




- Legend,
-  : Boundary of Existing Airport Property Area
 -  : Land Acquisition Area for Phase I Development
 -  : Land Acquisition Area for Phase II Development

Land Acquisition Area in Alternative - BN

Unit Prices for Cost Estimates

As of August 1992

Exchange Rate : US\$1.00 = PHP25 = Yen125 (PHP1.0 = Yen5)

1. Unit Prices of Land Acquisition and Compensation

(1) Unit Price of Land Acquisition at Davao

Item	Unit	PHP	Converted into Yen
Developed Area	sq.m	High	1,000
		Low	750
Undevelopment Area	sq.m	High	500
		Low	450
Low Elevation Area	sq.m	150	750

(2) Unit Price of House (Floor Area)	sq.m	3,000	15,000
---	------	-------	--------

2. Unit Price for Civil Works

(1) Unit Price of Materials on Site

Item	Unit	Unit Price in the Philippines		Unit Price in Japan	
		PHP	Converted into Yen	Converted into PHP	Yen
Straight asphalt	t	9,200	46,000	6,600	33,000
Portland cement 40 kg	Bag	120	600	130	650
Aggregate for asphalt concrete mix or cement concrete mix	cu.m	200	1,000	600	3,000
Aggregate for base course	cu.m	200	1,000	900	4,500
Aggregate for sub-base course	cu.m	200	1,000	780	3,900
Reinforcing steel	t	27,000	135,000	11,000	55,000
Gasoline	liter	11	55	20	100
Asphalt concrete mix	t	1,200	6,000	1,500	7,500
Cement concrete mix for pavement	cu.m	1,800	9,000	2,800	14,000

Note *1 : Unit price at the project site

(2) Labor

Item	Unit	Rate in the Philippines		Rate in Japan	
		PHP	Converted into Yen	Converted into PHP	Yen
Skilled labor	day	130	650	3,400	17,000
Common Labor	day	110	550	3,000	15,000
Operator of heavy machine	day	130	650	4,000	20,000
Driver of truck	day	120	600	3,400	17,000
Foreman	day	180	900	4,200	21,000

(3) Unit Price of Works

Item	Unit	Rate in the Philippines		Rate in Japan	
		PHP	Converted Into Yen	Converted Into PHP	Yen
Excavation	cu.m	40	200	50	250
Grading and compaction of subgrade	sq.m	6	30	7	35
Sub-base course (20 cm thick)	sq.m	75	375	170	850
Base course (15 cm thick)	sq.m	55	275	150	750
Asphalt concrete (5 cm thick)	sq.m	300	1,500	220	1,100
Prime coat (1.5 litter per sq.m)	sq.m	14	70	24	120
Tack coat (0.5 litter per sq.m)	sq.m	5	25	10	50
Cement concrete slab (36 cm thick including wire mesh and dowel bar)	sq.m	810	4,050	1,900	9,500
Clearing and grubbing	sq.m	3	15	9	45
Embankment from excavation	cu.m	60	300	170	850

(4) Unit Price of Asphalt Concrete Pavement

LA-12, 5000, CBR = 9%

Item	Unit	Rate in the Philippines		Rate in Japan	
		PHP	Converted Into Yen	Converted Into PHP	Yen
Grading and compaction of subgrade	sq.m	6	30	7	35
Sub-base course (41 cm thick)	sq.m	154	70	349	1,745
Base course (30 cm thick)	sq.m	110	550	300	1,500
Prime coat	sq.m	14	70	24	120
Asphalt concrete course (13 cm thick (3 layers))	sq.m	780	3,900	572	2,860
Tack coat (2 layers)	sq.m	10	50	20	100
Total	sq.m	1,074	5,370	1,272	6,360

(5) Unit Price of Cement Concrete Pavement

LA-12, 5000, K75 of Subgrade = 5.0

Item	Unit	Rate in the Philippines		Rate in Japan	
		PHP	Converted Into Yen	Converted Into PHP	Yen
Grading and compaction of subgrade	sq.m	6	30	7	35
Base course (34 cm thick)	sq.m	125	625	340	1,700
Cement concrete slab (36 cm thick including wire mesh and dowel bars)	sq.m	810	4,050	1,900	9,500
Total	sq.m	941	4,705	2,247	11,235

3. Unit Price for Architectural Works

Since useful information for estimating the cost of the architectural works in the Philippines has not been available, the following unit prices for this project have been assumed:

(1) Unit Prices of Structure including Electrical and Mechanical Facilities

Item	Unit	Unit Price in the Philippines	
		PHP	Converted into Yen
Passenger terminal building	sq.m	40,000	200,000
Cargo terminal building	sq.m	20,000	100,000
Administration building	sq.m	20,000	100,000
Control tower	sq.m	30,000	150,000
Fire station	sq.m	20,000	100,000

(2) Unit Prices for Special Equipment for the Passenger Terminal Building

Item	Unit	Unit Price In the Philippines	
		PHP	Converted into Yen
Visual sign (Floor area)	m2	200	1,000
Furniture (Floor area)	m2	600	3,000
Elevator	Unit	3,000,000	15,000,000
Escalator	Unit	7,000,000	35,000,000
Departure conveyor L=60m	Unit	4,200,000	21,000,000
Arrival conveyor L = 70 m	Unit	4,900,000	245,000,000
	Unit	3,500,000	175,000,000
Check-in scale	Unit	300,000	1,500,000
X-ray explosive detector	Unit	4,000,000	20,000,000
Passenger boarding bridge	Unit	16,000,000	80,000,000

(3) Unit Prices for Special Equipment for the Cargo Terminal Building

Item	Unit	Unit Price in the Philippines	
		PHP	Converted into Yen
Weighing scale, 5 ton	Unit	650,000	3,250,000
Cold storage 150sq.m	Unit	16,000,000	80,000,000
Freezer	sq.m	80,000	400,000

The unit prices shown in section (1) through (3) above include the indirect cost, i.e. overhead of the contractor (supplier).

Breakdown of Cost Estimates

IMMEDIATE IMPROVEMENT
BREAKDOWN OF COST ESTIMATES

ITEM	UNIT	QUANTITY	UNIT PRICE (PHP)	AMOUNT (x PHP 1,000)	REMARKS
Runway Overlay	sq.m	67,500	185	12,488	T=3cm
Fence	m	1,000	1,000	1,000	
Grading of Runway Strip	cu.m	320,000	130	41,600	50+80
Sodding at Runway Strip	sq.m	260,000	40	10,400	
Box Culvert	m	1,000	10,000	10,000	
Belt Conveyor	No.	1	2,400,000	2,400	
CIQ Facilities	L.S.	1		1,000	
Security Equipment (X-Ray)	No.	1	4,000,000	4,000	
Renovation Works (Baggage Claim Area)	sq.m	340	10,000	3,400	
Airfield Lighting System	L.S.	1		2,200	
Total				88,488	

ALTERNATIVE - AS (PACKAGE-1 of PHASE - I)
BREAKDOWN OF COST ESTIMATES

I. LAND ACQUISITION AND COMPENSATION COST

ITEM	UNIT	QUANTITY	UNIT PRICE (PHP)	AMOUNT (x PHP 1,000)	REMARKS
1. LAND ACQUISITION					
Land Acquisition	sq.m	120,000	500	60,000	
Total of 1.				60,000	
2. COMPENSATION					
Compensation for Relocation of House	No.	50	150,000	7,500	50 sq.m
Total of 2.				7,500	
Total of I.				67,500	

II. CONSTRUCTION COST

ITEM	UNIT	QUANTITY	UNIT PRICE (PHP)	AMOUNT (x PHP 1,000)	REMARKS
1. CIVIL WORKS					
Demolition of Existing Houses	No.	50	30,000	1,500	
Demolition of Existing C. Tower	L.S.	1		800	
Demolition of Existing F. Station	L.S.	1		700	Slab T = 20 cm
Clearing & Grubbing	sq.m	120,000	4	480	
Top Soil Stripping	sq.m	120,000	10	1,200	T = 20 cm
Excavation	cu.m	40,000	50	2,000	
Embankment	cu.m	40,000	80	3,200	
Runway Overlay	sq.m	112,500	1,760	198,000	As. con. 22 cm
Turning Pad	sq.m	3,200	1,400	4,480	Slab 42 cm, B.C. 38 cm
Runway Shoulder	sq.m	37,500	920	34,500	Slab 25 cm, B.C. 38 cm
Overrun	sq.m	7,200	920	6,624	Slab 25 cm, B.C. 38 cm
Taxiway	sq.m	4,490	1,400	6,286	Slab 42 cm, B.C. 38 cm
Taxiway Shoulder	sq.m	4,100	920	3,772	Slab 25 cm, B.C. 38 cm
Apron	sq.m	14,800	1,400	20,720	Slab 42 cm, B.C. 38 cm
GSE Road	sq.m	2,450	860	2,107	Slab 23 cm, B.C. 38 cm

ITEM	UNIT	QUANTITY	UNIT PRICE (PHP)	AMOUNT (x PHP 1,000)	REMARKS
Car Park	sq.m	3,100	520	1,612	Slab 15 cm, B.C. 15 cm
Road	sq.m	4,500	520	2,340	Slab 15 cm, B.C. 15 cm
Other Drainage Works (Land side)	L.S.	1		2,500	
Landscaping	sq.m	2,000	200	400	
Fence	m	1,000	1,000	1,000	
Gate	No.	5	30,000	150	
Marking and Signboard	L.S.	1		2,500	
Duct and Manhole	L.S.	1		2,500	
Road Lighting	No.	15	20,000	300	
Total of 1.				299,671	
2. ARCHITECTUAL WORKS					
Domestic Pax. Bldg.	sq.m	6,200	40,000	248,000	
Adm. Bldg.	sq.m	1,800	20,000	36,000	
Control Tower	sq.m	400	30,000	12,000	
Fire Station	sq.m	550	20,000	11,000	
Boarding Bridge	No.	2	16,000,000	32,000	
Other Special Equipment	L.S.	1		20,000	
Total of 2.				359,000	
3. FUEL SUPPLY SYSTEM					
Fuel Tank	No.	0			
Fuel Hydrant System	L.S.	0			
Total of 3.				0	
4. AIR NAVIGATION SYSTEMS					
4.1. Radio Navigational System					
4.2. Air Traffic Control System				17,000	
4.3. Aeronautical Telecom. System				32,000	
4.4 Airfield Lighting System					
ALS (RWY 23)	Set	1		20,000	
SALS (RWY 05)	Set	1		7,000	
R/W Light	Set	1		20,000	
REIL (RWY 05)	Set	1		2,000	
T/W Edge Light	Unit	15	100,000	1,500	

ITEM	UNIT	QUANTITY	UNIT PRICE (PHP)	AMOUNT (x PHP 1,000)	REMARKS
TW Guidance Sign	Unit	1	150,000	150	
A/P Floodlight	Unit	3	2,000,000	6,000	
Power Supply System for AFL	L.S.	1		10,000	
Total of 4.				115,650	
5. AIRPORT UTILITIES					
Power Supply System	L.S.	1		10,000	
Telephone	L.S.	1		1,000	
Water Supply System	L.S.	1		5,000	
Sewer Pipe	m	200	20,000	4,000	
Sewerage Treatment Plant	L.S.	1		10,000	
Total of 5.				30,000	
Total of II.				804,321	
Total of I. and II.				871,821	

**ALTERNATIVE - AS (PACKAGE-2 of PHASE - I)
BREAKDOWN OF COST ESTIMATES**

I. LAND ACQUISITION AND COMPENSATION COST

ITEM	UNIT	QUANTITY	UNIT PRICE (PHP)	AMOUNT (x PHP 1,000)	REMARKS
1. LAND ACQUISITION					
Land Acquisition	sq.m	280,000	500	140,000	
Total of 1.				140,000	
2. COMPENSATION					
Compensation for Relocation of Houses	No.	220	150,000	33,000	50 sq.m
Compensation for Relocation of G/A hangar	L.S.	1		30,000	
Total of 2.				63,000	
Total of I.				203,000	

II. CONSTRUCTION COST

ITEM	UNIT	QUANTITY	UNIT PRICE (PHP)	AMOUNT (x PHP 1,000)	REMARKS
1. CIVIL WORKS					
Demolition of Existing Houses	No.	220	30,000	6,600	
Demolition of Existing Pax Bldg.	L.S.	1		10,000	
Demolition of Existing Admi. Bldg.	L.S.	1		1,000	
Demolition of Existing Apron	sq.m	28,000	200	5,600	Slab T = 20 cm
Demolition of Existing G/A Hanga	L.S.	1		2,000	
Clearing & Grubbing	sq.m	290,000	4	1,160	
Top Soil Stripping	sq.m	290,000	10	2,900	T = 20 cm
Excavation	cu.m	640,000	50	32,000	
Embankment	cu.m	640,000	80	51,200	
Taxiway	sq.m	4,480	1,400	6,272	Slab 42 cm, B.C. 38 cm
Taxiway Shoulder	sq.m	4,090	920	3,763	Slab 25 cm, B.C. 38 cm
Apron	sq.m	12,800	1,400	17,920	Slab 42 cm, B.C. 38 cm
GSE Road	sq.m	2,110	860	1,815	Slab 23 cm, B.C. 38 cm

ITEM	UNIT	QUANTITY	UNIT PRICE (PHP)	AMOUNT (x PHP 1,000)	REMARKS
G/A Taxiway	sq.m	2,350	520	1,222	Slab 15cm, B.C.15 cm
Car Park	sq.m	3,100	520	1,612	Slab 15 cm, B.C. 15 cm
Road	sq.m	4,500	520	2,340	Slab 15 cm, B.C. 15 cm
Channel (Air Side)	m	200	4,000	800	
Other Drainage Works (Land side)	L.S.	1		2,500	
Landscaping	sq.m	3,000	200	600	
Fence	m	9,000	1,000	9,000	
Gate	No.	15	30,000	450	
Marking and Signboard	L.S.	1		2,500	
Duct and Manhole	L.S.	1		2,500	
Road Linghting	No.	15	20,000	300	
Total of 1.				166,053	
2. ARCHTECTUAL WORKS					
Int'l Pax. Bldg.	sq.m	4,000	40,000	160,000	
Cargo Bldg.	sq.m	3,500	20,000	70,000	
Other Bldg.	L.S.	1		3,000	
Other Special Equipment	L.S.	1		30,000	
Total of 2.				263,000	
3. FUEL SUPPLY SYSTEM					
Fuel Tank	No.	3	20,000,000	60,000	500 KI
Fuel Hydrant System	L.S.	1		30,000	
Total of 3.				90,000	
4. AIR NAVIGATION SYSTEMS					
4.1. Radio Navigational System					
4.2. Air Traffic Control System					
4.3. Aeronautical Telecom. System					
4.4. Met. Observation System					
				15,000	
4.5. Airfield Lighting System					
T/W Edge Light	Unit	15	100,000	1,500	
T/W Guidance Sign	Unit	1	150,000	150	
A/P Floodlight	Unit	2	2,000,000	4,000	
Power Supply System for AFL	L.S.	1		10,000	
Total of 4.				30,650	

ITEM	UNIT	QUANTITY	UNIT PRICE (PHP)	AMOUNT (x PHP 1,000)	REMARKS
5. AIRPORT UTILITIES					
Power Supply System	L.S.	1		23,000	
Telephone	L.S.	1		1,000	
Water Supply System	L.S.	1		5,000	
Sewer Pipe	m	100	20,000	2,000	
Sewerage Treatment Plant	L.S.	1		20,000	
Incinerator	L.S.	1		10,000	
Total of 5.				61,000	
6. Rescue and Fire Fighting					
RIV	Unit	1	10,000,000	10,000	
Major Vehicle	Unit	2	15,000,000	30,000	
Ambulance	Unit	1	6,000,000	6,000	
Total of 6.				46,000	
Total of II.				656,703	
Total of I. and II				859,703	

ALTERNATIVE - AS (PHASE - II)
BREAKDOWN OF COST ESTIMATES

I. LAND ACQUISITION AND COMPENSATION COST

ITEM	UNIT	QUANTITY	UNIT PRICE (PHP)	AMOUNT (x PHP 1,000)	REMARKS
1. LAND ACQUISITION					
Land Acquisition	sq.m	220,000	500	110,000	
Total of 1.				110,000	
2. COMPENSATION					
Compensation for Relocation of Houses	No.	140	150,000	21,000	50 sq.m
Total of 2.				21,000	
Total of I.				131,000	

II. CONSTRUCTION COST

ITEM	UNIT	QUANTITY	UNIT PRICE (PHP)	AMOUNT (x PHP 1,000)	REMARKS
1. CIVIL WORKS					
Demolition of Existing Houses	No.	140	30,000	4,200	
Clearing & Grubbing	sq.m	220,000	4	880	
Top Soil Stripping	sq.m	220,000	10	2,200	T = 20 cm
Excavation	cu.m	1,600,000	50	80,000	
Embankment	cu.m	1,600,000	80	128,000	
Runway Overlay	sq.m	116,000	640	74,240	As. con. 8 cm
Runway Extension	sq.m	22,500	1,400	31,500	Slab 42 cm, B.C. 38 cm
Turning Pad	sq.m	1,600	1,400	2,240	Slab 42 cm, B.C. 38 cm
Runway Shoulder	sq.m	7,500	920	6,900	Slab 25 cm, B.C. 38 cm
Overrun	sq.m	3,600	920	3,312	Slab 25 cm, B.C. 38 cm
Apron Expansion	sq.m	6,590	1,400	9,226	Slab 42 cm, B.C. 38 cm
GSE Road Expansion	sq.m	1,090	860	937	Slab 23 cm, B.C. 38 cm
Car Park Expansion	sq.m	3,400	520	1,768	Slab 15 cm, B.C. 15 cm
Road Widening	sq.m	1,000	520	520	Slab 15 cm, B.C. 15 cm
Box Culvert (Air Side)	m	500	10,000	5,000	
Other Drainage Works (Land side)	L.S.	1		2,000	

ITEM	UNIT	QUANTITY	UNIT PRICE (PHP)	AMOUNT (x PHP 1,000)	REMARKS
Sodding	sq.m	7,500	40	300	
Landscaping	sq.m	1,000	200	200	
Fence	m	3,000	1,000	3,000	
Gate	No.	10	30,000	300	
Marking and Signboard	L.S.	1		5,000	
Duct and Manhole	L.S.	1		1,000	
Total of 1.				362,723	
2. ARCHTECTUAL WORKS					
Pax. Bldg.	sq.m	2,200	40,000	88,000	
Cargo Bldg.	sq.m	3,700	20,000	74,000	
Boarding Bridge	No.	1	16,000,000	16,000	
Other Special Equipment	L.S.	1		30,000	
Total of 2.				208,000	
3. FUEL SUPPLY SYSTEM					
Fuel Tank	No.	3	20,000,000	60,000	500 KI
Fuel Hydrant System	L.S.	1		7,500	
Total of 3.				67,500	
4. AIR NAVIGATION SYSTEMS					
4.1. Radio Navigational System	L.S.	1		4,000	Relocation of LLZ
4.2. Air Traffic Control System					
4.3. Aeronautical Telecommunication System					
4.4. Met. Observation System					
4.5. Airfield Lighting System					
SALS (RWY 05)	Set	1		7,000	
R/W Light	Set	1		4,000	
REIL (RWY 05)	Set	1		2,000	
A/P Floodlight	Unit	1	2,000,000	2,000	
Power Supply System for AFL	L.S.	1		4,000	
Total of 4.				23,000	

ITEM	UNIT	QUANTITY	UNIT PRICE (PHP)	AMOUNT (x PHP 1,000)	REMARKS
5. AIRPORT UTILITIES					
Power Supply System	L.S.	1		19,000	
Telephone	L.S.	1		400	
Water Supply System	L.S.	1		2,500	
Sewerage Treatment Plant	L.S.	1		7,000	
Incinerator	L.S.	1		5,000	
Total of 5.				33,900	
Total of II.				695,123	
Total of I. and II				826,123	

**ALTERNATIVE - AN (PHASE - I)
BREAKDOWN OF COST ESTIMATES**

I. LAND ACQUISITION AND COMPENSATION COST

ITEM	UNIT	QUANTITY	UNIT PRICE (PHP)	AMOUNT (x PHP 1,000)	REMARKS
1. LAND ACQUISITION					
Land Acquisition	sq.m	460,000	500	230,000	
Total of 1.				230,000	
2. COMPENSATION					
Compensation for Relocation of Houses	No.	220	150,000	33,000	50 sq.m
Total of 2.				33,000	
Total of I.				263,000	

II. CONSTRUCTION COST

ITEM	UNIT	QUANTITY	UNIT PRICE (PHP)	AMOUNT (x PHP 1,000)	REMARKS
1. CIVIL WORKS					
Demolition of Existing Houses	No.	220	30,000	6,600	
Demolition of Existing Pax Bldg.	L.S.	1		10,000	
Demolition of Existing C. Tower	L.S.	1		800	
Demolition of Existing F. Station	L.S.	1		700	
Demolition of Existing Adm. Bldg.	L.S.	1		1,000	
Demolition of Existing Apron	sq.m	28,000	200	5,600	Slab T = 20 cm
Clearing & Grubbing	sq.m	460,000	4	1,840	
Top Soil Stripping	sq.m	460,000	10	4,600	T = 20 cm
Excavation	cu.m	1,600,000	50	80,000	
Embankment	cu.m	1,600,000	80	128,000	
Runway Overlay	sq.m	112,500	1,760	198,000	As. con. 22 cm
Turning Pad	sq.m	3,200	1,400	4,480	Slab 42 cm, B.C. 38 cm
Runway Shoulder	sq.m	37,500	920	34,500	Slab 25 cm, B.C. 38 cm
Overrun	sq.m	7,200	920	6,624	Slab 25 cm, B.C. 38 cm
Taxiway	sq.m	8,970	1,400	12,558	Slab 42 cm, B.C. 38 cm
Taxiway Shoulder	sq.m	8,190	920	7,535	Slab 25 cm, B.C. 38 cm

ITEM	UNIT	QUANTITY	UNIT PRICE (PHP)	AMOUNT (x PHP 1,000)	REMARKS
Apron	sq.m	27,600	1,400	38,640	Slab 42 cm, B.C. 38 cm
GSE Road	sq.m	4,560	860	3,922	Slab 23 cm, B.C. 38 cm
Car Park	sq.m	6,200	520	3,224	Slab 15 cm, B.C. 15 cm
Road	sq.m	11,000	520	5,720	Slab 15 cm, B.C. 15 cm
Box Culvert (Air Side)	m	0	0	0	
Channel (Air Side)	m	200	4,000	800	
Other Drainage Works (Land side)	L.S.	1		5,000	
Sodding	sq.m	0	0	0	
Landscaping	sq.m	5,000	200	1,000	
Fence	m	10,000	1,000	10,000	
Gate	No.	20	30,000	600	
Marking and Signboard	L.S.	1		5,000	
Duct and Manhole	L.S.	1		5,000	
Road Lighting	No.	35	20,000	700	
Total of 1.				582,442	
2. ARCHTECTUAL WORKS					
Pax. Bldg.	sq.m	10,200	40,000	408,000	
Cargo Bldg.	sq.m	3,500	20,000	70,000	
Admi. Bldg.	sq.m	1,800	20,000	36,000	
Control Tower	sq.m	400	30,000	12,000	
Fire Station	sq.m	550	20,000	11,000	
Other Bldg.	L.S.	1		3,000	
Boarding Bridge	No.	2	16,000,000	32,000	
Other Special Equipment	L.S.	1		50,000	
Total of 2.				622,000	
3. FUEL SUPPLY SYSTEM					
Fuel Tank	No.	3	20,000,000	60,000	500 KI
Fuel Hydrant System	L.S.	1		30,000	
Total of 3.				90,000	
4. AIR NAVIGATION SYSTEMS					
4.1. Radio Navigational System					
4.2. Air Traffic Control System					
				17,000	
4.3. Aeronautical Telecom. System					
				32,000	

ITEM	UNIT	QUANTITY	UNIT PRICE (PHP)	AMOUNT (x PHP 1,000)	REMARKS
4.4. Met. Observation System				15,000	
4.5. Airfield Lighting System					
ALS (RWY 23)	Set	1		20,000	
SALS (RWY 05)	Set	1		7,000	
R/W Light	Set	1		20,000	
REIL (RWY 05)	Set	1		2,000	
T/W Edge Light	Unit	30	100,000	3,000	
T/W Guidance Sign	Unit	2	150,000	300	
A/P Floodlight	Unit	5	2,000,000	10,000	
Power Supply System for AFL	L.S.	1		20,000	
Total of 4.				146,300	
5. AIRPORT UTILITIES					
Power Supply System	L.S.	1		33,000	
Telephone	L.S.	1		2,000	
Water Supply System	L.S.	1		10,000	
Sewer Pipe	m	300	20,000	6,000	
Sewerage Treatment Plant	L.S.	1		30,000	
Incinerator	L.S.	1		10,000	
Total of 5.				91,000	
6. Rescue and Fire Fighting					
RIV	Unit	1	10,000,000	10,000	
Major Vehicle	Unit	2	15,000,000	30,000	
Ambulance	Unit	1	6,000,000	6,000	
Total of 6.				46,000	
Total of II.				1,577,742	
Total of I. and II				1,840,742	

ALTERNATIVE - AN (PHASE - II)
BREAKDOWN OF COST ESTIMATES

I. LAND ACQUISITION AND COMPENSATION COST

ITEM	UNIT	QUANTITY	UNIT PRICE (PHP)	AMOUNT (x PHP 1,000)	REMARKS
1. LAND ACQUISITION					
Land Acquisition	sq.m	210,000	500	105,000	
Total of 1.				105,000	
2. COMPENSATION					
Compensation for Relocation of Houses	No.	140	150,000	21,000	50 sq.m
Total of 2.				21,000	
Total of I.				126,000	

II. CONSTRUCTION COST

ITEM	UNIT	QUANTITY	UNIT PRICE (PHP)	AMOUNT (x PHP 1,000)	REMARKS
1. CIVIL WORKS					
Demolition of Existing Houses	No.	140	30,000	4,200	
Clearing & Grubbing	sq.m	210,000	4	840	
Top Soil Stripping	sq.m	210,000	10	2,100	T = 20 cm
Excavation	cu.m	1,600,000	50	80,000	
Embankment	cu.m	1,600,000	80	128,000	
Runway Overlay	sq.m	116,000	640	74,240	As. con. 8 cm
Runway Extension	sq.m	22,500	1,400	31,500	Slab 42 cm, B.C. 38 cm
Turning Pad	sq.m	1,600	1,400	2,240	Slab 42 cm, B.C. 38 cm
Runway Shoulder	sq.m	7,500	920	6,900	Slab 25 cm, B.C. 38 cm
Overrun	sq.m	3,600	920	3,312	Slab 25 cm, B.C. 38 cm
Apron Expansion	sq.m	6,590	1,400	9,226	Slab 42 cm, B.C. 38 cm
GSE Road Expansion	sq.m	1,090	860	937	Slab 23 cm, B.C. 38 cm
Car Park Expansion	sq.m	3,400	520	1,768	Slab 15 cm, B.C. 15 cm
Road Widening	sq.m	1,600	520	832	Slab 15 cm, B.C. 15 cm
Box Culvert (Air Side)	m	500	10,000	5,000	
Other Drainage Works (Land side	L.S.	1		2,000	

ITEM	UNIT	QUANTITY	UNIT PRICE (PHP)	AMOUNT (x PHP 1,000)	REMARKS
Sodding	sq.m	7,500	40	300	
Landscaping	sq.m	1,000	200	200	
Fence	m	3,000	1,000	3,000	
Gate	No.	10	30,000	300	
Marking and Signboard	L.S.	1		5,000	
Duct and Manhole	L.S.	1		1,000	
Total of 1.				362,895	
2. ARCHTECTUAL WORKS					
Pax. Bldg.	sq.m	2,200	40,000	88,000	
Cargo Bldg.	sq.m	3,700	20,000	74,000	
Boarding Bridge	No.	1	16,000,000	16,000	
Other Special Equipment	L.S.	1		30,000	
Total of 2.				208,000	
3. FUEL SUPPLY SYSTEM					
Fuel Tank	No.	3	20,000,000	60,000	500 KI
Fuel Hydrant System	L.S.	1		7,500	
Total of 3.				67,500	
4. AIR NAVIGATION SYSTEMS					
4.1. Radio Navigational System				4,000	Relocation of LLZ
4.2. Air Traffic Control System					
4.3. Aeronautical Telecom. System					
4.4. Met. Observation System					
4.5. Airfield Lighting System					
SALS (RWY 05)	Set	1		7,000	
R/W Light	Set	1		4,000	
REIL (RWY 05)	Set	1		2,000	
A/P Floodlight	Unit	1	2,000,000	2,000	
Power Supply System for AFL	L.S.	1		4,000	
Total of 4.				23,000	

ITEM	UNIT	QUANTITY	UNIT PRICE (PHP)	AMOUNT (x PHP 1,000)	REMARKS
5. AIRPORT UTILITIES					
Power Supply System	L.S.	1		19,000	
Telephone	L.S.	1		400	
Water Supply System	L.S.	1		2,500	
Sewerage Treatment Plant	L.S.	1		7,000	
Incinerator	L.S.	1		5,000	
Total of 5.				33,900	
Total of II.				695,295	
Total of I. and II				821,295	

**ALTERNATIVE - BS (PHASE - I)
BREAKDOWN OF COST ESTIMATES**

I. LAND ACQUISITION AND COMPENSATION COST

ITEM	UNIT	QUANTITY	UNIT PRICE (PHP)	AMOUNT (x PHP 1,000)	REMARKS
1. LAND ACQUISITION					
Land Acquisition	sq.m	660,000	500	330,000	
Total of 1.				330,000	
2. COMPENSATION					
Compensation for Relocation of Houses	No.	220	150,000	33,000	50 sq.m
Total of 2.				33,000	
Total of I.				363,000	

II. CONSTRUCTION COST

ITEM	UNIT	QUANTITY	UNIT PRICE (PHP)	AMOUNT (x PHP 1,000)	REMARKS
1. CIVIL WORKS					
Demolition of Existing Houses	No.	220	30,000	6,600	
Demolition of Existing Runway	sq.m	112,500	200	22,500	Slab T = 20 cm
Demolition of Existing Apron	sq.m	28,000	200	5,600	Slab T = 20 cm
Demolition of Existing C. Tower	L.S.	1		800	
Demolition of Existing F. Station	L.S.	1		700	
Demolition of Existing Adm. Bldg.	L.S.	1		1,000	
Clearing & Grubbing	sq.m	660,000	4	2,640	
Top Soil Stripping	sq.m	660,000	10	6,600	T = 20 cm
Excavation	cu.m	1,500,000	50	75,000	
Embankment	cu.m	1,500,000	80	120,000	
Runway	sq.m	112,500	1,400	157,500	Slab 42 cm, B.C. 38 cm
Turning Pad	sq.m	3,200	1,400	4,480	Slab 42cm, B.C. 38 cm
Runway Shoulder	sq.m	37,500	920	34,500	Slab 25 cm, B.C. 38 cm
Overrun	sq.m	7,200	920	6,624	Slab 25 cm, B.C. 38 cm
Taxiway	sq.m	8,970	1,400	12,558	Slab 42 cm, B.C. 38 cm
Taxiway Shoulder	sq.m	8,190	920	7,535	Slab 25 cm, B.C. 38 cm

ITEM	UNIT	QUANTITY	UNIT PRICE (PHP)	AMOUNT (x PHP 1,000)	REMARKS
Apron	sq.m	27,600	1,400	38,640	Slab 42 cm, B.C. 38 cm
GSE Road	sq.m	4,560	860	3,922	Slab 23 cm, B.C. 38 cm
Car Park	sq.m	6,200	520	3,224	Slab 15 cm, B.C. 15 cm
Road	sq.m	9,000	520	4,680	Slab 15 cm, B.C. 15 cm
Box Culvert (Air Side)	m	1,000	10,000	10,000	
Channel (Air Side)	m	200	4,000	800	
Other Drainage Works (Land side)	L.S.	1		5,000	
Sodding	sq.m	260,000	40	10,400	
Landscaping	sq.m	5,000	200	1,000	
Fence	m	10,000	1,000	10,000	
Gate	No.	20	30,000	600	
Marking and Signboard	L.S.	1		5,000	
Duct and Manhole	L.S.	1		5,000	
Road Lighting	No.	30	20,000	600	
Total of 1.				563,502	
2. ARCHTECTUAL WORKS					
Expansion of Existing Pax. Bldg.	sq.m	750	40,000	30,000	
Domestic Pax. Bldg.	sq.m	6,200	40,000	248,000	
Cargo Bldg.	sq.m	3,500	20,000	70,000	
Admi. Bldg.	sq.m	1,800	20,000	36,000	
Control Tower	sq.m	400	30,000	12,000	
Fire Station	sq.m	550	20,000	11,000	
Other Bldg.	L.S.	1		3,000	
Boarding Bridge	No.	2	16,000,000	32,000	
Other Special Equipment	L.S.	1		50,000	
Total of 2.				492,000	
3. FUEL SUPPLY SYSTEM					
Fuel Tank	No.	3	20,000,000	60,000	500 KI
Fuel Hydrant System	L.S.	1		30,000	
Total of 3.				90,000	
4. AIR NAVIGATION SYSTEMS					
4.1. Radio Navigational System	L.S.	1		11,000	Relocation of LLZ
4.2. Air Traffic Control System	L.S.	1		17,000	

ITEM	UNIT	QUANTITY	UNIT PRICE (PHP)	AMOUNT (x PHP 1,000)	REMARKS
4.3. Aeronautical Telecom. System	L.S.	1		32,000	
4.4. Met. Observation System	L.S.	1		15,000	
4.5. Airfield Lighting System					
ALS (RWY 23)	Set	1		20,000	
SALS (RWY 05)	Set	1		7,000	
R/W Light	Set	1		20,000	
REIL (RWY 05)	Set	1		2,000	
T/W Edge Light	Unit	30	100,000	3,000	
T/W Guidance Sign	Unit	2	150,000	300	
A/P Floodlight	Unit	5	2,000,000	10,000	
Power Supply System for AFL	L.S.	1		20,000	
Total of 4.				157,300	
5. AIRPORT UTILITIES					
Power Supply System	L.S.	1		33,000	
Telephone	L.S.	1		2,000	
Water Supply System	L.S.	1		10,000	
Sewer Pipe	m	300	20,000	6,000	
Sewerage Treatment Plant	L.S.	1		30,000	
Incinerator	L.S.	1		10,000	
Total of 5.				91,000	
6. Rescue and Fire Fighting					
RIV	Unit	1	10,000,000	10,000	
Major Vehicle	Unit	2	15,000,000	30,000	
Ambulance	Unit	1	6,000,000	6,000	
Total of 6.				46,000	
Total of II.				1,439,802	
Total of I. and II				1,802,802	

ALTERNATIVE - BS (PHASE - II)
BREAKDOWN OF COST ESTIMATES

I. LAND ACQUISITION AND COMPENSATION COST

ITEM	UNIT	QUANTITY	UNIT PRICE (PHP)	AMOUNT (x PHP 1,000)	REMARKS
1. LAND ACQUISITION					
Land Acquisition	sq.m	190,000	500	95,000	
Total of 1.				95,000	
2. COMPENSATION					
Compensation for Relocation of Houses	No.	40	150,000	6,000	50 sq.m.
Total of 2.				6,000	
Total of I.				101,000	

II. CONSTRUCTION COST

ITEM	UNIT	QUANTITY	UNIT PRICE (PHP)	AMOUNT (x PHP 1,000)	REMARKS
1. CIVIL WORKS					
Demolition of Existing Houses	No.	40	30,000	1,200	
Clearing & Grubbing	sq.m	190,000	4	760	
Top Soil Stripping	sq.m	190,000	10	1,900	T = 20 cm
Excavation	cu.m	700,000	50	35,000	
Embankment	cu.m	700,000	80	56,000	
Runway Extension	sq.m	22,500	1,400	31,500	Slab 42 cm, B.C. 38 cm
Turning Pad	sq.m	1,600	1,400	2,240	Slab 42 cm, B.C. 38 cm
Runway Shoulder	sq.m	7,500	920	6,900	Slab 25 cm, B.C. 38 cm
Overrun	sq.m	3,600	920	3,312	Slab 25 cm, B.C. 38 cm
Apron Expansion	sq.m	6,590	1,400	9,226	Slab 42 cm, B.C. 38 cm
GSE Road Expansion	sq.m	1,090	860	937	Slab 23 cm, B.C. 38 cm
Car Park Expansion	sq.m	3,400	520	1,768	Slab 15 cm, B.C. 15 cm
Road Widening	sq.m	400	520	208	Slab 15 cm, B.C. 15 cm
Box Culvert (Air Side)	m	500	10,000	5,000	
Other Drainage Works (Land side)	L.S.	1		2,000	

ITEM	UNIT	QUANTITY	UNIT PRICE (PHP)	AMOUNT (x PHP 1,000)	REMARKS
Sodding	sq.m	7,500	40	300	
Landscaping	sq.m	1,000	200	200	
Fence	m	3,000	1,000	3,000	
Gate	No.	10	30,000	300	
Marking and Signboard	L.S.	1		5,000	
Duct and Manhole	L.S.	1		1,000	
Total of 1.				167,751	
2. ARCHTECTUAL WORKS					
Int'l. Pax. Bldg.	sq.m	1,000	40,000	40,000	
Dom. Pax. Bldg.	sq.m	1,200	40,000	48,000	
Cargo Bldg.	sq.m	3,700	20,000	74,000	
Boarding Bridge	No.	1	16,000,000	16,000	
Other Special Equipment	L.S.	1		30,000	
Total of 2.				208,000	
3. FUEL SUPPLY SYSTEM					
Fuel Tank	No.	3	20,000,000	60,000	500 KI
Fuel Hydrant System	L.S.	1		7,500	
Total of 3.				67,500	
4. AIR NAVIGATION SYSTEMS					
4.1. Radio Navigational System	L.S.	1		4,000	Relocation of LLZ
4.2. Air Traffic Control System					
4.3. Aeronautical Telecom. System					
4.4. Met.Observation System					
4.5. Airfield Lighting System					
SALS (RWY 05)	Set	1		7,000	
R/W Light	Set	1		4,000	
REIL (RWY 05)	Set	1		2,000	
A/P Floodlight	Unit	1	2,000,000	2,000	
Power Supply System for AFL	L.S.	1		4,000	
Total of 4.				23,000	

ITEM	UNIT	QUANTITY	UNIT PRICE (PHP)	AMOUNT (x PHP 1,000)	REMARKS
5. AIRPORT UTILITIES					
Power Supply System	L.S.	1		19,000	
Telephone	L.S.	1		400	
Water Supply System	L.S.	1		2,500	
Sewerage Treatment Plant	L.S.	1		7,000	
Incinerator	L.S.	1		5,000	
Total of 5.				33,900	
Total of II.				500,151	
Total of I. and II				601,151	

ALTERNATIVE - BN (PHASE - I)
BREAKDOWN OF COST ESTIMATES

I. LAND ACQUISITION AND COMPENSATION COST

ITEM	UNIT	QUANTITY	UNIT PRICE (PHP)	AMOUNT (x PHP 1,000)	REMARKS
1. LAND ACQUISITION					
Land Acquisition	sq.m	780,000	500	390,000	
Total of 1.				390,000	
2. COMPENSATION					
Compensation for Relocation of Houses	No.	220	150,000	33,000	50 sq.m
Total of 2.				33,000	
Total of I.				423,000	

II. CONSTRUCTION COST

ITEM	UNIT	QUANTITY	UNIT PRICE (PHP)	AMOUNT (x PHP 1,000)	REMARKS
1. CIVIL WORKS					
Demolition of Existing Houses	No.	220	30,000	6,600	
Demolition of Existing Runway	sq.m	112,500	200	22,500	Slab T = 20 cm
Demolition of Existing C. Tower	L.S.	1		800	
Demolition of Existing F. Station	L.S.	1		700	
Clearing & Grubbing	sq.m	780,000	4	3,120	
Top Soil Stripping	sq.m	780,000	10	7,800	T = 20 cm
Excavation	cu.m	1,700,000	50	85,000	
Embankment	cu.m	1,700,000	80	136,000	
Runway	sq.m	112,500	1,400	157,500	Slab 42 cm, B.C. 38 cm
Turning Pad	sq.m	3,200	1,400	4,480	Slab 42 cm, B.C. 38 cm
Runway Shoulder	sq.m	37,500	920	34,500	Slab 25 cm, B.C. 38 cm
Overrun	sq.m	7,200	920	6,624	Slab 25 cm, B.C. 38 cm
Taxiway	sq.m	8,970	1,400	12,558	Slab 42 cm, B.C. 38 cm
Taxiway Shoulder	sq.m	8,190	920	7,535	Slab 25 cm, B.C. 38 cm
Apron	sq.m	27,600	1,400	38,640	Slab 42 cm, B.C. 38 cm
General Aviation Taxiway	sq.m	1,400	520	728	Slab 15 cm, B.C. 15 cm

ITEM	UNIT	QUANTITY	UNIT PRICE (PHP)	AMOUNT (x PHP 1,000)	REMARKS
GSE Road	sq.m	4,560	860	3,922	Slab 23 cm, B.C. 38 cm
Car Park	sq.m	6,200	520	3,224	Slab 15 cm, B.C. 15 cm
Road	sq.m	9,000	520	4,680	Slab 15 cm, B.C. 15 cm
Box Culvert (Air Side)	m	1,000	10,000	10,000	
Channel (Air Side)	m	200	4,000	800	
Other Drainage Works (Land side)	L.S.	1		5,000	
Sodding	sq.m	260,000	40	10,400	
Landscaping	sq.m	5,000	200	1,000	
Fence	m	10,000	1,000	10,000	
Gate	No.	20	30,000	600	
Marking and Signboard	L.S.	1		5,000	
Duct and Manhole	L.S.	1		5,000	
Road Lighting	No.	30	20,000	600	
Total of 1.				585,310	
2. ARCHTECTUAL WORKS					
Pax. Bldg.	sq.m	10,200	40,000	408,000	
Cargo Bldg.	sq.m	3,500	20,000	70,000	
Admi. Bldg.	sq.m	1,800	20,000	36,000	
Control Tower	sq.m.	400	30,000	12,000	
Fire Station	sq.m	550	20,000	11,000	
Other Bldg.	L.S.	1		3,000	
Boarding Bridge	No.	2	16,000,000	32,000	
Other Special Equipment	L.S.	1		50,000	
Total of 2.				622,000	
3. FUEL SUPPLY SYSTEM					
Fuel Tank	No.	3	20,000,000	60,000	500 KI
Fuel Hydrant System	L.S.	1		30,000	
Total of 3.				90,000	
4. AIR NAVIGATION SYSTEMS					
4.1. Radio Navigational System	L.S.	1		11,000	Relocation of ILS
4.2. Air Traffic Control System	L.S.	1		17,000	
4.3. Aeronautical Telecom. System	L.S.	1		32,000	
4.4. Met. Observation System	L.S.	1		15,000	

ITEM	UNIT	QUANTITY	UNIT PRICE (PHP)	AMOUNT (x PHP 1,000)	REMARKS
4.5. Airfield Lighting System					
ALS (RWY 23)	Set	1		20,000	
SALS (RWY 05)	Set	1		7,000	
R/W Light	Set	1		20,000	
REIL (RWY 05)	Set	1		2,000	
T/W Edge Light	Unit	30	100,000	3,000	
T/W Guidance Sign	Unit	2	150,000	300	
A/P Floodlight	Unit	5	2,000,000	10,000	
Power Supply System for AFL	L.S.	1		20,000	
Total of 4.				157,300	
5. AIRPORT UTILITIES					
Power Supply System	L.S.	1		33,000	
Telephone	L.S.	1		2,000	
Water Supply System	L.S.	1		10,000	
Sewer Pipe	m	300	20,000	6,000	
Sewerage Treatment Plant	L.S.	1		30,000	
Incinerator	L.S.	1		10,000	
Total of 5.				91,000	
6. Rescue and Fire Fighting					
RIV	Unit	1	10,000,000	10,000	
Major Vehicle	Unit	2	15,000,000	30,000	
Ambulance	Unit	1	6,000,000	6,000	
Total of 6.				46,000	
Total of II.				1,591,610	
Total of I. and II				2,014,610	

ALTERNATIVE - BN (PHASE - II)
BREAKDOWN OF COST ESTIMATES

I. LAND ACQUISITION AND COMPENSATION COST

ITEM	UNIT	QUANTITY	UNIT PRICE (PHP)	AMOUNT (x PHP 1,000)	REMARKS
1. LAND ACQUISITION					
Land Acquisition	sq.m	180,000	500	90,000	
Total of 1.				90,000	
2. COMPENSATION					
Compensation for Relocation of House	No.	40	150,000	6,000	50 sq.m
Total of 2.				6,000	
Total of I.				96,000	

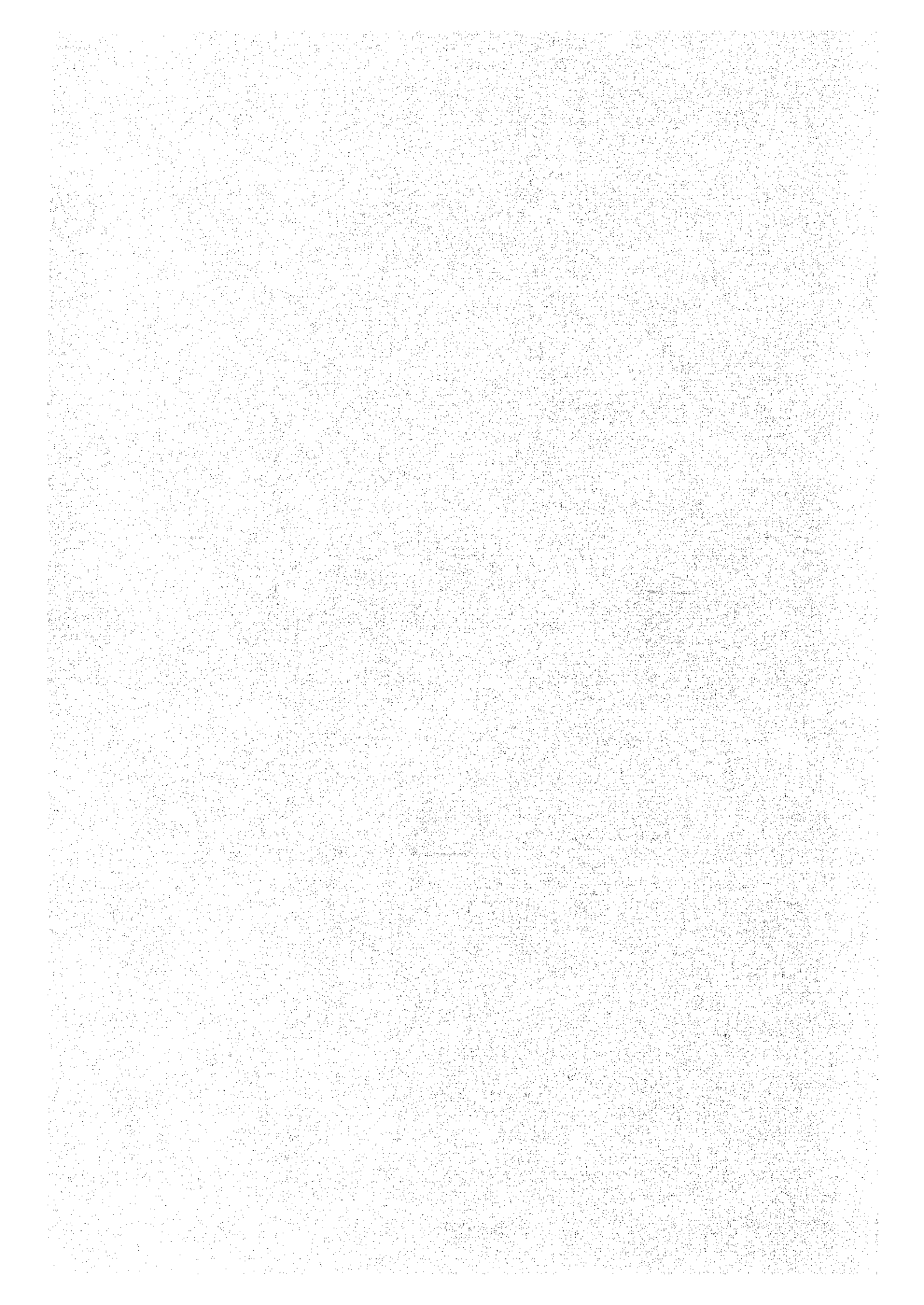
II. CONSTRUCTION COST

ITEM	UNIT	QUANTITY	UNIT PRICE (PHP)	AMOUNT (x PHP 1,000)	REMARKS
1. CIVIL WORKS					
Demolition of Existing Houses	No.	40	30,000	1,200	
Clearing & Grubbing	sq.m	180,000	4	720	
Top Soil Stripping	sq.m	180,000	10	1,800	T = 20 cm
Excavation	cu.m	500,000	50	25,000	
Embankment	cu.m	500,000	80	40,000	
Runway Extension	sq.m	22,500	1,400	31,500	Slab 42 cm, B.C. 38 cm
Turning Pad	sq.m	1,600	1,400	2,240	Slab 42 cm, B.C. 38 cm
Runway Shoulder	sq.m	7,500	920	6,900	Slab 25 cm, B.C. 38 cm
Overrun	sq.m	3,600	920	3,312	Slab 25 cm, B.C. 38 cm
Apron Expansion	sq.m	6,590	1,400	9,226	Slab 42 cm, B.C. 38 cm
GSE Road Expansion	sq.m	1,090	860	937	Slab 23 cm, B.C. 38 cm
Car Park Expansion	sq.m	3,400	520	1,768	Slab 15 cm, B.C. 15 cm
Road Widening	sq.m	450	520	234	Slab 15 cm, B.C. 15 cm
Box Culvert (Air Side)	m	500	10,000	5,000	
Other Drainage Works (Land side)	L.S.	1		2,000	

ITEM	UNIT	QUANTITY	UNIT PRICE (PHP)	AMOUNT (x PHP 1,000)	REMARKS
Sodding	sq.m	7,500	40	300	
Landscaping	sq.m	1,000	200	200	
Fence	m	3,000	1,000	3,000	
Gate	No.	10	30,000	300	
Marking and Signboard	L.S.	1		5,000	
Duct and Manhole	L.S.	1		1,000	
Total of 1.				141,637	
2. ARCHTECTUAL WORKS					
Pax. Bldg.	sq.m	2,200	40,000	88,000	
Cargo Bldg.	sq.m	3,700	20,000	74,000	
Boarding Bridge	No.	1	16,000,000	16,000	
Other Special Equipment	L.S.	1		30,000	
Total of 2.				208,000	
3. FUEL SUPPLY SYSTEM					
Fuel Tank	No.	3	20,000,000	60,000	500 KI
Fuel Hydrant System	L.S.	1		7,500	
Total of 3.				67,500	
4. AIR NAVIGATION SYSTEMS					
4.1. Radio Navigational System				4,000	Relocation of LLZ
4.2. Air Traffic Control System					
4.3. Aeronautical Telecom. System					
4.4. Met. Observation System					
4.5. Airfield Lighting System					
SALS (RWY 05)	Set	1		7,000	
R/W Light	Set	1		4,000	
REIL (RWY 05)	Set	1		2,000	
A/P Floodlight	Unit	1	2,000,000	2,000	
Power Supply System for AFL	L.S.	1		4,000	
Total of 4.				23,000	

ITEM	UNIT	QUANTITY	UNIT PRICE (PHP)	AMOUNT (x PHP 1,000)	REMARKS
5. AIRPORT UTILITIES					
Power Supply System	L.S.	1		19,000	
Telephone	L.S.	1		400	
Water Supply System	L.S.	1		2,500	
Sewerage Treatment Plant	L.S.	1		7,000	
Incinerator	L.S.	1		5,000	
Total of 5.				33,900	
Total of II.				474,037	
Total of I. and II				570,037	

APPENDIX TO CHAPTER 9



**Required Areas and Facilities
for New Passenger Terminal Building**

The required areas and facilities for both international and domestic passengers in the building have been calculated by using the calculation formulas of IATA and the data which the adopted passenger processing times for the calculation were derived from the survey data (See Appendix - 6.7.1).

The major required areas and facilities are summarized as follows, and a more detail calculation is also explained below.

1. Summary

Domestic Traffic	Medium-Term Development Plan 2000	Long-Term Development Plan 2010	Remarks
Peak-hour PAX (One Way)	350 PAX	550 PAX	
1 Departure Curb Curb Length	24 m	41 m	
2 Departure Concourse (Public)	1050 sq.m	1650 sq.m	
3 Security Check before Check-in Lobby	1 unit	2 units	
4 Check-in Counter	13 counters (26m long)	20 counters (40m long)	
5 Queueing Area Check-in	90 sq.m	155 sq.m	
6 Security Check before Departure Lounge	1 unit	2 units	
7 Departure Lounge	500 sq.m	810 sq.m	
8 Baggage Claim Area	350 sq.m	545 sq.m	
9 No.of Baggage Claim Devices	2 devices Wide body -1 Narrow body -1	2 devices Wide - body -1 Narrow - body -1	
10 Arrival Concourse(Public)	1010 sq.m	1590 sq.m	
11 Arrival Curb Curb Length	24 m	41 m	

2. Summary

International Traffic	Medium - Term Development Plan 2000	Long - Term Development Plan 2010	Remarks
Peak - hour PAX (One Way)	200 PAX	250 PAX	
1 Departure Curb Curb Length	15 m	19 m	
2 Departure Concourse(Public)	600 sq.m	750 sq.m	
3 Security Check before Check - in Lobby	1 unit	1 unit	
4 Customs Inspection Departure	3 positions	4 positions	
5 Check - in Counter	11 units (22m long)	14 units (28m long)	
6 Queueing Area Check - in	55 sq.m	70 sq.m	
7 Terminal Fee Counter	2 positions	2 positions	
8 Passport Control Departure	4 positions	5 positions	
9 Security Check before Departure Lounge	1 unit	1 unit	
10 Departure Lounge	370 sq.m	460 sq.m	
11 Arrivals Health Control	4 positions	5 positions	
12 Passport Control Arrival	5 positions	7 positions	
13 Queueing Area Passport Control Arrival	75 sq.m	95 sq.m	
14 Baggage Claim Area	200 sq.m	250 sq.m	
15 No. of Baggage Claim Devices	1 device Wide - body - 1	1 device Wide - body - 1	
16 Customs Inspection Arrival	8 positions	10 positions	
17 Queueing Area Arrival Customs	45 sq.m	55 sq.m	
18 Arrival Concourse(Public)	580 sq.m	725 sq.m	
19 Arrival Curb Curb Length	15 m	19 m	
20 Restaurant Seating Capacity	268 seats 270 sq.m A - 300	340 seats 340 sq.m DC - 10	

3. Area and Facility Requirements in 2000 for Domestic Traffic

3.1 Departure Curb

$$L = 0.095 a p \text{ meters} + (10\%)$$

Where, L = Curb length required (m)
a = No. of peak hour passengers: 350 passengers
p = Proportion of passenger using car/taxi: 0.7

$$L = 0.095 \times 350 \times 0.7 = 23.3\text{m} = \underline{24\text{m}}$$

3.2 Departure Concourse

$$A = 0.75 a (1+o) \text{ sq.m}$$

Where, A = Area required (sq.m)
a = No. of peak hour passengers : 350 passengers
o = No. of visitors per passenger : 3 assumed

Note : 1. 20-minute average occupancy time assumed
2. Space required per person : 1.5 sq.m assumed

$$A = 0.75 \times 350 (1+3) = \underline{1,050 \text{ sq.m}}$$

3.3 Security Check before Check-in Lobby

$$N = a/300 \text{ Unit}$$

Where, N = X-Ray unit required (unit)
a = No. of peak hour passengers: 350 passengers

Note : 1. Capacity of X-Ray unit: 600 pcs./hour assumed
2. No. of baggage items per passenger: 2 pcs. assumed

$$N = 350/300 = \underline{1 \text{ unit}}$$

3.4 Check-in Counter

$$N = at/60 \text{ counters} + (10\%)$$

Where, N = Check-in counters required (counters)
a = No. of peak hour passengers: 350 passengers
t = Average processing time per passenger : 2.0 minutes

$$N = 350 \times 2/60 = 11.7 + (1.2) = 12.9 = \underline{13 \text{ counters}}$$

3.5 Queueing Area- Check-in

$$A = 0.25 a \text{ sq.m} + (10\%)$$

Where, A = Area required (sq.m)
a = No. of peak hour passengers: 350 passengers

Note : 1. Space required per passenger: 1.5 sq.m assumed

$$A = 0.25 \times 350 = 87.5 + (0.88) = 88.38 = \underline{90 \text{ sq.m}}$$

3.6 Security Check before Departure Lounge

The result is the same as Item 3.3

$$N = \underline{1 \text{ unit}}$$

3.7 Departure Lounge

$$A = C (ui/30 + vk/30) \text{ sq.m} + (10\%)$$

Where, A = Area required (sq.m)
C = No. of peak hour passengers: 350 passengers
U = Average occupancy time per long-haul passenger:
50 minutes assumed
V = Average occupancy time per short-haul passenger:
30 minutes assumed
i = Proportion of long-haul passenger: 0.5 assumed

Note : Space required per passenger : 2.0 sq.m assumed

$$A = 350 (50 \times 0.5/30 + 30 \times 0.5/30) = 455 + (46) = \underline{500 \text{ sq.m}}$$

3.8 Baggage Claim Area (excluding claim devices)

$$A = e w s / 60 \text{ sq.m} + (10\%)$$

Where, A = Area required (sq.m)
e = No. of peak hour passengers : 350 passengers
w = Average occupancy time per passenger: 30 minutes assumed
s = Space required per passenger : 1.8 sq.m assumed

$$A = 350 \times 30 \times 1.8 / 60 = 315 + (32) = 347 = \underline{350 \text{ sq.m}}$$

3.9 Number of Baggage Claim Devices

Wide-body aircraft (Required claim length: 50-60m)

$$N = e q / 425$$

Narrow- body aircraft (Required claim length: 30-40m)

$$N = e r / 300$$

Where, N = Claim devices required
e = No. of peak hour passengers: 350 passengers
q = Proportion of passengers arriving by wide-body aircraft: 0.55
r = Proportion of passengers arriving by narrow-body aircraft: 0.45

Note : 1. Average claim device occupancy time per wide and narrow-body aircraft:
45 minutes and 20 minutes assumed respectively.

Wide-body aircraft

$$N = 350 \times 0.55 / 425 = 0.45 = 1 \quad N = \underline{1 \text{ device}}$$

Narrow-body aircraft

$$N = 350 \times 0.45 / 300 = 0.52 = 1 \quad N = \underline{1 \text{ device}}$$

3.10 Arrivals Concourse

$$A = 0.375 (d + 2do) \text{ sq.m} + (10\%)$$

Where, A = Area required (sq.m)
d = No. of peak hour passengers : 350 passengers
o = No. of visitors per passenger : 3 assumed

Note : 1. Average occupancy time per passenger: 15 minutes assumed
2. Average occupancy time per visitor : 30 minutes assumed
3. Space required per person: 1.5 sq.m assumed

$$A = 0.375 \times (350 + 2 \times 350 \times 3) = 918 + (92) = \underline{1,010 \text{ sq.m}}$$

3.11 Arrivals Curb

The result is the same as Item 3.1 (Departure Curb)

$$L = \underline{24\text{m}}$$

4. Area and Facility Requirements in 2000 for International Traffic

4.1 Departure Curb

$$L = 0.095 ap \text{ meters} + (10\%)$$

Where, L = Curb length required (m)
a = No. of peak hour passengers: 200 passengers
p = Proportion of passenger using car/taxi: 0.7

$$L = 0.095 \times 200 \times 0.7 = 13.3 + (1.3) = 14.6 = \underline{15\text{m}}$$

4.2 Departure Concourse

$$A = 0.75 a(1 + o) \text{ sq.m}$$

Where, A = Area required (sq.m)
a = No. of peak hour passengers: 200 passengers
o = No. of visitors per passenger: 3 assumed

Note: 1. 20-minute average occupancy time assumed
2. Space required per person: 1.5 sq.m assumed

$$A = 0.75 \times 200 (1 + 3) = \underline{600 \text{ sq.m}}$$

4.3 Security check before Check-in Lobby

$$N = a/300 \text{ unit}$$

Where, N = X-Ray unit required (unit)
 a = No. of peak hour passenger : 200 passengers

Note : 1. Capacity of X-Ray unit: 600 pcs/hour assumed
 2. No. of baggage items per passenger: 2 pcs.assumed

$$N = 200/300 = 0.67 = \underline{1 \text{ unit}}$$

4.4 Customs Inspection - Departure

$$N = at/60 \text{ position}$$

Where, N = No. of customs positions required
 a = No. of peak hour passengers: 200 passengers
 t = Average processing time per passenger : 0.75 minutes
 (45 seconds)

$$N = \underline{200 \times 0.75/60} = 2.5 = \underline{3 \text{ position}}$$

4.5 Check-in Counter

$$N = at/60 \text{ counter:} + (10\%)$$

Where, N = Check-in counters required (counter)
 a = No. of peak hour passengers: 200 passengers
 t = Average processing time per passenger : 3.0 minutes

$$N = 200 \times 3/60 = 10 + (1) = \underline{11 \text{ counters}}$$

4.6 Queuing Area- Check-in

$$A = 0.25 a \text{ sq.m} + (10\%)$$

Where, A = Area required (sq.m)
 a = No. of peak hour passengers: 200 passengers

Note : 1. Space required per passenger: 1.5 sq.m assumed

$$A = 0.25 \times 200 = 50 + (5) = \underline{55 \text{ sq.m}}$$

4.7 Terminal Fee Counter

$$N = at/60 \text{ counters} + (10\%)$$

Where, N = Terminal fee counter required
 a = No. of peak hour passengers: 200 passengers
 t = Average processing time per passenger: 0.42 minutes
 (25 seconds)

$$N = 200 \times 0.42/60 = 1.4 + (0.15) = 1.55 = \underline{2.0 \text{ counters}}$$

4.8 Passport Control - Departure

$$N = a t/60 \text{ positions} + (10\%)$$

Where, N = Control position required (positions)
 a = No. of peak hour passengers: 200 passengers
 t = Average processing time per passenger : 1 minute

$$N = 200 \times 1/60 = 3.3 + (0.4) = 3.7 = \underline{4 \text{ Counters}}$$

4.9 Security Check before Departure Lounge

The result is the same as Item 4.3 (Security check before Check-in Lobby)

$$N = \underline{1 \text{ unit}}$$

4.10 Departure Lounge

$$A = c t/30 \text{ sq.m} + (10\%)$$

Where, A = Area required (sq.m)
 c = No. of peak hour passengers: 200 passengers
 t = Average occupancy time per passenger : 50 minutes assumed

Note : 1. Space required per passenger: 2.0 sq.m assumed

$$A = 200 \times 50/30 = 333 + (34) = 367 = \underline{370 \text{ sq.m}}$$

4.11 Arrivals Health Control

$$N = dt/60 \text{ positions}$$

Where, N = Control positions required
 d = No. of peak hour passengers: 200 passengers
 t = Average processing time per passenger: 1.0 minutes

$$N = 200 \times 1/60 = 3.3 = \underline{4 \text{ position}}$$

4.12 Passport Control-Arrival

$$N = dt/45 \text{ positions} + (10\%)$$

Where, N = Control positions required
 d = No. of peak hour passengers: 200 passengers
 t = Average processing time per passenger: 1.0 minutes

$$N = 200 \times 1/45 = 4.4 + (0.5) = 4.9 = \underline{5 \text{ position}}$$

4.13 Queueing Area Passport Control - Arrival

$$A = 0.34 d \text{ sq.m} + (10\%)$$

Where, A = Area required
d = No. of peak hour passengers: 200 passengers

$$A = 68 + (7) + 75 \text{ sq.m}$$

4.14 Baggage Claim Area (Excluding claim devices)

$$A = \text{ews}/60 \text{ sq.m} + (10\%)$$

Where, A = Area required (sq.m)
e = No. of peak hour passengers: 200 passengers
w = Average occupancy time per passenger : 30 minutes assumed
s = Space required per passenger: 1.8 sq. m assumed

$$A = 200 \times 30 \times 1.8/60 = 180 + (18) = 198 = \underline{200 \text{ sq. m}}$$

4.15 Number of Baggage Claim Devices

Wide-body aircraft (Required claim length:50-60)
N= eg/425

Where, N = Claim devices required
e = No. of peak hour passengers: 200 passengers
q = Proportion of passengers arriving by wide-body aircraft: 1.0

Note : 1. Average claim device occupancy time per wide-body aircraft: 45minutes assumed

$$N = 200 \times 1/425 = 0.47 = \underline{1.0 \text{ device}}$$

4.16 Customs Inspection-Arrival

$$N = \text{eft}/45 \text{ position} + (10\%)$$

Where, N = No. of customs positions required
e = No. of peak hour passengers: 200 passengers
f = Proportion of passengers to be customs inspected : 0.80
t = Average processing time per passenger: 2.0 minutes

$$N = 200 \times 0.8 \times 2.0/45 = 7.1 + (0.7) = 7.8 = \underline{8 \text{ positions}}$$

4.17 Queueing Area- Arrival Customs

$$A = 0.25 \text{ ef (sq.m)} + (10\%)$$

Where, A = Area required (sq.m)
e = No. of peak hour passengers: 200 passengers
f = Proportion of passengers to be inspected: 0.80

Note : 1. Space required per passenger: 1.5 sq.m assumed

$$A = 0.25 \times 200 \times 0.8 = 40 + (4) = 44 = \underline{45 \text{ sq.m}}$$

4.18 Arrivals Concourse

$$A = 0.375 (d + 2 do) \text{ sq.m} + (10\%)$$

Where, A = Area required (sq.m)
d = No. of peak hour passengers: 200 passengers
o = No. of visitors per passenger: 3 assumed

Note : 1. Average occupancy time per passenger : 15 minutes assumed
2. Average occupancy time per visitor: 30 minutes assumed
3. Space required per passenger : 1.5 sq.m assumed

$$A = 0.375 \times (200 + 2 \times 200 \times 3) = 525 + (53) = 578 = \underline{580 \text{ sq.m}}$$

4.19 Arrivals Curb

The result is the same as Item. 4.1 (Departure Curb)

$$L = \underline{15\text{m}}$$

5. Area and Facility Requirements in 2010 for Domestic Traffic

5.1 Departure Curb

$$L = 0.095 a p \text{ meters} + (10\%)$$

Where, L = Curb length required (m)
a = No. of peak hour passengers: 550 passengers
p = Proportion of passenger using car/taxi: 0.7

$$L = 0.095 \times 550 \times 0.7 = 36.6 + (3.7) = 40.3 = \underline{41 \text{ m}}$$

5.2 Departure Concourse

$$A = 0.75 a (1+o) \text{ sq.m}$$

Where, A = Area required (sq.m)
a = No. of peak hour passengers : 550 passengers
o = No. of visitors per passenger : 3 assumed

Note : 1. 20-minute average occupancy time assumed
2. Space required per person : 1.5 sq.m assumed

$$A = 0.75 \times 550 (1+3) = \underline{1,650 \text{ sq.m}}$$

5.3 Security check before Check-in Lobby

$$N = a/300 \text{ Unit}$$

Where, N = X-Ray unit required (unit)
a = No. of peak hour passengers: 550 passengers

Note : 1. Capacity of X-Ray unit: 600 pcs./hour assumed
2. No. of baggage items per passenger: 2 pcs. assumed

$$N = 550/300 = 1.83 = \underline{2 \text{ units}}$$

5.4 Check-in Counter

$$N = at/60 \text{ counters} + (10\%)$$

Where, N = Check-in counters required (counters)
 a = No. of peak hour passengers: 550 passengers
 t = Average processing time per passenger : 2.0 minutes

$$N = 550 \times 2.0/60 = 18.3 + (1.8) = 20.1 = \underline{20 \text{ counters}}$$

5.5 Queuing Area- Check-in

$$A = 0.25 a \text{ sq.m} + (10\%)$$

Where, A = Area required (sq.m)
 a = No. of peak hour passengers: 550 passengers

Note : 1. Space required per passenger: 1.5 sq.m assumed

$$A = 0.25 \times 550 = 137.5 + (13.8) = 151.3 = \underline{155 \text{ sq.m}}$$

5.6 Security Check before Departure Lounge

The result is the same as Item 5.3

$$N = \underline{2 \text{ units}}$$

5.7 Departure Lounge

$$A = C (ui/30 + vk/30) \text{ sq.m} + (10\%)$$

Where, A = Area required (sq.m)
 C = No. of peak hour passengers: 550 passengers
 U = Average occupancy time per long-haul passenger:
 50 minutes assumed
 V = Average occupancy time per short-haul passenger:
 30 minutes assumed
 i = Proportion of long-haul passenger: 0.5 assumed

Note : Space required per passenger : 2.0 sq.m assumed

$$A = 550 (50 \times 0.5/30 + 30 \times 0.5/30) = 733 + (74) = 807 = \underline{810 \text{ sq.m}}$$

5.8 Baggage Claim Area (excluding claim devices)

$$A = ews/60 \text{ sq.m} + (10\%)$$

Where, A = Area required (sq.m)
 e = No. of peak hour passengers : 550 passengers
 w = Average occupancy time per passenger: 30 minutes assumed
 s = Space required per passenger : 1.8 sq.m assumed

$$A = 550 \times 30 \times 1.8/60 = 495 + (50) = 545 = \underline{545 \text{ sq.m}}$$

5.9 Number of Baggage Claim Devices

Wide-body aircraft (Required claim length: 50-60m)

$$N = eq/425$$

Narrow- body aircraft (Required claim length: 30-40m)

$$N = er/300$$

Where, N = Claim devices required
 e = No. of peak hour passengers: 550 passengers
 q = Proportion of passengers arriving by wide-body aircraft: 0.7
 r = Proportion of passengers arriving by narrow-body aircraft: 0.3

Note : 1. Average claim device occupancy time per wide and narrow-body aircraft: 45 minutes and 20 minutes assumed respectively.

Wide-body aircraft

$$N = 550 \times 0.7/425 = 0.9 = 1 \quad N = \underline{1 \text{ device}}$$

Narrow- body aircraft

$$N = 550 \times 0.3/300 = 0.55 = 1 \quad N = \underline{1 \text{ device}}$$

5.10 Arrivals Concourse

$$A = 0.375 (d+2do) \text{ sq.m} + (10\%)$$

Where, A = Area required (sq.m)
 d = No. of peak hour passengers : 550 passengers
 o = No. of visitors per passenger : 3 assumed

Note : 1. Average occupancy time per passenger: 15 minutes assumed
 2. Average occupancy time per visitor : 30 minutes assumed
 3. Space required per person: 1.5 sq.m assumed

$$A = 0.375 \times (550 + 2 \times 550 \times 3) = 1,443 + (144) = \underline{1,590 \text{ sq.m}}$$

5.11 Arrivals Curb

The result is the same as Item 5.1 (Departure Curb)

$$L = \underline{41 \text{ m}}$$

6. Area and Facility Requirements in 2010 for International Traffic

6.1 Departure Curb

$$L = 0.095 \text{ ap meters} + (10\%)$$

Where, L = Curb length required (m)
a = No. of peak hour passengers: 250 passengers
p = Proportion of passenger using car/taxi: 0.7

$$L = 0.095 \times 250 \times 0.7 = 16.6 + (1.7) = 18.3 = \underline{19 \text{ m}}$$

6.2 Departure Concourse

$$A = 0.75 \text{ a}(1 + o) \text{ sq.m}$$

Where, A = Area required (sq.m)
a = No. of peak hour passengers: 250 passengers
o = No. of visitors per passenger: 3 assumed

Note: 1. 20-minute average occupancy time assumed
2. Space required per person: 1.5 sq.m assumed

$$A = 0.75 \times 250 (1 + 3) = \underline{750 \text{ sq.m}}$$

6.3 Security Check before Check-in Lobby

$$N = a/300 \text{ unit}$$

Where, N = X-Ray unit required (unit)
a = No. of peak hour passenger : 250 passengers

Note : 1. Capacity of X-Ray unit: 600 pcs/hour assumed
2. No. of baggage items per passenger: 2 pcs.assumed

$$N = 250/300 = 0.83 = \underline{1 \text{ unit}}$$

6.4 Customs Inspection - Departure

$$N = at/60 \text{ position}$$

Where, N = No. of customs positions required
a = No. of peak hour passengers: 250 passengers
t = Average processing time per passenger : 0.75 minutes
(45 seconds)

$$N = 250 \times 0.75/60 = 3.2 = \underline{4 \text{ position}}$$

6.5 Check-in Counter

$$N = at/60 \text{ counter} + (10\%)$$

Where, N = Check-in counters required (counter)
a = No. of peak hour passengers: 250 passengers
t = Average processing time per passenger : 3.0 minutes

$$N = 250 \times 3/60 = 12.5 + (1.3) = 13.8 = \underline{14 \text{ counters}}$$

6.6 Queueing Area- Check-in

$$A = 0.25 a \text{ sq.m} + (10\%)$$

Where, A = Area required (sq.m)
a = No. of peak hour passengers: 250 passengers

Note : 1. Space required per passenger: 1.5 sq.m assumed

$$A = 0.25 \times 250 = 62.5 + (6.3) = 68.8 = \underline{70 \text{ sq.m}}$$

6.7 Terminal Fee Counter

$$N = at/60 \text{ counters} + (10\%)$$

Where, N = Terminal fee counter required
a = No. of peak hour passengers: 250 passengers
t = Average processing time per passenger: 0.42 minutes
(25 seconds)

$$N = 250 \times 0.42/60 = 1.75 + (0.2) = 1.95 = \underline{2.0 \text{ counters}}$$

6.8 Passport Control - Departure

$$N = at/60 \text{ positions} + (10\%)$$

Where, N = Control position required (positions)
a = No. of peak hour passengers: 250 passengers
t = Average processing time per passenger : 1 minute

$$N = 250 \times 1/60 = 4.2 + (0.4) = 4.6 = \underline{5 \text{ Counters}}$$

6.9 Security check before Departure Lounge

The result is the same as Item 6.3 (Security check before Check-in Lobby)

$$N = \underline{1 \text{ unit}}$$

6.10 Departure Lounge

$$A = c t/30 \text{ sq.m} + (10\%)$$

Where, A = Area required (sq.m)
c = No. of peak hour passengers: 250 passengers
t = Average occupancy time per passenger : 50 minutes assumed

Note : 1. Space required per passenger: 2.0 sq.m assumed

$$A = 250 \times 50/30 = 417 + (42) = 459 = \underline{460 \text{ sq.m}}$$

6.11 Arrivals Health Control

$$N = dt/60 \text{ positions}$$

Where, N = Control positions required
d = No. of peak hour passengers: 250 passengers
t = Average processing time per passenger: 1.0 minutes

$$N = 250 \times 1/60 = 4.2 = \underline{5 \text{ positions}}$$

6.12 Passport Control-Arrival

$$N = dt/45 \text{ positions} + (10\%)$$

Where, N = Control positions required
d = No. of peak hour passengers: 250 passengers
t = Average processing time per passenger: 1.0 minutes

$$N = 250 \times 1/45 = 5.6 + (0.5) = 6.1 = \underline{7 \text{ position}}$$

6.13 Queueing Area Passport Control - Arrival

$$A = 0.34 d \text{ sq.m} + (10\%)$$

Where, A = Area required
d = No. of peak hour passengers: 250 passengers

$$A = 0.34 \times 250 = 85 + (8.5) = 93.5 = \underline{95 \text{ sq.m}}$$

6.14 Baggage Claim Area (Excluding claim devices)

$$A = ews/60 \text{ sq.m} + (10\%)$$

Where, A = Area required (sq.m)
e = No. of peak hour passengers: 250 passengers
w = Average occupancy time per passenger : 30 minutes assumed
s = Space required per passenger: 1.8 sq. m assumed

$$A = 250 \times 30 \times 1.8/60 = 225 + (22.5) = 247.5 = \underline{250 \text{ sq. m}}$$

6.15 Number of Baggage Claim Devices

Wide-body aircraft (Required claim length: 50-60m)

$$N = eq/425$$

Where, N = Claim devices required
e = No. of peak hour passengers: 250 passengers
q = Proportion of passengers arriving by wide-body aircraft: 1.0

Note : 1. Average claim device occupancy time per wide-body aircraft: 45minutes assumed

$$N = 250 \times 1/425 = 0.83 = \underline{1.0 \text{ device}}$$

6.16 Customs Inspection-Arrival

$$N = e f t / 45 \text{ position} + (10\%)$$

Where, N = No. of customs positions required
e = No. of peak hour passengers: 250 passengers
f = Proportion of passengers to be customs inspected : 0.80
t = Average processing time per passenger: 2.0 minutes

$$N = 250 \times 0.8 \times 2.0 / 45 = 8.9 + 0.9 = 9.8 = \underline{10 \text{ positions}}$$

6.17 Queueing Area- Arrival Customs

$$A = 0.25 e f \text{ (sq.m)} + (10\%)$$

Where, A = Area required (sq.m)
e = No. of peak hour passengers: 250 passengers
f = Proportion of passengers to be inspected: 0.80

Note : 1. Space required per passenger: 1.5 sq.m assumed

$$A = 0.25 \times 250 \times 0.8 = 50 + (5) = 55 = \underline{55 \text{ sq.m}}$$

6.18 Arrivals Concourse

$$A = 0.375 (d + 2 d o) \text{ sq.m} + (10\%)$$

Where, A = Area required (sq.m)
d = No. of peak hour passengers: 250 passengers
o = No. of visitors per passenger: 3 assumed

Note : 1. Average occupancy time per passenger : 15 minutes assumed
2. Average occupancy time per visitor: 30 minutes assumed
3. Space required per passenger : 1.5 sq.m assumed

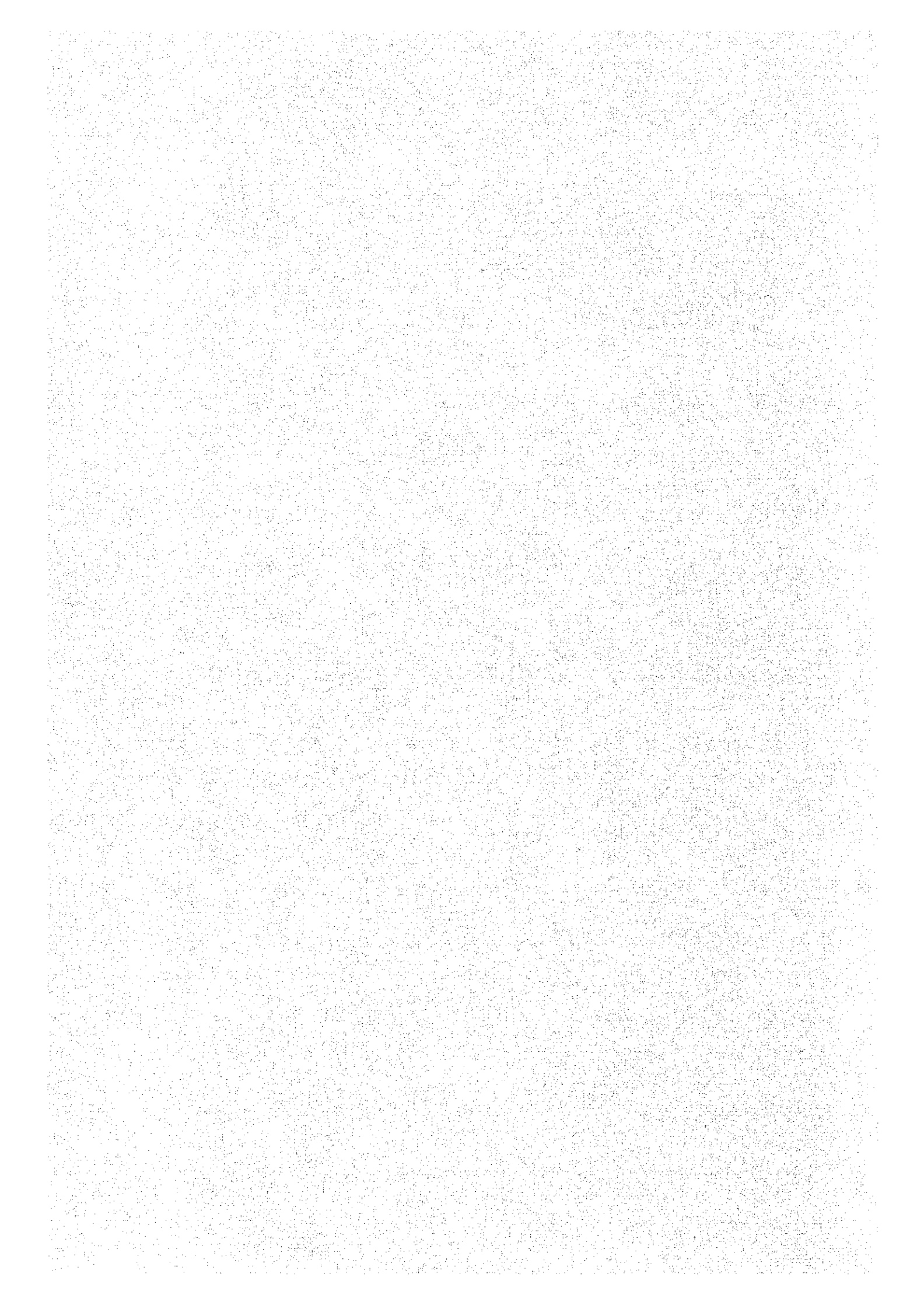
$$A = 0.375 \times (250 + 2 \times 250 \times 4) = 656 + (66) = 722 = \underline{725 \text{ sq.m}}$$

6.19 Arrivals Curb

The result is the same as Item. 6.1 (Departure Curb)

$$L = \underline{19 \text{ m}}$$

APPENDIX TO CHAPTER 10



Capacity of New Passenger Terminal Building

As per IATA guidelines for airport capacity and demand management, six (6) standard categories are summarized as follows.

LEVEL OF SERVICE FRAMEWORK

- A Excellent level of service; condition of free flow; no delays; excellent level of comfort.
- B High level of service; condition of stable flow; very few delays; high level of comfort.
- C Good level of service; condition of stable flow; acceptable delays; good level of comfort.
- D Adequate level of service; condition of unstable flow; acceptable delays for short periods of time; adequate level of comfort.
- E Inadequate level of service; condition of unstable flow; unacceptable delays; inadequate level of comfort.
- F Unacceptable level of service; condition of cross-flows, system breakdown and unacceptable delays; unacceptable level of comfort.

Level of service "C" is recommended as the minimum design objectives, and level of service "D" is tolerable for rush periods. therefore, the required areas and facilities for a new passenger terminal building targeted for the year 2000 and 2010 have been estimated based on level of service "C", (see Appendix - 9.4.1). IATA space standards by the categories is as follows.

IATA SPACE STANDARDS (sq.m)


Level of Service	Wait Circulate	Check-in Bag Claim	Holdroom Inspection
A	2.7	1.6	1.4
B	2.3	1.4	1.2
C	1.9	1.2	1.0
D	1.5	1.0	0.8
E	1.0	0.8	0.6






In order to examine the airport capacity, the required areas and facilities calculated for the design year of 2000 have been studied as an adequate level of service "D" by using the following conditions.

1. Space standards are obtained from IATA standards mentioned above.









2. Processing times for check-in counters, passport controls, etc. are derived from the passenger processing time survey carried out (see Appendix -3.4.2).

The result of the airport capacity study is summarized as follows.

Legend  Facilities will be used.

Domestic		2000 *1 350 Pax	2005 420 Pax	2010 550 Pax	*2	Remarks
Departure Concourse						470 Pax
Check-in Counters						590 Pax
Departure Lounge						455 Pax
Baggage Claim Area						640 Pax
No. of Baggage Claim Devices						455 Pax

International

Facilities	2000 200 Pax	2005 200 Pax	2010 250 Pax	*2	Remarks
Departure Concourse					270 Pax
Check-in Counters					330 Pax
Passport Control-Departure					260 Pax
Departure Lounge					270 Pax
Passport Control-Arrival					350 Pax
Baggage Claim Area					360 Pax
No. of Baggage Claim Devices					260 Pax
Customs Inspection-Arrival					390 Pax

*1 Peak hour passengers in one way.

*2 No. of passengers indicated in the remarks can be handled as level of service "D".

In conclusion, the facilities for domestic and international may be used by the year of 2005 and 2010 respectively in terms of level of service "D".

**Breakdown of Cost Estimates
for Medium-Term Development Project**

I. LAND ACQUISITION AND COMPENSATION COST

ITEM	UNIT	QUANTITY	UNIT PRICE (PHP)		AMOUNT (xPHP1,000)	
			LOCAL PORTION	FOREIGN PORTION	LOCAL PORTION	FOREIGN PORTION
1. LAND ACQUISITION						
Sub-division	sq.m	27,600	660	0	18,216	0
Residential Area	sq.m	161,000	300	0	48,300	0
Agricultural Land	sq.m	890,000	3	0	2,670	0
Total of 1.					69,186	0
2. RELOCATION OF HOUSES						
Sub-division (50 sq.m)	No.	220	180,000	0	39,600	0
Shanty (50 sq.m)	No.	230	60,000	0	13,800	0
School (800 sq.m)	No.	1	1,120,000	0	1,120	0
Church (50 sq.m)	No.	2	70,000	0	140	0
Total of 2.					54,660	0
TOTAL OF I					123,846	0

II. CONSTRUCTION COST

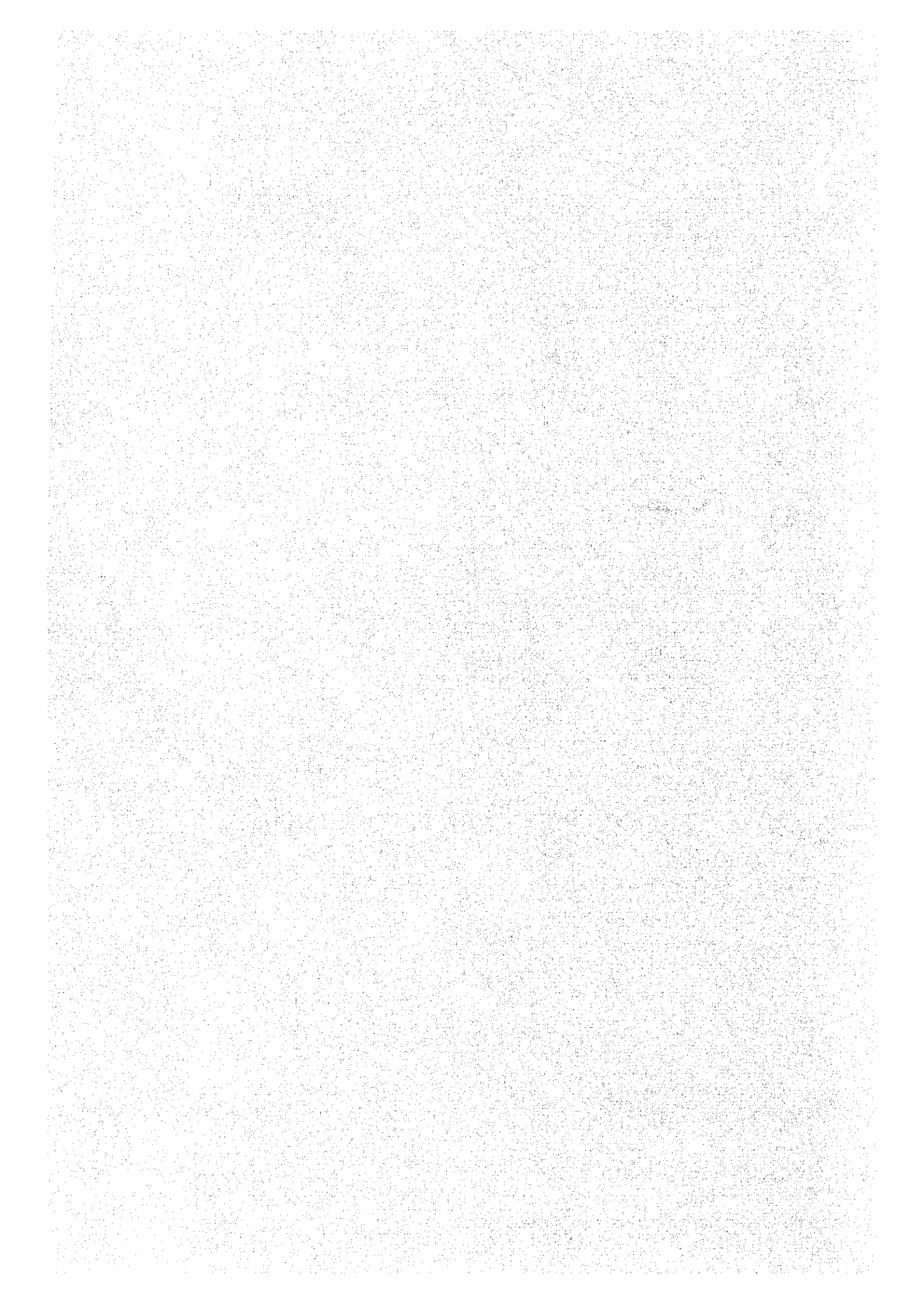
ITEM	UNIT	QUANTITY	UNIT PRICE (PHP)		AMOUNT (xPHP1,000)	
			LOCAL PORTION	FOREIGN PORTION	LOCAL PORTION	FOREIGN PORTION
1. Mobilization/Demobilization & Tempo. Works	L.S.	1			66,000	125,000
2. CIVIL WORKS						
Demolition of Exist. Houses	No.	360	15,000	15,000	5,400	5,400
Demolition of Exist. Runway	sq.m	113,000	90	110	10,170	12,430
Demolition of Exist. C. Tower	L.S.	1			150	600
Demolition of Exist. F. Station	L.S.	1			140	560
Clearing & Grubbing	sq.m	899,000	2	2	1,798	1,798
Excavation & Embankment	cu.m	2,280,000	50	80	114,000	182,400
Runway (Type-1)	sq.m	84,100	700	570	58,870	47,937
Runway (Type-2)	sq.m	34,000	590	480	20,060	16,320
Runway Shoulder (Type-3)	sq.m	35,400	460	370	16,284	13,098
Overrun (Type-3)	sq.m	7,200	460	370	3,312	2,664
Taxiway (Type-1)	sq.m	6,100	700	570	4,270	3,477
Taxiway Shoulder (Type-3)	sq.m	5,300	460	370	2,438	1,961
Apron (Type-1)	sq.m	35,900	700	570	25,130	20,463
Apron Shoulder (Type-3)	sq.m	2,600	460	370	1,196	962
General Aviation Taxiway (Type-4)	sq.m	3,600	430	360	1,548	1,296
G/A Taxiway Shoulder (Type-5)	sq.m	1,600	290	240	464	384
GSE Road (Type-6)	sq.m	12,200	440	360	5,368	4,392
Airfield Road (Type-7)	sq.m	24,200	310	250	7,502	6,050
Road & Car Park (Type-7)	sq.m	21,200	310	250	6,572	5,300
Road (Type-8)	sq.m	9,600	340	270	3,264	2,592
Pipe Culvert D=910	m	175	1,650	1,250	289	219
Pipe Culvert D=1220	m	300	2,900	2,200	870	660
Open Channel D=700 B=500	m	2,660	880	480	2,341	1,277
Open Channel D=850 B=850	m	2,080	1,180	640	2,454	1,331
Open Channel D=1100 B=1000	m	1,220	1,490	800	1,818	976
U-shaped Ditch D=600 B=600	m	780	1,220	660	952	515
U-shaped Ditch D=700 B=800	m	530	1,390	750	737	398
U-shaped Ditch D=800 B=1000	m	310	1,960	1,050	608	326

ITEM	UNIT	QUANTITY	UNIT PRICE (PHP)		AMOUNT (xPHP1,000)	
			LOCAL PORTION	FOREIGN PORTION	LOCAL PORTION	FOREIGN PORTION
Sodding	sq.m	366,000	40	0	14,640	0
Land scaping	sq.m	11,000	200	0	2,200	0
Fence	m	6,100	900	600	5,490	3,660
Gate	No.	10	18,000	12,000	180	120
Marking and Manhole	L.S.	1			3,250	1,750
Duct and Manhole	L.S.	1			2,500	2,500
Road Lighting	No.	30	10,000	10,000	300	300
Total of 2.					326,564	344,115
3. ARCHITECTUAL WORKS						
Pax. Bldg.	sq.m	16,200	10,200	18,900	165,240	306,180
Cargo Bldg.	sq.m	3,500	6,200	9,400	21,700	32,900
Admi. Bldg. & Control Tower	sq.m	1,630	8,000	12,000	13,040	19,560
Fire Station	sq.m	490	9,700	5,300	4,753	2,597
Other Bldg.	L.S.	1			2,920	1,580
Boarding Bldg	Unit	2	800,000	15,200,000	1,600	30,400
Dep. Conveyor L=60m	Unit	2	840,000	3,360,000	1,680	6,720
Arr. Conveyor L= 70m	Unit	2	980,000	3,920,000	1,960	7,840
Arr. Conveyor L= 50m	Unit	1	700,000	2,800,000	700	2,800
Check-in scale	Unit	24	60,000	240,000	1,440	5,760
X-ray Explosive Detector	Unit	4	800,000	3,200,000	3,200	12,800
Flight Information System	Unit	1	8,000,000	32,000,000	8,000	32,000
Weighing Scale 5 ton	Unit	2	130,000	520,000	260	1,040
Cold Storage 150 sq.m with freezer 50 sq.m	Unit	1	3,200,000	12,800,000	3,200	12,800
Total of 3.					229,693	474,977
4. AIRPORT UTILITIES						
Power Supply System	L.S.	1			10,780	44,100
Telephone	L.S.	1			1,340	6,720
Water Supply System	L.S.	1			1,000	9,000
Sewer Pipe	m	600	3,000	17,000	1,800	10,200
Sewerage Treatment Plant	L.S.	1			1,800	7,300
Incinerator	L.S.	1			5,000	5,000
Total of 4.					21,720	82,320
5. AIR NAVIGATION SYSTEMS						
5.1. Radio Navigation System	L.S.	1			1,406	7,030
5.2. Aero. Telecom. System	L.S.	1			3,930	26,500
5.3. Air Traffic Control System	L.S.	1			7,780	41,700
5.4. Met. Observation System	L.S.	1			5,010	16,700
5.5. Airfield Lighting System						
ALS (RWY 23)	Set	1			9,680	38,700
SALS (RWY 05)	Set	1			2,470	9,880
RWY Light	Unit	87	29,500	147,000	2,567	12,789
RWY End & Thresh. Light	L.S.	1			3,220	9,200
PAPI	Set	2	1,580,000	4,500,000	3,160	9,000
IWDI	Unit	2	805,000	2,300,000	1,610	4,600
TWY Edge Light	Unit	40	42,400	106,000	1,696	4,240
TWY Guidance Sign	Unit	4	35,000	140,000	140	560
Apron Floodlight	Unit	4	797,000	2,276,000	3,188	9,104
Aerodrome Beacon	L.S.	1			448	1,280
Power Supply System for AFL	L.S.	1			13,500	54,000
Total of 5.					59,805	245,283

ITEM	UNIT	QUANTITY	UNIT PRICE (PHP)		AMOUNT (xPHP1,000)	
			LOCAL PORTION	FOREIGN PORTION	LOCAL PORTION	FOREIGN PORTION
6. RESCUE AND FIRE FIGHTING Ambulance	Unit	1	300,000	5,700,000	300	5,700
7. FUEL SUPPLY SYSTEM Fuel Hydrant System	m	1,000	15,000	45,000	15,000	45,000
TOTAL OF II.					719,081	1,322,395

TOTAL OF I. AND II.					842,927	1,322,395
---------------------	--	--	--	--	---------	-----------

APPENDIX TO CHAPTER 12



Inflation Rate and Interest Rate in the Philippines

Year	Lending Rate on Secured Loans (All Maturi.) (y)	Consumer Price Index: Inflation Rate Philippines All Items (x)
	%	%
1981	15.660	13.1
1982	14.222	10.2
1983	16.765	10.0
1984	27.246	50.3
1985	20.568	23.1
1986	13.347	0.8
1987	11.087	3.8
1988	13.676	8.8
1989	15.676	10.6
1990	17.991	12.7
1991	17.605	17.7
Average	16.7	14.6

Data Source: SELECTED PHILIPPINE ECONOMIC INDICATORS, 1991 Yearbook

Results of Regression Analysis

Constant value:	12.1314136238
Standard deviation for estimated Y:	1.3599596648
Determination coefficient (R ²):	0.9118503175
Number of Samples:	11
Degree of freedom:	9
Coefficient of correlation (R):	0.9549085388
Coefficient of X:	0.3128333342
Standard deviation for X:	0.0324220423

$$Y = 11.297581 + 0.2804412 * X$$

Interest Rates in the Philippines

(%)

Year	Discount Rate (End of Period)	Treasury Bill Rate (All Maturi.)	Deposit Rate Time Deposit (All Maturi.)	Lending Rate on Secured Loan (All Maturities)
1981	6.69	12.914	16.743	17.119
1982	6.30	14.415	15.808	18.219
1983	8.05	14.544	15.295	19.331
1984	12.11	36.985	24.157	26.743
1985	11.50	27.048	21.828	28.234
1986	9.63	16.040	14.770	17.348
1987	9.08	12.887	9.767	13.295
1988	8.94	15.510	13.392	15.998
1989	9.64	19.678	16.982	19.457
1990	10.60	24.742	20.208	24.317
1991	10.75	22.489	18.542	22.747

Source: SELECTED PHILIPPINE ECONOMIC INDICATORS 1991 Yearbook

Note : Discount rates of 1981 to 1990 are quoted from the "INTERNATIONAL FINANCIAL STATISTICS 1991 Yearbook"

Basic Interest Rate of the Bank of Japan Average of Agreed Interest Rate on Loans of All Banks

(%)

	Basic Interest Rate (End of Year)	Loans of All Banks			Consumer Price Index (General)
		Average	Short-terms	Long-terms	
1975	6.00	8.590	-	8.072	63.3
1980	7.25	8.243	8.213	8.329	87.3
1985	5.00	6.570	5.796	7.282	100.0
1990	6.00	7.664	8.022	7.558	106.9

Source: JAPAN STATISTICAL YEARBOOK 1991

Note: Average annual increasing rate of consumer prices(%):

3.6

Exchange Rate in Period Average

Period	Pesos per Japanese Yen		Pesos per US\$	
	1991	1992	1991	1992
Jan	0.2093	0.2121	28.0000	26.5446
Feb	0.2148	0.2051	28.0000	26.1580
Mar	0.2048	0.1946	28.0000	25.8102
Apr	0.2036	0.1992	27.9261	25.6672
May	0.2015	0.2004	27.8186	26.1496
Jun	0.1990	0.2058	27.7953	26.1205
Jul	0.2002	0.2009	27.6210	25.2616
Aug	0.1987	0.1953	27.1995	24.6991
Sep	0.2005		26.9834	
Oct	0.2064		26.9946	
Nov	0.2061		26.7366	
Dec	0.2076		26.6683	

Source: Reference Exchange Rate Bulletin, Treasury, Central Bank of the Philippines

Incremental Diverted Air Passengers by Mode and Route and Induced Air Passengers by Route

The incremental diverted air passengers by mode and route, and induced air passengers by route are estimated as follows.

(1) Incremental Domestic Air Passengers by Route

The incremental domestic air passengers by route are estimated as shown in Table (1).

Table A12.2.1 Incremental Domestic Air Passengers by Route accompanied by Implementation of Phase-I Project

to/from Davao	1990	1995	2000	(thousand)	
				2005	2010
Metro Manila	0.0	85.9	183.2	283.3	283.3
Cebu	0.0	47.0	102.7	163.4	163.4
Cagayan de Oro	0.0	20.1	43.4	71.0	71.0
Zamboanga	0.0	6.8	14.9	23.4	23.4
Total	0.0	159.9	344.3	541.2	541.2

(2) Incremental Diverted and Induced Air Passengers

The each component ratio of the diverted and the induced in the total incremental air passengers is obtained based on the application of MD Model (See Appendix 12.23 (2))

The estimated ratios calculated by the MD Model are shown in Table (2).

Table A12.2.2 Available Ratios of Diverted and Induced Air Passengers for Potential Total Passenger Demand (Potential Total Passenger Demand = 1)

to/from Davao		1990	1995	2000	2005	2010
Metro Manila	Diverted	0.059831	0.071041	0.083197	0.094521	0.106321
	Induced	0.022024	0.027617	0.034186	0.040800	0.048236
	Total	0.081855	0.098658	0.117383	0.135321	0.154557
Cebu	Diverted	0.069717	0.084775	0.101590	0.117684	0.134879
	Induced	0.014265	0.018155	0.022788	0.027510	0.032873
	Total	0.083982	0.102930	0.124378	0.145194	0.167752
Cagayan de Oro	Diverted	0.028356	0.037337	0.048376	0.059932	0.073356
	Induced	0.002114	0.002885	0.003877	0.004962	0.006278
	Total	0.030470	0.040222	0.052253	0.064894	0.079633
Zamboanga	Diverted	0.085705	0.102486	0.120833	0.138050	0.156110
	Induced	0.017400	0.021798	0.026943	0.032099	0.037866
	Total	0.103106	0.124284	0.147776	0.170149	0.193976

(3) Incremental Diverted and Induced Air Passengers

From the foregoing (1) and (2), the number of incremental diverted and induced air passengers are obtained as shown in Table (3).

Table A12.2.3 Incremental Diverted and Induced Air Passengers

		(thousands)				
to/from Davao		1990	1995	2000	2005	2010
Metro Manila	Diverted	0	61.9	129.8	197.9	197.9
	Induced	0	24.0	53.4	85.4	85.4
	Total	0	85.9	183.2	283.3	283.3
Cebu	Diverted	0	38.7	83.9	132.5	132.5
	Induced	0	8.3	18.8	31.0	31.0
	Total	0	47.0	102.7	163.4	163.4
Cagayan de Oro	Diverted	0	18.7	40.2	65.6	65.6
	Induced	0	1.4	3.2	5.4	5.4
	Total	0	20.1	43.4	71.0	71.0
Zamboanga	Diverted	0	5.6	12.2	19.0	19.0
	Induced	0	1.2	2.7	4.4	4.4
	Total	0	6.8	14.9	23.4	23.4
Total	Diverted	0	124.9	266.2	414.9	414.9
	Induced	0	35.0	78.1	126.2	126.2
	Total	0	159.9	344.3	541.2	541.2

(4) Incremental Diverted Air Passengers by Mode and Route

The incremental diverted air passengers by mode and route are obtained applying the ratios shown in Table (4) which reflect the current shares of sea and road transportation.

The estimated incremental diverted air passengers by mode and route are shown in Table (5).

Table A12.2.4 Distribution Ratios for Diverted Air Passengers by Mode

	from Road	from Sea, Sea+Road	Total
Davao - Manila	0.2263	0.7737	1.0000
Davao - Cebu	-	1.0000	1.0000
Davao - Cgyn de Oro	1.0000	-	1.0000
Davao - Zamboanga	-	1.0000	1.0000

Table A12.2.5 Incremental Diverted Air Passengers by Mode

(thousands)

to/from Davao		1990	1995	2000	2005	2010
Metro Manila	from Road	0.0	14.0	29.4	44.8	44.8
	from Sea	0.0	47.9	100.5	153.1	153.1
	Total	0.0	61.9	129.8	197.9	197.9
Cebu	from Road	0.0	0.0	0.0	0.0	0.0
	from Sea	0.0	38.7	83.9	132.5	132.5
	Total	0.0	38.7	83.9	132.5	132.5
Cagayan de Oro	from Road	0.0	18.7	40.2	65.6	65.6
	from Sea	0.0	0.0	0.0	0.0	0.0
	Total	0.0	18.7	40.2	65.6	65.6
Zamboanga	from Road	0.0	0.0	0.0	0.0	0.0
	from Sea	0.0	5.6	12.2	19.0	19.0
	Total	0.0	5.6	12.2	19.0	19.0
Total	from Road	0.0	32.7	69.6	110.4	110.4
	from Sea	0.0	92.2	196.6	304.5	304.5
	Total	0.0	124.9	266.2	414.9	414.9

**Available Ratios calculated by MD Model
for the year 2000**

In the following table, mode number 4 means air transportation and, 2 and 3 means other modes of bus and ship. However, it should be noted that the calculated results for the mode 2 and 3 are not adjusted to the present situation of their market sharing. Accordingly, the available ratios for the mode 2 and 3 are not applicable.

Davao - Zamboanga					
A. IN CASE OF WITHOUT PROJECT					
	Mode No.		Demand		
	3		.288943		
B. IN CASE OF WITH PROJECT					
Mode	Total Dmd	Mode	Dive.Dmd.	Total Div.	Induced
4	.147776			.120833	.026943
		3	.120833		
3	.168111				
Davao - Cagayan de Oro					
A. IN CASE OF WITHOUT PROJECT					
	Mode No.		Demand		
	2		.411243		
B. IN CASE OF WITH PROJECT					
Mode	Total Dmd	Mode	Dive.Dmd.	Total Div.	Induced
4	.0522527			.0483762	.0038765
		2	.0483762		
2	.362871				
Davao - Cebu					
A. IN CASE OF WITHOUT PROJECT					
	Mode No.		Demand		
	2		.291937		
B. IN CASE OF WITH PROJECT					
Mode	Total Dmd	Mode	Dive.Dmd.	Total Div.	Induced
4	.124378			.10159	.022788
		2	.10159		
2	.1904				
Davao - Manila					
A. IN CASE OF WITHOUT PROJECT					
	Mode No.		Demand		
	2		.145182		
	3		.0238361		
B. IN CASE OF WITH PROJECT					
Mode	Total Dmd	Mode	Dive.Dmd.	Total Div.	Induced
4	.117383			.083197	.0341861
		2	.083197		
2	.0619809				
3	.0238361				

**Estimation of Diverted Air Passengers of Filipino and Foreign Air Visitors to
Davao**

(1) Estimated Number of Foreign Visitors and International Air Passengers in case of without the direct routes

	(thousands)				
	1990	1995	2000	2005	2010
1A Estimated Domestic Air Passengers	454.4 (Actual)	614.3	798.7	995.6	1209.5
1B Estimated Foreign Visitors (A*0.07)	31.8	43.0	55.9	69.7	84.7
1C Estimated International Air Pax. in case of without Direct Routes (A / 0.6632)	48.0	64.8	84.3	105.1	127.7

Note : See Appendix 12.2.5 and Appendix 12.2.6

(2) Estimated Number of Diverted Air Passengers of Filipino to Direct Air Routes from/to Davao

	(thousands)				
	1990	1995	2000	2005	2010
2A International Air Pax. in case of without Direct Air Routes to Davao	48.0	64.8	84.3	105.1	127.7
2B Estimated Diverted air Pax from 'via Manila' & 'via Cebu' to Direct Air Routes to Davao:(Ratio)*A	-	6.5 (0.10)	16.9 (0.20)	31.5 (0.30)	51.1 (0.40)
2C Estimated Diverted air Pax of Filipino from 'via Manila' & 'via Cebu' (B * 0.3368)	-	2.2	5.7	10.6	10.6

(3) Estimated Incremental Number of Foreign Visitors
for Phase-I Project

	(thousands)				
	1990	1995	2000	2005	2010
3A International Air Pax. on Direct Flights from/to Davao	-	14.7	46.5	93.4	166.6
3B Diverted International Air Passengers from 'via Manila' & 'via Cebu'	-	6.5	16.9	31.5	51.1
3C International Foreign Air Passengers in (B) (B * 0.6632)	-	4.3	11.2	20.9	33.9
3D International Air Pax. excluding Diverted Air Passengers (A - B)	-	8.2	29.6	61.9	115.5
3E International Foreign Air Passengers in (D) (D * 0.6632)	-	5.4	19.7	41.0	76.6
3F1 International Air Pax. on 'via Manila' & 'via Cebu' Routes (1C - 3C)	48.0	58.4	67.4	73.6	76.6
3F2 Incremental Air Pax. on 'via Manila' & 'via Cebu' Routes	-	10.4	19.5	25.6	28.6
3G International Foreign Air Passengers in (F) (F * 0.6632)	-	6.9	12.9	17.0	19.0
H. Incremental Foreign Visitors from/to Davao for Phase-I Project (C + E + G)	-	16.6	43.8	78.9	78.9

Nationality by Day and Flight

	03 May						04 May						05 May						Total			
	PR122	PR812	PR171	PR460	PR814	PR410	PR812	PR171	PR460	PR814	PR410	PR812	PR171	PR460	PR814	PR410	PR812	PR171		PR460	PR814	
	42	107	28	64	99	68	101	25	58	94	68	101	25	58	94	68	101	25		58	94	
1. Filipino	100.0	92.2	100.0	92.8	90.0	95.8	91.0	96.2	96.7	89.5	94.1	90.1	95.9	85.9	86.2	94.1	90.1	95.9	85.9	86.2	1065	
2. Overseas Filipino	0.0	0.0	0.0	1.4	1.8	0.0	0.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	1.1	1.1	1.1	0.0	1.0	0.7	8	
3. American	0.0	3.4	0.0	0.0	3.6	0.0	2.7	0.0	0.0	2.9	0.0	0.0	0.0	0.0	1.1	1.1	1.1	1.1	4	4	24	
4. Japanese	0.0	2.6	0.0	4.3	0.9	0.0	5.4	3.8	3.3	1.0	1.5	2.2	0.0	1.6	0.0	2.2	0.0	0.0	1.6	2.6	2.1	
5. Hongkong Chinese	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	21	
6. Taiwanese	0.0	0.0	0.0	0.0	0.0	2.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.8	
7. Australian	0.0	0.0	0.0	0.0	0.0	1.4	0.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1	
8. Korean	0.0	0.0	0.0	1.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2	
9. German	0.0	0.0	0.0	0.0	1.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	
10. Singaporean	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4	
11. Canadian	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
12. Malaysian	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
13. Others	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
14. Total Available	42	116	28	69	110	71	111	26	60	105	68	91	49	64	152	91	100.0	100.0	100.0	152	1149	
15. Not Available	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
16. Grand Total	42	116	28	70	110	71	111	26	60	105	68	91	49	64	152	91	100.0	100.0	100.0	152	1150	
	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source : An Extraction from the computer analyses on the interview survey implemented at the Davao International Airport

Estimated Foreign Visitors Ratio in 1990

	No. of Residents	No. of Visitors	Total
Hong Kong	309,298	569,190	878,488
Tokyo	176,136	205,741	381,877
U.S.A	152,178	228,267	380,445
Middle East	66,762	267,850	334,612
Singapore	89,306	193,448	282,754
Bangkok	99,108	106,585	205,693
Europe	38,434	115,303	153,737
Seoul	34,472	118,259	152,731
Taipei	27,753	111,014	138,767
Melbourne/Sidney	27,200	86,116	113,316
Kuala Lumpur	20,882	48,726	69,608
Total	1,041,529	2,050,499	3,092,028
Ratios	0.3368	0.6632	1.0000

Passenger Fees, Landing Fees and Operational Charge in Philippines

1 Passenger fees :		Pesos				
(1) Davao Airport	Domestic					
	Inter.	1.5				
(2) Manila Airport	Domestic		10.0			
	Inter.	250.0				
(1) Mactam Airport	Domestic	1.0				
	Inter.	7.5				
2 Landing fees (daytime)						
(1) Ninoy Aquino International Airport						
	(International)					
	Maximum Take-off Weight					
DC-10	: 260 ton	349.3 + 1.95	.	(260-100) / 0.5	973.30	24,332.50
A300	: 165 ton	349.3 + 1.95	.	(165-100) / 0.5	602.80	15,070.00
B737	: 57 ton	155.4 + 1.95	.	(57 - 50) / 0.5	84.30	2,107.50
F50/HS748	: 21 ton	1.55	.	(21 / .5)	65.10	1,627.50
					US\$	PHP
	(Domestic)					
	Maximum Take-off Weight					
DC-10	: 260 ton	2,445 + 13.60	.	(260-100) / 0.5 =		6,797.00
A300	: 165 ton	2,445 + 13.60	.	(165-100) / 0.5 =		4,213.00
B737	: 57 ton	1,090 + 13.6	.	(57 - 50) / 0.5 =		1,280.40
F50/HS748	: 21 ton	10.90	.	(21 / .5) =		457.80
(2) Mactan International Airport						
	(International)					
	Maximum Take-off Weight					
DC-10	: 260 ton	4.0 x 260	/	0.450 =	2,312.00	
A300	: 165 ton	4.0 x 165	/	0.450 =	1,468.00	
B737	: 57 ton	7.0 x 57	/	0.450 =	889.00	
F50/HS748	: 21 ton	7.0 x 21	/	0.450 =	329.00	

Passenger Fees, Landing Fees and Operational Charge in Philippines

(Domestic)	
Maximum Take-off Weight	50 % of the international rate
DC-10 : 260 ton	ditto
A300 : 165 ton	ditto
B737 : 57 ton	ditto
F50/HS748 : 21 ton	ditto

(3) Other National Airport (Davao)

Maximum Take-off Weight		PHP
DC-10 : 260 ton	2.5	260/0.45 1,445.00
A300 : 165 ton	2.5	165/0.45 916.7
B737 : 57 ton	2.5	57/0.45 316.7
F50/HS748 : 21 ton	2.5	21/0.45 116.7

3 Operational Charge (Administrative Order No. 1-A, Series of 1985)

(1) Departing or Arriving International Flight

For each departing or arriving flight at any international airport in the Republic of the Philippines, a charge of \$150.00 or its equivalent in peso (3,750 PHP for this study) shall be imposed for the use of the enroute and airport/terminal navigation facilities and services regardless of the type of flight and its duration.

(2) Domestic and General Aviation Flight

For each flight at any airport in the Philippines, a charge of 250 PHP for the Domestic and 50 PHP for the General Aviation shall be imposed, regardless of the number of air navigation facilities used, type of flight and its duration. One flight shall mean from one point of departure to one point of arrival.

Income by Type for the Davao International Airport

	1991	1991
101 A/C Landing & Take-off fees	662,442.62	
101 A/C Landing & Take-off fees	25,064.77	687,507
102 A/C Terminal fees	42.21	
104 Passenger fees	54,000.00	54,000
105 A/C Inspection fees	1,650.00	
107 Composite fees	1,950.00	
108 Engine & Propeller Change fees	550.00	
109 Aero Inspection & rating permit fees	17,000.00	
110 Airmen's examination fees	2,520.00	
111 Student Pilot's License	130.00	
112 Private Pilot's License	125.00	
113 Commercial Pilot's License	500.00	
114 Ground(Flight) Instructor's License	130.00	
115 Mechanic's License	1,250.00	
116 Air Trans. Pilot's License	100.00	
118 Aircraft Specialist	80.00	
121 A/C Registration Certificate	5,560.00	
122 A/C Airworthiness Certificate	2,450.00	
123 Air Agency Certificate	3,250.00	
124 Aviation School Certificate	1,800.00	
125 Energy Tax	24,150.00	
203 Operational Charges	623,950.00	
203 Operational Charges	1,850.00	625,800
204 Rentals of Floor Areas	88,364.27	
206 Rentals of Land Areas	110,473.67	
207 Concession's Privilege Fees	28,258.46	
209 Royalty on Avgas/Avoil	58,119.00	285,215
800 Fines and Penalties	942.50	
900 Miscellaneous	3,202.50	
Gand Total	1,719,905.00	

Note: The ratio of the rental, privilege and loyalty revenues to the aggregated revenue of landing fees, passenger fees and operational fees : $285,215 / (687,507 + 54,000 + 625,800) = 0.2086$

Average Passenger-kilometers and Average Operating Revenue

(1) Average Passenger-kilometers

The average passenger-km (AVPLK) is obtained by the following equation, using 1990 international air traffic volumes shown in the following table:

$$AVPLK = RPK/RPD, \quad AVPLK = 8,652,052/1,677 = 5,159$$

where, RPK : Revenue passenger kilometer
 RPD : Revenue passenger carried

(Table) International Air Traffic Volumes

Year	Revenue Passenger Kilometer (thousand)	Available Seat Kilometer (thousand)	Revenue Passenger Carried (thousand)	Total Revenue ton-km (thousand)
1990	8,652,052	11,888,021	1,677	1,177,080

(2) Average Operating Revenue per Passenger-km

As data are limited, the average operating revenue is estimated based on the average economy fare per passenger-kilometer by range of the distance studied in the "Survey of International Air Transport Fare and Rates (Montreal: ICAO, September 1986) P.89" as shown in the following table.

The current fare is obtained applying annual inflation rate of 3.0 % per annum.

Accordingly, the current fare in PHP becomes as follows:

$$0.11 \cdot 1.03^6 \cdot 25 = 3.28 \text{ PHP}$$

(to be continued)

Comparison on Average Economy Fare per Passenger-kilometer
in Asian-Pacific Region (in September, 1985)

Group of Routes	US Cents per kilometer by Range of Distance							
	km 250	km 500	km 1000	km 2000	km 4000	km 8000	km 12000	km 16000
Within Asian-Pacific	18.2	16.3	14.6	13.0	11.7	10.4	9.8	-
Europe~Asian-Pacific	-	-	18.3	15.6	13.2	11.2	10.2	9.5
Northern~Central Pacific	-	-	-	-	12.1	9.8	8.6	7.9
Within Southern Pacific	-	-	-	-	14.8	12.2	11.0	10.1
World Average	28.7	23.6	19.4	16.0	13.2	10.8	9.7	8.9

Source: Survey of International Air Transport Fares and Rates (Montreal:ICAO, September 1986),P.89

Note: This table is reproduced from the Japanese translated edition of "The International Airline Industry, Trends, Issues & Challenges" written by Naval K.Taneja, translated by Kunirou Yoshida, published by SEIZANDOU Ltd. in Japan, 1989.

Average Revenue per Cargo Ton

The value of average revenue per cargo ton is obtained based on the current general air cargo rates (See Table (2)) weighted by the estimated GRDP by city as shown in Table (1).

Table (1) Estimation of Average Revenue per Cargo Ton

from /to Davao	General Cargo Rate (PHP/ton) (1)	GDP (mill.PHP) (2)	(1)*(2)/100 (3)
Manila	8,450	34,300 (93.9)	7,934.6
Cebu	4,970	1,114 (3.0)	149.1
Cagayan de Oro	3,650	592 (1.6)	58.4
Zamboanga	4,940	542 (1.5)	74.1
Total	22,010	36,548 (100.0)	8,216.2

Table (2) Current Air Cargo Rates by Route

from D V O	PHP/kg.				
	1 - 5	6 - 49	50 - 249	250 - 1,000	1,000 - up
	E X P R E S S R A T E S				
M N L	69.30	13.86	12.80	11.82	10.73
C E B	44.90	8.98	7.92	6.94	5.85
C G Y	35.60	7.12	6.06	5.10	4.00
Z A M	44.70	8.95	7.88	6.90	5.81
	G E N E R A L R A T E S				
M N L	49.45	9.90	9.15	8.45	7.77
C E B	32.05	6.41	5.68	4.97	4.30
C G Y	25.10	5.10	4.35	3.65	2.96
Z A M	31.90	6.38	5.65	4.94	4.26

Note: Tuna is charged at 110 % of express cargo rates
Fruites & vegetable is charged at general cargo rate.

Average Operating Revenue per Cargo ton Kilometer

The current average operating revenue per cargo ton-km is assumed based on the 1984 total operating expenses of the Asia-Pacific Region studied by the Nawal K. Taneja (See the following Table (1)) applying the annual inflation rate of 3.0 % as shown in the following equation:

$$AVGR = 0.384 \cdot 1.03^9 \cdot 25 = 12.16 \text{ PHP/ton-km}$$

where, AVGR : Average operating revenue per cargo ton-km.

Table (1) UNIT COST OF THE SCHEDULED AIRLINES OF THE ASIA-PACIFIC REGION IN COMPARISON WITH WORLD AVERAGE (in the year 1974, 1979, 1984)

AP:Asia-Pacific W:World		Operating Cost per Available ton-km (US Cents)			Rate of Increase		
		1974	1979	1984	1974-79	1979-84	1974-84
Navigation(exclud. fuel & oil)	AP	3.0	2.8	3.1	-1.4	2.1	0.3
	W	3.0	3.8	4.0	4.8	1.0	2.9
Aircraft fuel & oil	AP	5.1	9.4	10.2	13.0	1.6	7.2
	W	4.3	8.0	9.3	13.2	3.1	8.0
Aircraft maint.	AP	2.8	3.8	3.6	6.3	-1.1	2.5
	W	2.9	3.9	4.0	6.1	0.5	3.3
Depreciation	AP	2.8	3.0	4.1	1.4	6.4	3.9
	W	1.9	2.3	2.9	3.9	4.7	4.3
Airport fees & terminal expenses	AP	3.7	5.6	5.9	8.6	1.0	4.8
	W	3.9	5.9	6.4	8.6	1.6	5.1
Passenger Service	AP	2.4	3.4	3.3	7.2	-0.6	3.2
	W	2.2	3.3	3.7	8.4	2.3	5.3
Booking & sales promotions	AP	4.1	6.1	6.6	8.3	1.6	4.9
	W	3.2	5.2	6.6	10.2	4.9	7.5
Management expense, etc.	AP	1.2	1.6	1.6	5.9	0.0	2.9
	W	1.4	2.1	3.0	8.4	7.4	7.9
Total operating expenses	AP	25.1	35.7	38.4	7.3	1.5	4.3
	W	22.7	34.5	39.9	8.7	3.0	5.8

Source: ICAO, International Air Passenger and Freight Transport:Asia Pacific (Montreal:ICAO,September 1986),P.89

Note: This table is reproduced from the Japanese translated edition of 'The International Airline Industry,Trends,Issues & Challenges' written by Nawal K.Taneja,translated by Kunirou Yoshida, published by SEIZANDOU Ltd. in Japan,1989.

Average Tourist Receipt

The average receipt per foreign visitor is assumed to be 454.8 US\$ or 11,370 PHP based on the following statistical data shown in Table (1).

Table (1) Estimated Tourist Receipts: 1970 to 1990

Year	Number of Visitor Arrivals (actual)	Average Length of Stay (days)	Total Tourist Receipts (1,000 US\$)	Average Receipt per Visitor (US\$)
1975	502,211	7.8	109,630	218.3
1980	1,008,159	8.4	319,740	317.2
1985	773,074	9.1	507,000	655.8
1990	1,024,520	12.1	466,000	454.8

Source: 1991 Philippine Statistical Yearbook

**Incremental Quantity of Aircraft Fuel Consumed at Davao Airport accompanied by
Phase-I Project Implementation**

	Unit kilo liter	1992		1995		2000		2005		2010	
		Aircraft Movement	Quantity kl	Aircraft Movement	Quantity kl	Aircraft Movement	Quantity kl	Aircraft Movement	Quantity kl	Aircraft Movement	Quantity kl
A. Domestic											
A300	13.1	1,460	23,360	2,149	34,219	2,722	43,856	3,308	53,911	5,954	82,832
B737	2.4	1,460	19,126	2,219	28,152	3,019	35,658	3,911	43,335	5,954	77,997
F50	1.0	730	3,504	741	5,326	952	7,246	1,190	9,386	1,408	3,379
			730		741		952		1,190		1,455
B. International											
DC10	87.2	-	125	-	1,585	12	6,698	12	13,209	210	35,348
A300	24.2	-	0	48	1,162	214	1,046	481	1,046	680	18,312
B737	10.7	-	0	24	257	24	5,179	24	11,640	24	16,456
HS748	1.2	104	125	139	167	180	257	221	257	269	257
			125		167		216		265		323
Total	-		23,485		35,804		50,554		67,120		118,179
C. Incremental Quantity by Phase-I Project											
Domestic					10,859		20,496		30,551		30,551
Internal.					1,460		6,573		13,084		13,084
International.					12,319		27,069		43,635		43,635

Expenses for Davao International Airport

	1990	1991
Personnel Cost	6,515,234.00	5,736,927.00
Electrical Lighting Expenses	329,700.00	330,000.00
Maintenance and Repair Cost	1,853,569.00	1,741,830.00
Total	8,698,503.00	7,808,757.00

Source: ATO

