA National Airport Master Plan. About 60.45% of the total annual traffic is outbound.

**13.3.12** Table 13.3.1-4 presents the annual air freight cost savings.

**Table 13.3.1-4: Annual Air Freight Cost Savings, P'000**

Year	Cargo Traffic, Tons (Without Project)	Cargo Traffic, Tons (With Project)	Incremental Cargo Traffic (Outbound), tons	Air Freight Cost Savings, PhP'000
2012	8,183	6,536	996	4,644
2013	8,783	6,536	1,358	12,670
2014	9,384	6,536	1,722	16,059
2015	9,984	6,536	2,084	19,442
2016	10,762	6,536	2,555	23,829
2017	11,540	6,536	3,025	28,216
2018	12,318	6,536	3,495	32,603
2019	13,096	6,536	3,966	36,990
2020	13,875	6,536	4,436	41,383
2021	13,875	6,536	4,436	41,383
2022	13,875	6,536	4,436	41,383
2023	13,875	6,536	4,436	41,383
2024	13,875	6,536	4,436	41,383
2025	13,875	6,536	4,436	41,383
2026	13,875	6,536	4,436	41,383
2027	13,875	6,536	4,436	41,383
2028	13,875	6,536	4,436	41,383
2029	13,875	6,536	4,436	41,383
2030	13,875	6,536	4,436	41,383
2031	13,875	6,536	4,436	41,383

### **13.3.2 Economic Viability of the Project**

13.3.13 The EIRR has been estimated for the overall Project at 20.74% and NPV of PhP 784.4 million based on the NEDA-prescribed opportunity cost of capital of 15% (**Table 13.3.2-1**). The results indicate that tourism benefits, aircraft operating cost savings for the revived international flights, and passenger travel cost savings are the main benefits. This reinforced the earlier view that airport development complements tourism development in the country, particularly for airports being positioned as major international gateways.

### **13.3.3 Sensitivity Analyses**

13.3.14 Sensitivity analysis was carried out to test the effects of possible unfavourable scenarios with respect to changes in the cost and benefit parameters (**Table 13.3.3-1**). This analysis indicated that the Project would continue to be economically viable even under severe conditions involving a 10% cost increase and 10% decrease in benefits with an EIRR of 17.5%.

**Table 13.3.2-1: Economic Evaluation of the Project, P'000**

Year	Capital Cost	O & M Cost	Aviation Safety and Security Benefits	Aircraft Operating Cost Savings	Foreign Tourist Benefits	Passenger Travel Cost Savings	Cargo Shipment Cost Savings	Net Economic Benefits
2007	78,766							-78,766
2008	54,634							-54,634
2009	54,634							-54,634
2010	1,085,459							-1,085,459
2011	1,741,648							-1,741,648
2012		33,447	12,925	104,271	107,210	59,043	4,644	241,721
2013		34,116	25,850	208,543	226,356	163,068	12,670	576,520
2014		34,798	25,850	208,543	238,286	208,045	16,059	636,136
2015		35,494	25,850	208,543	250,222	253,026	19,442	695,739
2016		36,204	25,850	208,543	265,893	315,075	23,829	777,137
2017		36,928	25,850	208,543	281,569	377,124	28,216	858,525
2018		37,667	25,850	208,543	297,240	439,176	32,603	939,896
2019		38,420	25,850	208,543	312,916	501,225	36,990	1,021,255
2020		39,188	25,850	208,543	328,587	563,275	41,383	1,102,599
2021		39,188	25,850	208,543	328,587	563,275	41,383	1,102,599
2022		39,188	25,850	208,543	328,587	563,275	41,383	1,102,599
2023		39,188	25,850	208,543	328,587	563,275	41,383	1,102,599
2024		39,188	25,850	208,543	328,587	563,275	41,383	1,102,599
2025		39,188	25,850	208,543	328,587	563,275	41,383	1,102,599
2026		39,188	25,850	208,543	328,587	563,275	41,383	1,102,599
2027		39,188	25,850	208,543	328,587	563,275	41,383	1,102,599
2028		39,188	25,850	208,543	328,587	563,275	41,383	1,102,599
2029		39,188	25,850	208,543	328,587	563,275	41,383	1,102,599
2030		39,188	25,850	208,543	328,587	563,275	41,383	1,102,599
2031		39,188	25,850	208,543	328,587	563,275	41,383	1,102,599
	3,015,141						<b>EIRR =</b>	<b>20.74%</b>
							<b>NPV(15%)=</b>	<b>784,395</b>

**Table 13.3.3-1: Sensitivity Analysis Results**

Scenario	EIRR, %	NPV, PhP million
Base Case	20.7	784.4
10% Increase in Costs	19.2	609.8
10% Decrease in Benefits	19.0	531.4
10% Increase in Costs and -10% in Benefits	17.5	356.8

# **SECTION 14**

## **Institutional Capacity**

## **14 INSTITUTIONAL CAPACITY**

### **14.1 Review of Institutional Capacity**

14.1.1 Weak institutions have often been cited as a principal cause of failures in the development programs in the Philippines. Strengthening these weak institutions would entail improving organizational structures, streamlining procedures, reforming incentive systems, and staff training.

14.1.2 The institutional framework of the civil aviation sector is defined under the Civil Aeronautics Act (CAA) which gives the DOTC the overall responsibility for policy, planning and implementation of airport development projects. Under the DOTC, the ATO is held responsible for safety regulations, providing air traffic control and navigational services, and managing the 86 national airports of the country. With the weak linkages at the airport level due to the bureaucratic layers of decision-making, the planning, development, operation and maintenance of the national airports are not integrated. For instance, investment decisions are not matched by increases in manpower complement as experienced in the New Davao International Airport where the counterpart project management team, who have been trained to handle the more modern airport equipment, have yet to be integrated into the airport personnel plantilla after more than three years of operation.

14.1.3 Moreover, the separation of the airport planning and operation functions within ATO resulted in the airports being considered as merely cost centers. The airport managers, with limited responsibility on the business/ commercial aspects of airport management and no responsibility on the planning airport improvements, are not motivated to transform their respective airports into revenue and cost centers.

14.1.4 The proposed establishment of the Civil Aviation Authority of the Philippines (CAAP) (corporatized ATO) is viewed in the past as well as in this ITDP work as extremely necessary as the anchor initiative to reform the civil aviation sector of the Philippines and align its structure and performance to internationally accepted practices.

14.1.5 The effectiveness of the DOTC and ATO in policy and planning implementation impacts on the long-term capacity and responsiveness of the aviation sector to changing markets and demands. The JICA National Airport Master Plan has identified key areas to strengthen institutional capacity under the proposed CAAP organizational set-up, notably:

- Airport Safety Standards and Certification System, including the preparation of the Aerodrome Manual for Airports;
- Establishment of rational airport pricing regulations;
- Further establishment of airport security programmes;
- Improvement in airport data quality and management; and
- Training programs focusing on aerodrome safety and aviation security.

14.1.6 More importantly, further training and technical assistance need to be extended to ATO as a new corporation in the fields of:

- Asset management (investment planning and budgeting, procurement procedures, project management, asset evaluation, preparing for asset maintenance and replacement, airport land management, and financial reporting on assets);
- Financial management (records keeping, accrual accounting and activity-based costing, charging mechanisms and structure, financial reporting, budgeting principles as a corporation and balance sheet preparation);
- Business planning (corporate vision/ goals/ objectives, organizational structures, budgeting for airport operations and airport investments, development of performance indicators and target setting and measurements);
- Airport management (aeronautical services, airport business and other user services, airport tariff setting and community relations);
- Human resources management (assessment of staffing patterns, staff selection and promotion, staff remuneration and other benefits, staff training and career development process, and staff communications); and
- Management information systems (operation and financial reporting systems, maintenance planning systems and personnel deployment systems).

## **14.2 Recommended Capacity Building Program**

14.2.1 As part of the institutional strengthening component of the proposed ITDP sector loan, airport personnel of Puerto Princesa should be direct participants in the training programs and systems and procedures development. Based on the above, the main areas for intervention include: airport security and aeronautical safety, airport finance and management planning, airport maintenance and improvement planning and budgeting, database management and reporting, and staff training and development.

# **SECTION 15**

## **Risk Analysis**

## **15 RISK ANALYSIS**

### **15.1 Risk Types and Countermeasures**

15.1.1 From the economic perspective, project risks can adversely impact costs and benefits. In the case of costs, this can mean unanticipated increases during the implementation and the operation of the project. Likewise, benefits may be reduced because of a reduction in traffic due to poor security or adverse economic conditions affecting the hinterland of the airport. Delays in the implementation are also a project risk and affect costs by increasing them and retard or reduce benefit.

15.1.2 During the implementation of the project, the following could occur.

<b>Risks / Impacts</b>	<b>Mitigation Measures</b>
Lack of accurate geotechnical (Particularly off-shore) data increasing risks of higher cost and delays.	Employment of a qualified consultant to oversee the final designs including adequate funding for geotechnical investigations.
Not having the right of way available before construction commences delays implementation and increases costs.	Thorough investigation during the DE stage to identify further right of way issues.  All of the construction is within the airport itself requiring no new right of way for construction activities.
Unanticipated delays and/ or increase in costs and due to sizable exchange rate fluctuations, <i>force majeure</i> , construction accidents, etc,	Employment of a qualified construction supervision consultant to mitigate these issues by minimizing their impact on cost and schedule.  Maintain secure and safe working conditions on site.
Security concerns against persons and equipment can result in higher costs and delays in project implementation.	Airports have been relatively free of these risks by having vigilant security personnel and maintaining adequate security procedures.

15.1.3 During the operation of the project, the following could occur.

<b>Risks</b>	<b>Mitigation Measures</b>
Lack of experience operating modern airport equipment and facilities	Training of airport personnel by the civil works contractor and equipment supplier by incorporating these requirements in the contract documents.
Lack of maintenance: This reduces the life of the facilities.	DOTC/ ATO must provide adequate funding for maintenance to assure sustainability and functionality of the facilities.
Security concerns against persons and equipment increases costs and decreases traffic (benefits).	Airports have been relatively free of these risks by having vigilant security personnel and maintaining adequate security procedures.

## **15.2 Risk Assessment for the Airport Project**

15.2.1 The Puerto Princesa Airport Project has been the subject of previous studies and extensive project evaluation and stakeholder consultation over the past 10 years. In many ways, while this also represents unwanted delays, it does help reinforce the continued demand and support for the project and reduce political and institutional risk.

15.2.2 The following are a summary of the identified project risks that may impact on the successful completion of the project:

15.2.3 **Stakeholder Risks.** The project may require another or at least an addendum to the existing AFP agreement associated with the land swap arrangements between the AFP and DOTC/ ATO and also the replication of facilities. This may be required as the concept for the project as outlined within this Study has changed from that agreed to by the AFP under the TADP, although not in a very significant way.

15.2.4 **Readiness Risks.** The separate DOTC project to replicate the AFP facilities to allow the development of the original TADP project has commenced but has not significantly advanced and appears to have stopped. It should have been completed in approximately 2003 to meet the original schedule for the TADP. The fact that it has not significantly advanced up until May 2006 suggests that there is a significant risk it will not be completed prior to the commencement of schedules under this ITDP.

15.2.5 There are occupants on land areas designated for the new passenger terminal area, terminal access road and areas to the southwest inside the widened 300m strip. These occupants should have been relocated before now under the TADP. One reason they have not been may, in part, be associated with the lack of progress associated with the AFP replication of facilities contract (discussed above). Further discussions with the AFP and possibility of additional surveys are needed to quantify the extent of this problem, the exact causes and the likely speed proper solutions can be implemented.

15.2.6 **Funding Risks.** The DOTC annual infrastructure budget has remained at the PhP 3.1 billion level from 2002-2005. The budget deficit problem of the national government required the imposition of new tax measures and the stringent controls on the expenditure program. With the budget deficit expected to be within manageable limits by 2009, the funding risk may have diminished, but the ability of the Government to meet counterpart funding requirements needs further commitment during the loan appraisal stage.

15.2.7 **Revenue or Market Risk.** The project is scheduled to come on line and be operational by 2012, or 6 years after this feasibility study. To date, the traffic growth at Puerto Princesa has been erratic with relatively dramatic decreases and increases in traffic numbers over various two to three year periods due to a variety of reasons ranging from general economic conditions, airline withdrawal, and peace and order conditions (kidnapping). The forecasts, while not considered aggressive or optimistic, do account for long term trends although it is possible that there could be any number of future developments or events that could interrupt continued growth.

15.2.8 The project relies, to an extent, on the revival of international services which previously was discontinued for lack of traffic.

15.2.9 **Operational Risks.** Small regional airports, such as Puerto Princesa, can be subject to dramatic increases or decreases in passenger and aircraft traffic within a short period of time as they are more sensitive to external economic or other “shocks” that impact on the industry. The history of air traffic at Puerto Princesa has been erratic and it reinforces this point. However if there is underlying confidence in the nature of the destination and its primary markets, airports such as Puerto Princesa should be prepared for the “upside swings” that do often occur. The key in planning and design is the retention of flexibility to adapt the airport facilities and operation if required. The concept design under this Study is considered flexible although there are constraints to the easy/ rapid expansion of aircraft parking areas should greater than anticipated growth in aircraft parking demand occur. Where other facilities can continue to operate in congested states, it is not possible to bunch up aircraft. Given the nature of the assumptions associated with the aircraft parking demand forecast and the importance of ensuring adequate aircraft parking areas at any airport, this would be a reasonable operational risk.

# **SECTION 16**

## **Conclusions and Recommendations**

## **16 CONCLUSIONS AND RECOMMENDATIONS**

### **16.1 The Proposed Project**

16.1.1 The Project may be briefly described as follows:

- A new passenger terminal complex including ATC, cargo, administration, maintenance and other support facilities to the northwestern side of the existing runway.
- A new access road to the passenger terminal complex off the national highway.
- Widening of the runway strip, installation of an ILS system to one runway, a runway overlay and widening of the runway shoulders to permit operations of 4 engine Code E aircraft.
- New security fencing and removal of remaining obstacles.

16.1.2 The project depends on the successful replication of AFP facilities and relocation of AFP operations to be done separately prior to the commencement of this project.

### **16.2 Project Risks and Sensitivities**

16.2.1 Section 15 summaries various risks associated with the project. The major risks to the successful implementation of the project are summarised as follows:

- Successful and timely replication of AFP/ PAF facilities to the satisfaction of the AFP/ PAF prior to the commencement of this project;
- The successful relocation of the remaining affected persons and buildings still within the project site area prior to the commencement of this project;
- The ability for the Government to allocate and approve the required 35% counterpart funding in accordance with the project schedule; and
- Timely procurement of the design and construction supervision consultant to complete the project preparation and bid preparation works.

### **16.3 Financial Viability**

16.3.1 In common, with other national airports in the country, full financial viability of operations with increasing demands of operational and safety improvements cannot be assured at Puerto Princesa Airport. However, Project has greater potential for financial sustainability even with the proposed investment, if the assumed prevailing tariff rates of MIAA, MCIAA and SBMA for the corporatized ATO could be increased by 90%. As presented in Section 12, this will entail the upward adjustment in aeronautical charges aiming at full cost recovery.

### **16.4 Economic Viability**

16.4.1 From the point of view of the Philippine economy, the Project has demonstrated economic feasibility with base case EIRR of 20.7% (NPV of PhP 784.4 million at 15% cost of capital) and with extreme case (10% increase in costs and 10% decrease in benefits) EIRR of 17.5% (NPV of PhP 356.8 million).

## **16.5 Immediate Project Implementation Steps**

16.5.1 Noting the above project risks, mainly on the replication of AFP/ PAF facilities and land acquisition/ resettlement, the DOTC and ATO has to address these immediately to demonstrate its clear resolve to pursue the Puerto Princesa Airport Project through the proposed ADB intermodal transport sector loan.

16.5.2 The civil aviation policy reform agenda, which is discussed in Chapter 6 of the Main Report, has to be approved by the NEDA Board upon the recommendation of DOTC prior to loan application.

## **16.6 Recommendations**

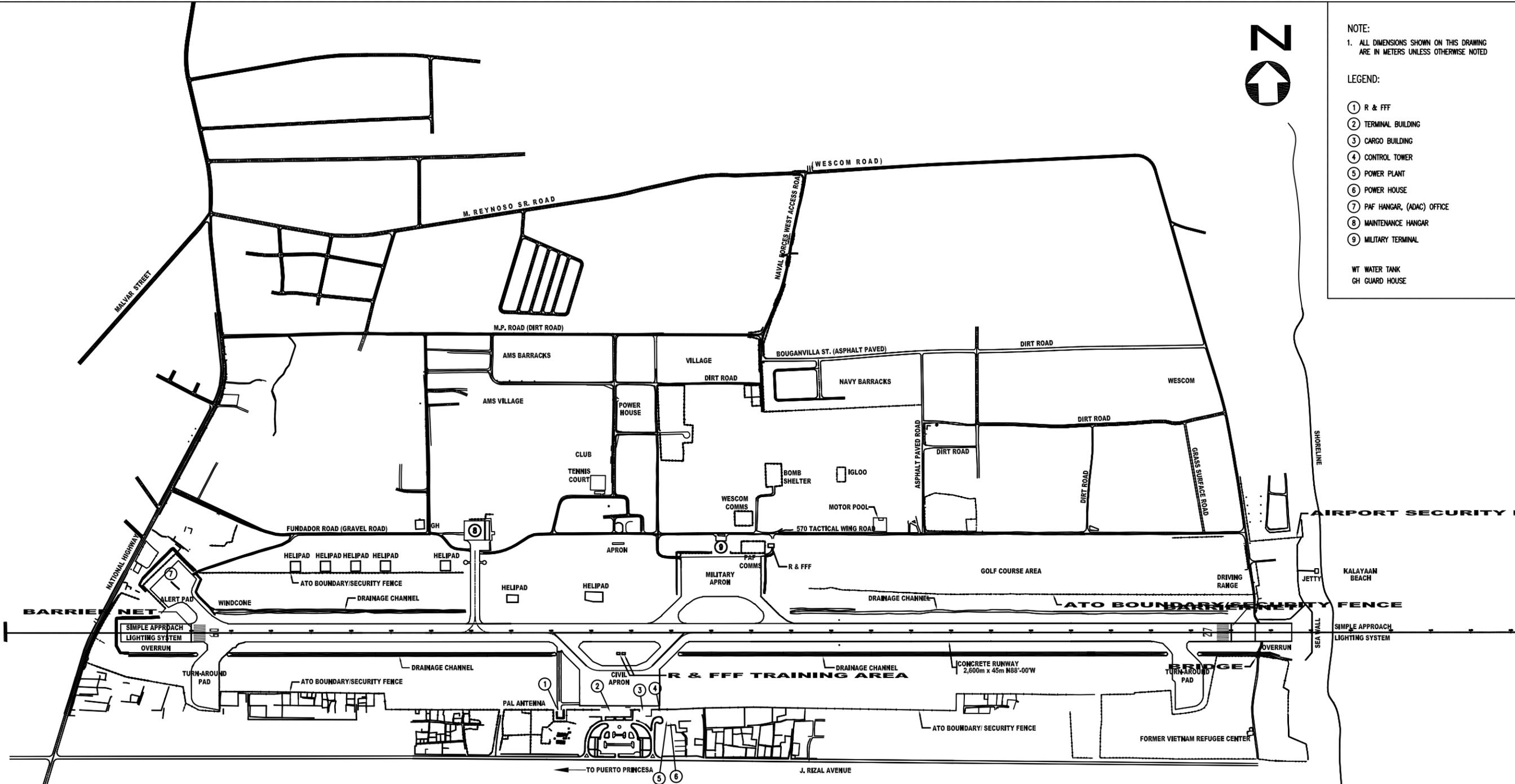
16.6.1 The following recommendations are made based on the outcomes of this Feasibility Study:

- The project, as defined in the Study, should be carried forward for approval to carry out the detailed design and construction on the basis of favourable economic benefits that exceed minimum hurdle rates as laid down by the ADB and NEDA.
- The detailed design phase should be initiated by an update of the Master Plan to examine the limitations identified with the current design concept and to ensure that the detailed design for the current project is optimised with respect to subsequent development phases.
- The next phase of the project should be initiated as soon as practical, noting the capacity constraint starting in 2020 and becoming serious until 2023, in order to minimize the various risks associated with the project, many of which are time dependant.

# **APPENDIXES**

# **APPENDIX A**

## **Layout Plans**



NOTE:  
 1. ALL DIMENSIONS SHOWN ON THIS DRAWING ARE IN METERS UNLESS OTHERWISE NOTED

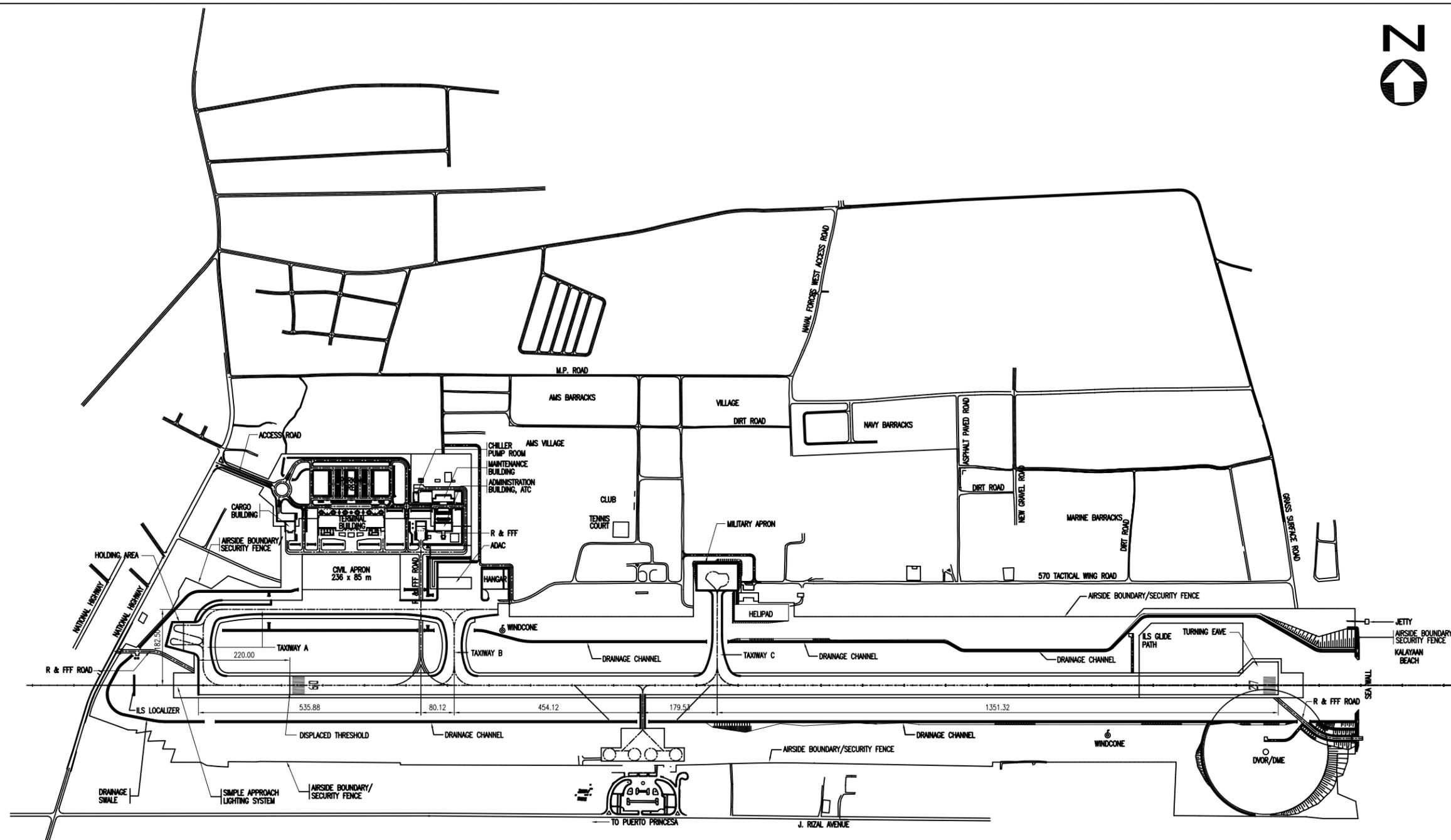
LEGEND:

- ① R & FFF
- ② TERMINAL BUILDING
- ③ CARGO BUILDING
- ④ CONTROL TOWER
- ⑤ POWER PLANT
- ⑥ POWER HOUSE
- ⑦ PAF HANGAR, (ADAC) OFFICE
- ⑧ MAINTENANCE HANGAR
- ⑨ MILITARY TERMINAL

WT WATER TANK  
 GH GUARD HOUSE

Note:  
 1. The concept layout is based on the detailed design drawings prepared under the Third Airports Development Project as sourced from DOTC.

APPENDIX A: EXISTING AIRPORT LAYOUT  
 SCALE : 1:10,000



APPENDIX A: PROPOSED DEVELOPMENT PLAN  
SCALE : 1:10,000

Note:  
1. The concept layout is based on the detailed design drawings prepared under the Third Airports Development Project as sourced from DOTC.

		<p>Project Name: <b>Intermodal Transport Development Project</b></p>	<p>Design Concept: <b>PUERTO PRINCESA AIRPORT</b></p>	<p>Sheet Contents: PROPOSED DEVELOPMENT PLAN</p>	<p>Graphic Scale: 0 50 100 200 300 400m GRAPHIC SCALE 1:10,000</p>	<p>Sheet No. <b>A-2</b> Date DD/MM/YY</p>
--	--	--	---	--	--	---