

## 2.4. Spatial Tourism Structure

### 2.4.1. Prerequisites and Regional Context

#### (1) Tourism hierarchical system

Tourism hierarchical system is set and employed for the Study. It distinguishes four planning levels. The tourism hierarchical system is based on the difference of visitor's preference for travel patterns by market segment as summarized in Table 2.3.

**Table 2.3 Geographic market segments and preferred types of itineraries**

Length of itinerary	Area of travel activities	Short-haul market • Domestic • C.A. & Mexico	Middle-haul market • Americas	Long-haul market • Europe • Others
Single destination trip (2 - 4 days)	One-day Trip Area			
Short excursion (4 - 7 days)	Tourism Corridors			
Touring (1 - 3 weeks)	Tourism Circuit			

Note: ■ - preferred, ▒ - likely, □ not likely

Source: JICA Study Team

The followings elaborate on the respective levels of the hierarchical system.

#### a. Level 1: Tourism Center

Tourism Center is a tourism destination itself. It corresponds to the urban area of a city or a resort area.

#### b. Level 2: One-day Trip Area

One-day trip area is the area where average people who stay at a Tourism Center can make a one-day trip. In general, radius of three-hour time distance from a Tourism Center is supposed to be its one-day trip area.

Tourists from the short-haul market, who prefer "city break" for long weekend, tend to limit their travel activities within one-day trip area.

#### c. Level 3: Tourism Corridor

If there is another Tourism Center within 8-hour time distance, overland trip to the Tourism Center could take place for people who are interested in sightseeing, provided that there are attractions along the travel route such as tourism sites and scenic landscape.

Visitors from the short and middle-haul markets who prefer short excursion tend to travel a Tourism Corridor that is a travel route between the two Tourism Centers.

#### d. Level 4: Tourism Circuit

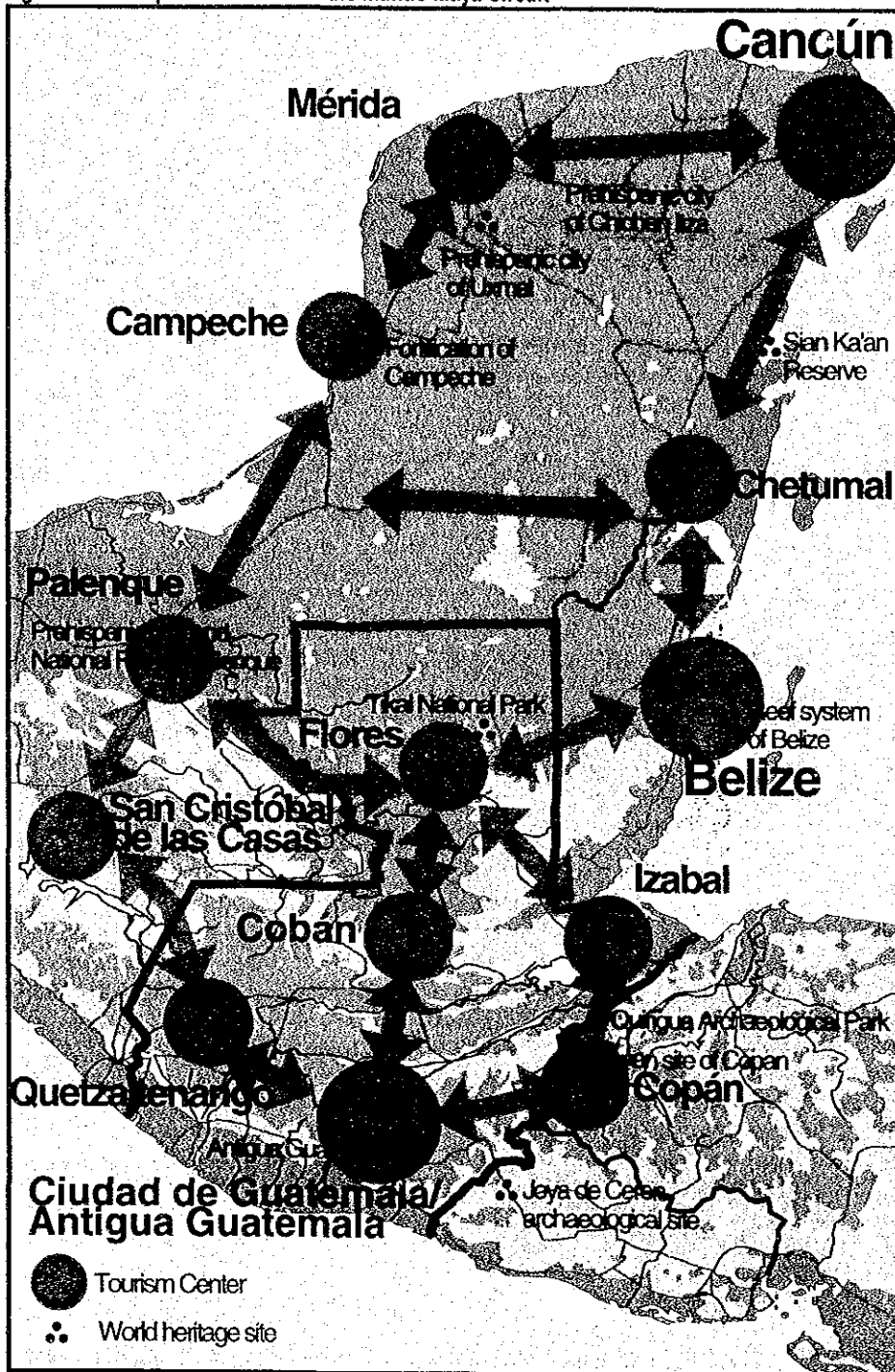
Touring Area includes several Tourism Centers, and it takes from 10 days to 3 weeks to travel the area by car or bus.

Visitors from long-haul countries, in particular, those from Europe prefer this type of itineraries. It is noted that the level of Tourism Circuits has relative importance in Guatemala taking into account the types and potential of its tourism products it offers.

(2) **Mundo Maya Tourism Circuit**

Guatemala is the heart of the Mundo Maya; therefore its tourism development should have a perspective from the regional tourism concept. This perspective corresponds to the level 4: Tourism Circuit. Figure 2.3 shows the tourism structure of the Mundo Maya Circuit indicating proposed Tourism Centers.

Figure 2.3 Spatial structure of the Mundo Maya Circuit



Source: JICA Study Team

It is noted that Cancun could function as an international gateway to Guatemala, at least for El Peten PTDA, if the roads in the border areas are improved and the possibility to combine Cancun with Tikal is publicized toward the travel trade..

Tourism Circuit is formulated provided that traveling between two Tourism Centers is enjoyable for tourists and there are attractions along the travel route. The figure shows that there are a few places that are supposed to impede the tourism circuit formulation due to the lack of tourism products or market awareness. Quetzaltenango and Coban are suitable for Tourism Centers in geographical terms, but under the current tourism conditions may fall into this category.

## 2.4.2. National Tourism Structure

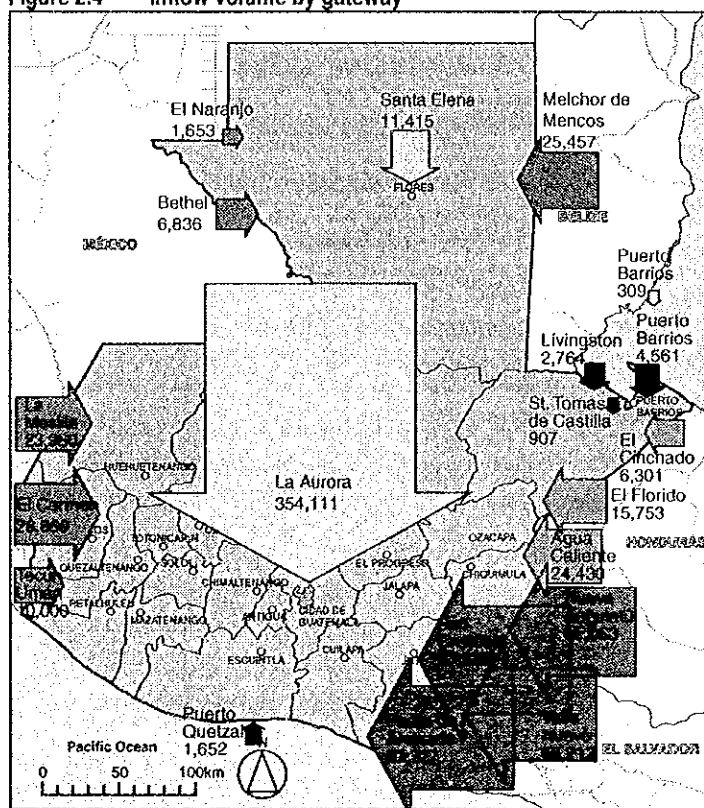
### (1) Present tourism structure

#### a. Dynamics of the international visitor flow

##### International gateways

The principal international gateway of Guatemala is La Aurora airport. Some 40% of international visitors use the Aurora airport to enter Guatemala. The border posts with El Salvador receive a large volume of visitors and it increased considerably over the last few years. From a viewpoint of the Mundo Maya circuit formulation, Melchor de Mencos and Santa Elena are important gateways but the current visitor volumes are not very large. Figure 2.4 shows the current visitor volumes by gateway (airport, seaport, border post).

Figure 2.4 Inflow volume by gateway



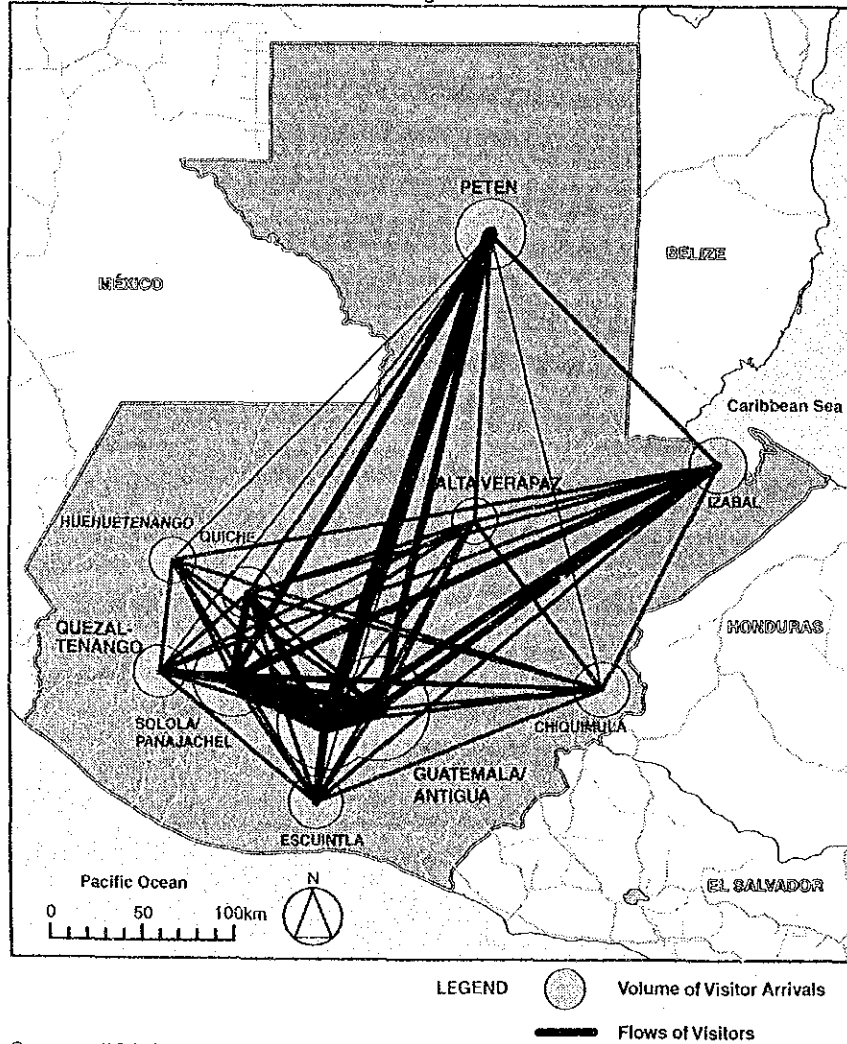
Source: JICA Study Team

### Volume of the visitors and combinations of the destinations

The present situation of the international visitor flow based on the visitor survey is shown in Figure 2.5. The results are summarized as follows:

- Guatemala/Antigua receive the largest visitor volume. They are followed by Solola/ Panajachel and Peten.
- Guatemala/Antigua - Solola/ Panajachel is the most popular combination, it is followed by Guatemala/Antigua – Peten combination.

Figure 2.5 Major destinations and linkages of the international visitors



Source: JICA Study Team

### b. Typical travel itineraries of international visitors

Typical travel itineraries of the major market areas of neighboring countries (Central America and Mexico), North America, and Europe, are summarized in Table 2.4 based on the visitor survey conducted by JICA Study Team in March and July. Most of the visitors choose 2-3 destinations in a trip, and stay 2-3 nights at one place. This pattern is the most conspicuous among those who visited Guatemala for holiday and used hotels for accommodation

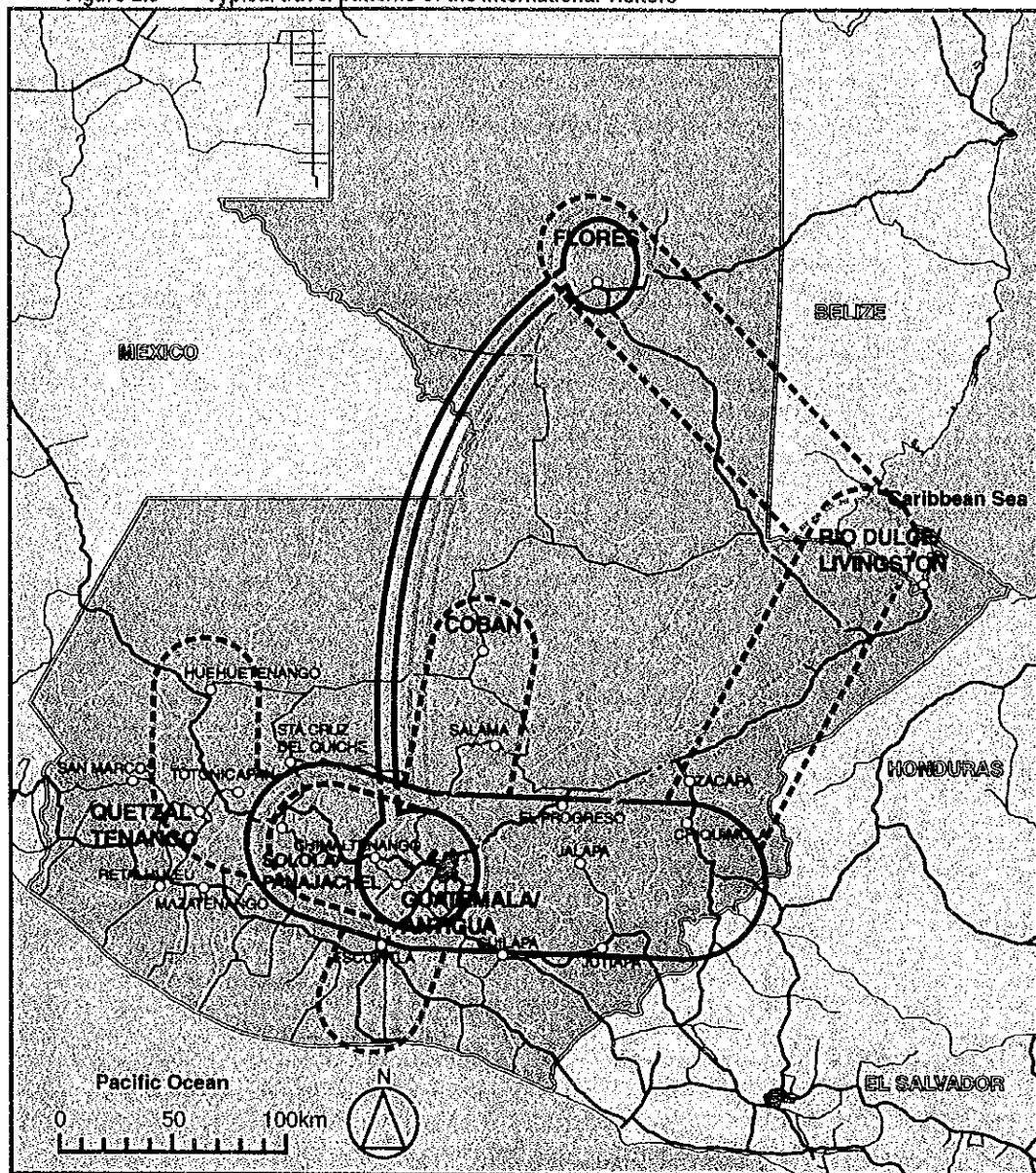
**Table 2.4 Typical travel patterns of the major market countries**

Major Market Countries	Neighboring Countries	North American Countries	European Countries
Average Length of Stay in Guatemala	7 nights	10 nights	12 nights
Average Number of visited Places	3 places	3 places	4 places
Average Length of Stay at a Place	2 – 3 nights	2 – 3 nights	3 – 4 nights
Typical Itinerary (Arrival Patterns)	Guatemala   Antigua   Solola/Panajachel or Chiquimula (and optionally)   (Escuintla, Quetzaltenango, Peten, Izabal, Alta Verapaz, Huehuetenango)	Antigua   Peten   Guatemala or Solola/Panajachel	Antigua   Peten   Solola/ Panajachel   Guatemala (and optionally)   (Izabal, Quiche)
(Bed-nights Pattern)	Guatemala   Antigua   Solola/Panajachel, Chiquimula, Quetzaltenango (and)   (Izabal, Escuintla, Peten)	Antigua   Solola/ Panajachel   Guatemala (and)   (Peten)	Antigua   Guatemala   Peten   Solola/ Panajachel (and)   (Izabal)






Source: JICA Study Team, Visitor Survey

Figure 2.6 shows the above mentioned travel itineraries on the map. It shows that the variety of travel routes is quite limited under the current situation due largely to the lack of attractive tour routes.

Figure 2.6 Typical travel patterns of the international visitors



**LEGEND**

-  North America
-  Europe
-  Neighboring Countries
-  Optional Itinerary
-  Typical Itinerary

Source: JICA Study Team

### c. Market characteristics by Tourism Region

Table 2.5 shows the market characteristics by Tourism Region. Figure 2.7 shows the distribution of international and domestic visitors' bed-nights. From the table and figures, the following conclusions are drawn.

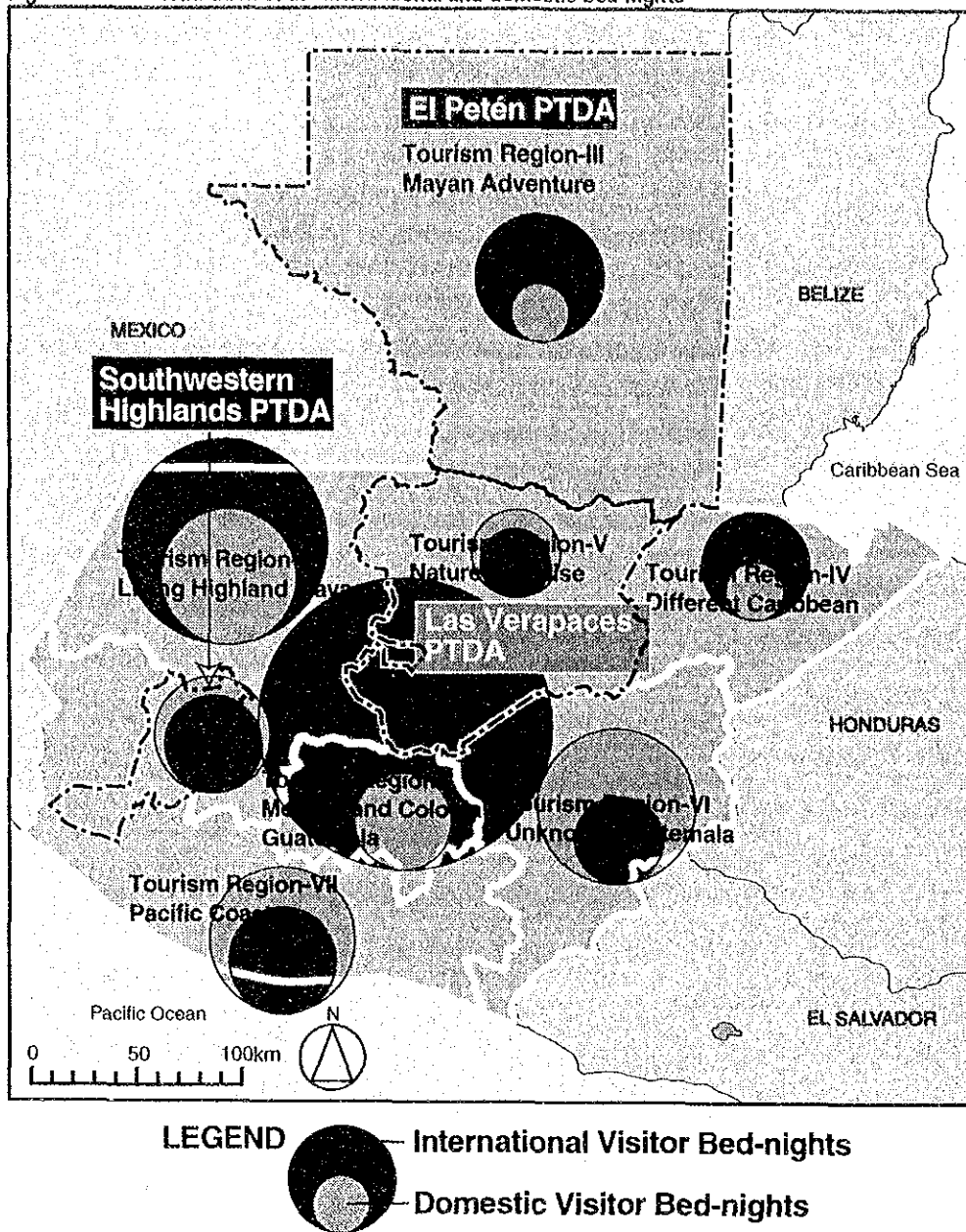
- Tourism region I (Modern and Colonial Guatemala) is the destination for both international and domestic visitors.
- Tourism regions II (Living Indigenous Highlands) and III (Mayan Adventure) are the destinations mainly for North American and European visitors (middle and long haul market areas).
- Tourism region IV (A different Caribbean) is the main destination for the domestic and, to a lesser extent, for European visitors.
- Tourism regions V (Natural Paradise), VI (Guatemala for Discovery) and VII (Pacific Coast) are destinations for the domestic and neighborhood visitors (short haul market).

**Table 2.5 Tourism Region and geographic market segments**

Tourism Region		Market Segment	
		Market Area	Principal Attraction
I.	Modern and Colonial Guatemala	• Whole International and Domestic	• Colonial Cities and Architectures
II.	Living Indigenous Highlands	• North America • Europe	• Living Indigenous Culture
	(SW Highlands PTDA)	• Domestic • Europe	• Living Indigenous Culture
III.	Mayan Adventure (Petén PTDA)	• North America • Europe	• Archaeological Sites
IV.	Different Caribbean	• Europe • Domestic	• Beaches • Nature
V.	Nature Paradise (Las Verapaces PTDA)	• Domestic • Neighboring Countries	• Nature
VI.	Guatemala for Discovery	• Domestic • Neighboring Countries	• Cultures • Nature
VII.	Pacific Coast	• Domestic	• Beaches
		• Neighboring Countries	• Nature

Source: JICA Study Team

Figure 2.7 Distribution of the International and domestic bed-nights



Source: JICA Study Team

(2) Future tourism structure

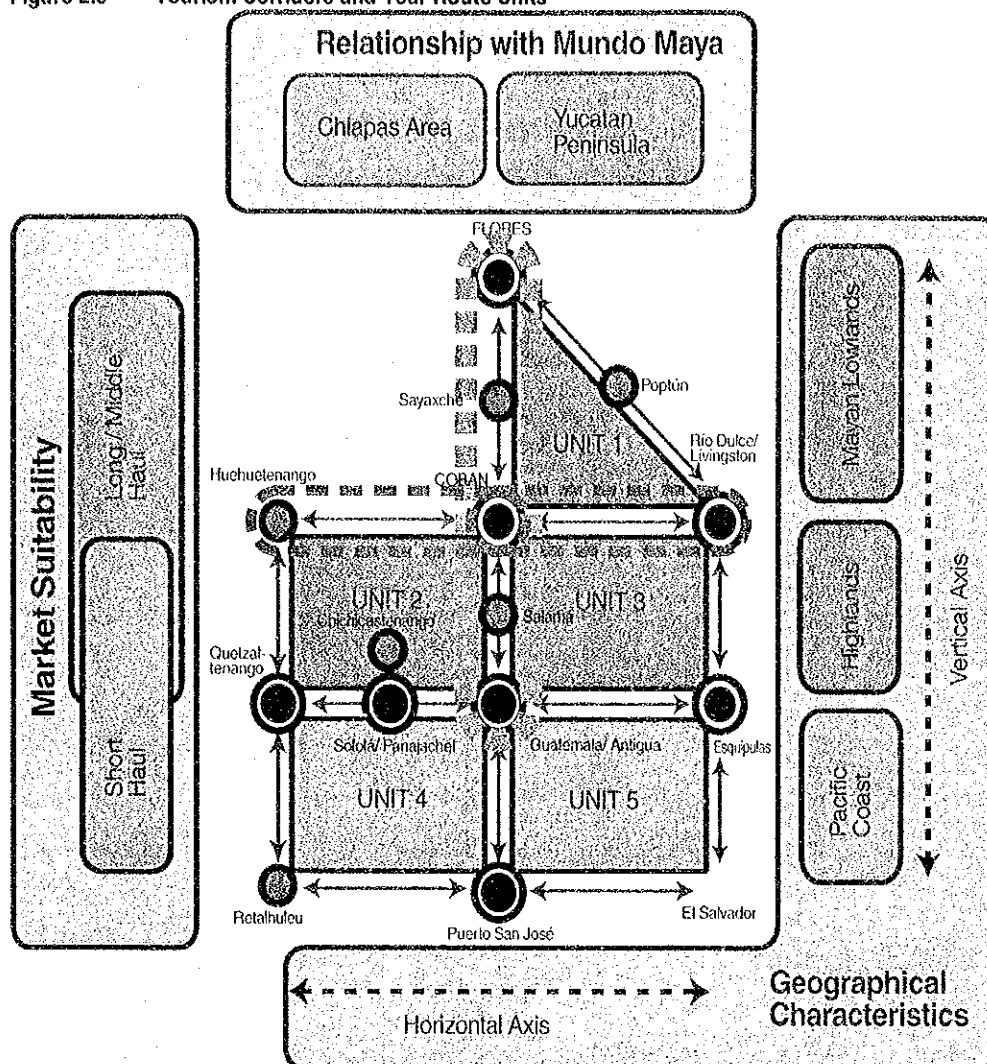
a. Tourism Corridors and Tour Route Unit

As discussed previously, present travel patterns of international visitors show that variations of travel itineraries are quite limited, in particular, for North American and European visitors. Visitors from neighboring countries travel in a rather wider area but rarely visit El Peten.

The central concept to formulate the future tourism structure is to create Tour Route Units. Tour Route Units are combined to increase the variety of travel itineraries. Figure 2.8 shows a diagram of Tour Route Units and future tourism structure.



Figure 2.8 Tourism Corridors and Tour Route Units



Source: JICA Study Team

**Vertical tourism corridor**

The only existing vertical corridor is to fly between Guatemala and Peten. There is no vertical corridor by surface transport. However, a road pavement works between Chisec – Sayaxche will facilitate visitor flow between Coban and Peten by road, and establish the Antigua – Coban – Flores Tourism Corridor. Establishment of the Tourism Corridor will convert Coban from a destination on the dead end of a travel route to a transportation node. However, overland trip from Antigua to Flores takes a long time and, therefore, requires creation of tourism attractions on the way, in particular, in Coban.

**Horizontal tourism corridors**

The existing horizontal corridor is the route between Guatemala/ Antigua to Solola/ Panajachel. However, both destinations have limitation for further development: Antigua is a World Heritage site, and Solola/ Panajachel has little additional land for development. Many of the visitors take the same way back due to the absence of other attractive tour routes. In this context, other horizontal corridors are needed. The Huehuetenango – Coban – Izabal Tourism Corridor, although it requires improvement of

some road sections, is expected to play an important role to diversify travel patterns. The Antigua - Solola/ Panajachel Tourism Corridor should be extended to Quetzaltenango.

### **Tour Route Unit**

Travel Route Unit is the minimum unit for itinerant trip formulated by Tourism Corridors and Tourism Centers. By combining Travel Route Units, a great variety of tour itineraries are generated according to the preference of visitors. Table 2.6 explains respective Travel Route Units.

**Table 2.6 Descriptions of Tour Route Units**

Name	Tourism Circuit	Description
Unit 1: Mayan Lowland	<pre> graph TD     Petén --- Cobán     Cobán --- Izabal             </pre>	Combination of; • Archaeological Sites, • Nature, • Beaches
Unit 2: Living Indigenous Highlands	<pre> graph TD     Huehuetenago --- Ixil_Triangle[IXIL Triangle]     Quetzaltenango --- Ixil_Triangle     Ixil_Triangle --- Cobán     Chichi_Solola[Chichi/Solola] --- Guatemala_Antigua[Guatemala/Antigua]             </pre>	Combination of; • Colonial Cities/Architectures, • Indigenous Cultures, • Nature
Unit 3: Natural Paradise	<pre> graph TD     Cobán --- Chichicas_Solola[Chichicas/Solola]     Cobán --- Guatemala_Antigua[Guatemala/Antigua]     Cobán --- Izabal     Guatemala_Antigua --- Esquipulas             </pre>	Combination of; • Colonial Cities • Nature, • Archaeological Sites, • Beaches
Unit 4: Living Indigenous Highlands and Tropical Coast	<pre> graph TD     Quetzaltenango --- Chichi_Solola[Chichi/Solola]     Retalhuleu --- Chichi_Solola     Chichi_Solola --- Guatemala_Antigua[Guatemala/Antigua]     Guatemala_Antigua --- Puerto_San_José[Puerto San José]             </pre>	Combination of; • Colonial Cities/Architectures, • Indigenous Cultures, • Beaches
Unit 5: Colonial Highlands and Tropical Coast	<pre> graph TD     Guatemala_Antigua[Guatemala/Antigua] --- Esquipulas     Guatemala_Antigua --- Puerto_San_José[Puerto San José]             </pre>	Combination of; • Colonial Cities/Architectures, • Archaeological Sites, • Cultures, • Beaches

Source: JICA Study Team

**Table 2.7 Combinations of Tour Route Units and Suitable Market Areas**

Combination of the Circuits	Description	Long Haul	Middle Haul	Short Haul
Circuit-1, Circuit-2, and Circuit-3	Full itinerary of Guatemala tourism.	AAA	AA	A
Circuit-1, and Circuit-3	Improved circuits of existing typical itinerary for the long haul market.	AAA	AA	A
Circuit-1, and Circuit-2	Improved circuits of existing typical itinerary for the middle haul market.	AAA	AAA	AA
Choices of Circuit-2, 3, 4,5	Improved circuits of existing typical itinerary for the short haul market.	AA	AA	AAA

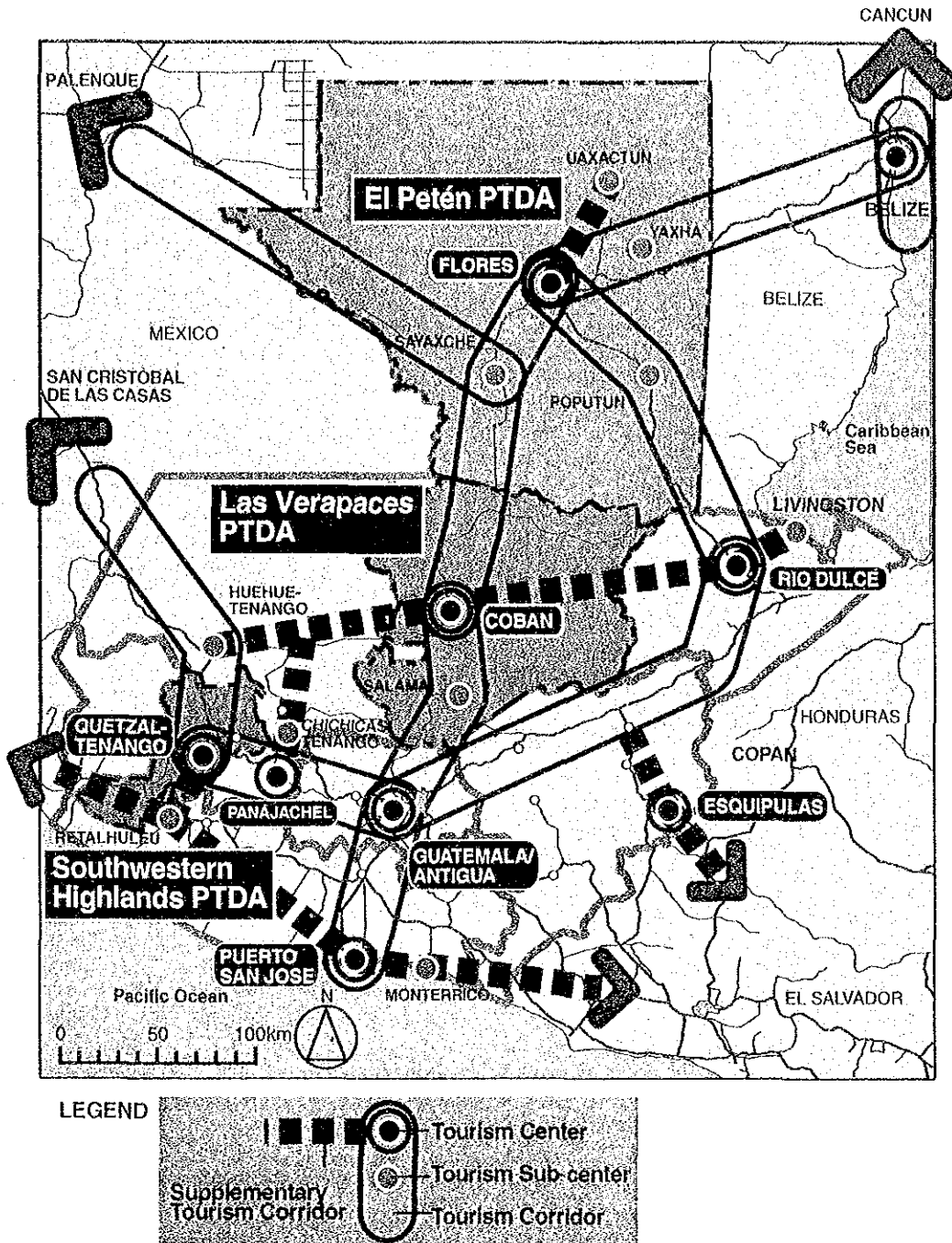
Note: Market suitability, AAA – preferred, AA – likely, A – not likely  
Source: JICA Study Team

### **b. National tourism structure**

A national tourism structure is build based on the structure of the Mundo Maya circuit as shown in Figure 2.3, the present tourism structure, and structure of short circuits. A vertical tourism corridor: Guatemala/Antigua – Coban – Flores is the most important Tourism Corridor in the national tourism structure. Supplemental Tourism Corridors

connecting Huehuetenango with Coban, and Coban with Izabal, are proposed to create the short circuits.

Figure 2.9 Proposed national tourism structure



Source: JICA Study Team

## 2.5. Tourism Development Framework

A number of different methods are used to forecast the future tourism demand to and within Guatemala. The different results will be compared and evaluated carefully, and provide a basis to set up the national development target. A number of different methods were tested because it would enable to set a reasonable range for the national target.

### 2.5.1. International Tourism Demand Forecast

#### (1) Estimation based on the past trend

##### a. Review of past growth patterns

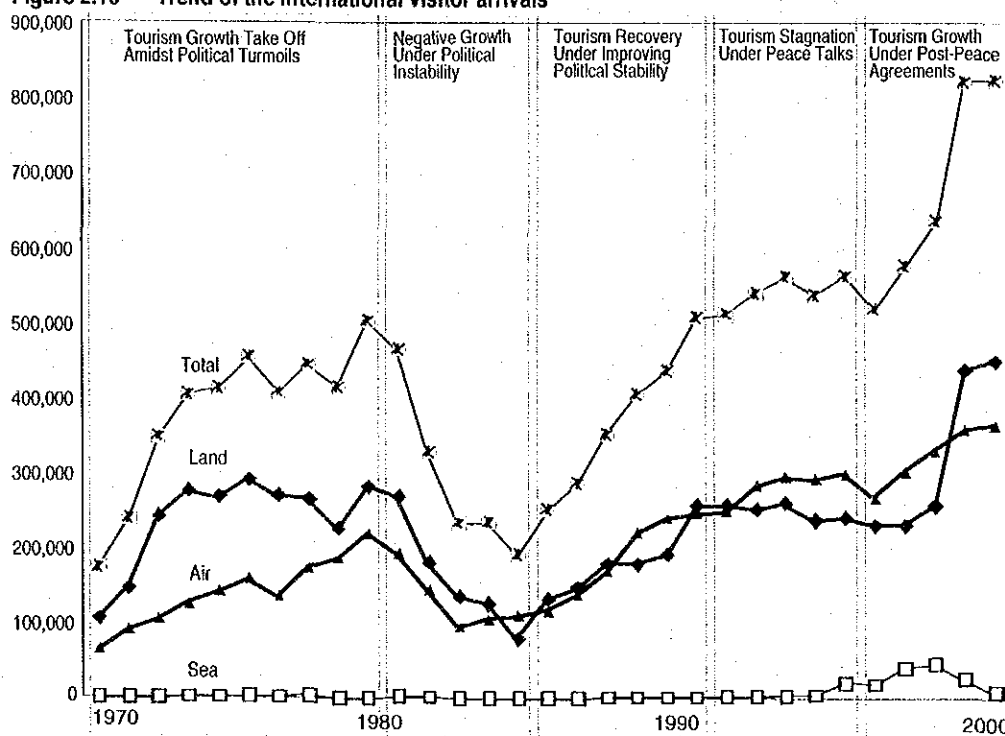
A time series method using the past numbers of visitor arrivals in Guatemala was employed to forecast the future international tourism demand. If the past 30 years (1971 – 2000) are divided into the 6: 5-year periods, 3 growth periods, 1 decline period, and 2 stagnation periods can be observed as shown in Table 2.8 and Figure 2.10.

**Table 2.8 Annual increase rates of 5-year periods**

Quinquennial Periods	'71-'75	'76-'80	'81-'85	'86-'90	'91-'95	'96-'00
Growth period	21.22%			15.08%		7.96%
Stagnant period		0.51%			2.07%	
Decline period			-11.57%			
Growth in the recent decade					4.97%	

Source: JICA Study Team, INGUAT

**Figure 2.10 Trend of the international visitor arrivals**



Source: JICA Study Team, INGUAT

Characteristics of each period is summarized as follows:

- First growth period (1971-1975): Rapid growth
- First stagnation period (1976-1980): Slow down of growth due to political instability
- Decline period (1981-1985): Negative growth caused by the armed conflict
- Second growth period (1986-1990): Rapid recovery reflecting improved security conditions
- Second stagnation period (1991-1995): Slow growth amidst the Peace Talks process
- Tertiary growth period (1996-2000): Rapid growth after the Peace Agreements

#### **b. Assumptions of the calculation**

Taking into account the past pattern of tourism growth in Guatemala and tourism development cycle in general, JICA Study Team assumed the following growth patterns for the future.

- Scenario-1: Early start of the growth period
- Scenario-2: Moderate start of the growth period
- Scenario-3: Slow start of the growth period

The following growth rates are assumed and applied to respective 5-year periods to calculate the future numbers of visitor arrivals.

- 5.0%: Growth rate of the latest decade,
- 2.5%: Similar to the growth rate of early 90's, and
- 8%: Growth rate of the latest 5-year period.

### **(2) Estimation based on the economy of the visitor generating countries**

#### **a. Methodology and background**

A multi-regression method was employed to forecast the future international tourism demand using the following indicators in the 1985 – 2000 period. It was designed to reflect economic situations in Central American and OECD countries.

The Study Team tried two cases: case-1 is the multi-regression of the international visitor arrivals with the following variables, case-2 is the multi-regressions separated off the international arrivals of OECD and Central American countries with the respective variables; and both figures were added together after calculation.

- The number of international visitor arrivals in the previous years
- Real GDPs of Central American countries

- Real GDPs of OECD countries
- Exchange rates of Quetzal-US\$
- Dummy valuable: the dummy valuable was used to take into account the sensitive situation before the signing of the Peace Agreements

#### b. Assumptions of the calculation

Future growth rates of the real GDPs of Central America and OECD countries are assumed as shown in Table 2.9. Other valuables: exchange rate and dummy valuable were fixed at Q.8.0 per US\$ (the same as the current exchange rate) and 0 (no serious negative incident).

**Table 2.9 Assumptions of the valuables**

Valuables/Year	2000 <sup>1)</sup>	2005	2010	2020
<b>Case-1</b>				
<b>Scenario-1: Higher Economic Growth</b>				
Growth Rate of Real GDP of C.A.	4.5% <sup>2)</sup>	4.0%	3.0%	2.5%
Growth Rate of Real GDP of OECD	4.0%	3.0%	3.0%	2.5%
<b>Scenario-2: Lower Economic Growth</b>				
Growth Rate of Real GDP of C.A.	4.5% <sup>2)</sup>	4.0%	3.0%	2.5%
Growth Rate of Real GDP of OECD	4.0%	3.0%	2.5%	2.0%
<b>Case-2</b>				
Growth Rate of Real GDP of C.A.	4.5% <sup>2)</sup>	4.0%	3.0%	2.5%
Growth Rate of Real GDP of OECD	4.0%	3.0%	3.0%	2.5%
Exchange Rate	7.76	8.0	8.0	8.0

Note: <sup>1)</sup>The figures in 2000 are taken from the existing data.

<sup>2)</sup>The growth rate in 1998 is preliminarily used for the figure in 2000.

Source: JICA Study Team, World Bank, OECD, and Banco de Guatemala

### (3) Estimation based on the WTO forecasts

#### a. Methodology and background

World Tourism Organization publishes a forecast of international visitor arrivals up to the year 2020. WTO forecasts that the number of international visitor arrivals in Central America would be 8 million in 2020 growing at 4.3 % from 1995 to 2020.

#### b. Assumptions of the calculation

The following 3 Cases are set based on the past trend of Guatemala's share in the tourism market of Central America.

- Case-1: the share of Guatemala increases with a logistic curve
- Case-2: the share of Guatemala increases moderately with a logarithm curve
- Case-3: the share of Guatemala keeps the current share.

**Table 2.10 Guatemala's share of international visitor arrivals in Central America**

Country/Year	International Visitor Arrivals (1000)				Share (%)			
	1996	1997	1998	1999	1996	1997	1998	1999
Central America	2,637	3,002	3,433	3,988	100.0	100.0	100.0	100.0
Guatemala	520	576	636	823	19.7	19.2	18.5	20.6
Belize	133	146	157	<sup>2)</sup> 171	5.0	4.9	4.6	4.3
Costa Rica	781	811	943	1,027	29.6	27.0	27.5	25.8
El Salvador	283	387	542	658	10.7	12.9	15.8	16.5
Honduras	255	303	318	371	9.7	10.1	9.3	9.3
Nicaragua	303	358	406	468	11.5	11.9	11.8	11.7
Panama	362	421	431	<sup>2)</sup> 470	13.7	14.0	12.6	11.8

Note: 1) WTO forecasted the International tourists (overnight visitors)

2) The figures of Belize and Panama are estimated by average increase rates of '96-'98

Source: JICA Study Team, INGUAT, and WTO

#### (4) Estimation based on the National Tourism Strategy (ENT)

##### a. Methodology

National Tourism Strategy (ENT) specifies the growth rates of international visitor arrivals in the section "Goals of Growth." The number of international visitor arrivals in 2020 was calculated on this assumption.

##### b. Assumptions of the calculation

ENT sets the growth rates of the first 5 years as follows.

- First year: 5% – 6%
- Second year: 7% – 8%
- Third year: 9% – 10%
- Forth year: 12%
- Fifth year: 14%

2001 is assumed to be the first year. Since ENT does not mention the growth rates after the fifth year, JICA Study Team assumed that the growth rate during the 2005 – 2020 period is 5%, which is the same growth rate of the first year, the lowest figure of the first five years.

#### (5) Results of the estimation for International tourism demand

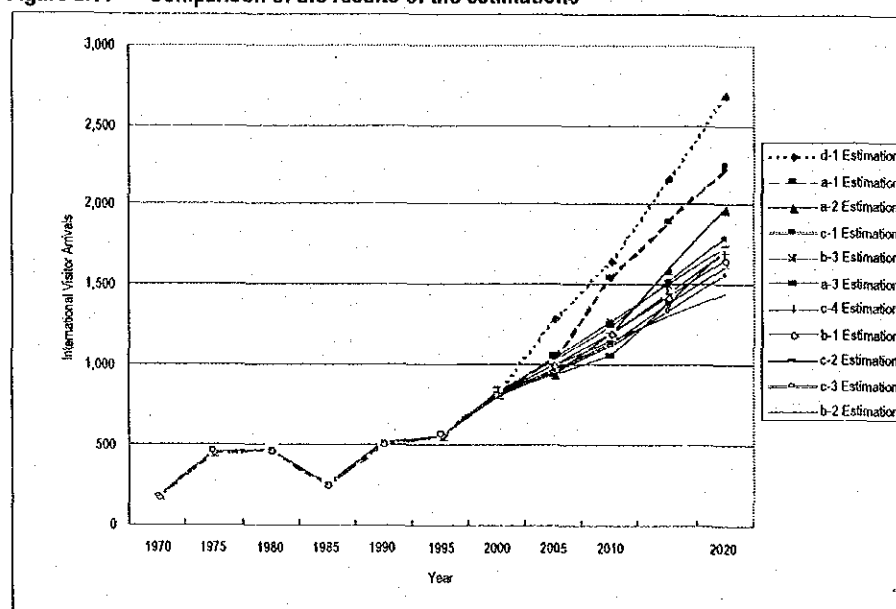
The results of the estimations are summarized in Table 2.11 and Figure 2.11. The figure shows that almost results ranged around 1.8 million. Besides, an average of the results excluding the maximum and minimum results was calculated at 1,776 thousand. Thus, the Study Team took 1.8 million for the international visitor arrivals in 2020. For the 2010, 1.2 million visitor arrivals were also calculated by the same way of 2020.

**Table 2.11 Comparison of the results of the estimations**

Forecast/Year	International Tourist Arrivals (,000)				Growth 00-20
	2000	2005	2010	2020	
<b>(1) Estimation based on the past trend</b>					
Scenario-1: Early start of growth	826	1,054	1,549	2,237	5.1%
Scenario-2: Moderate start of growth	826	935	1,193	1,983	4.5%
Scenario-3: Slow start of growth	826	935	1,057	1,722	3.7%
<b>(2) Estimation based on the economy of the visitor generating countries</b>					
Case-1: Higher economic growth	826	994	1,193	1,661	3.4%
Case-1: Lower economic growth	826	994	1,154	1,448	2.8%
Case-2: Separation of CA & OECD	826	1,046	1,271	1,726	3.8%
<b>(3) Estimation based on the WTO forecast</b>					
Case-1: Increase of share	834	1,030	1,249	1,788	3.9%
Case-2: Some increase of share	812	966	1,145	1,605	3.5%
Case-3: Maintain share	805	950	1,121	1,561	3.4%
Case-4: Average of Case-1 and 2	823	998	1,197	1,697	3.7%
<b>(4) Estimation based on ENT</b>					
ENT's policy	826	1,292	1,649	2,686	6.1%

Source: JICA Study Team, INGUAT

**Figure 2.11 Comparison of the results of the estimations**



Source: JICA Study Team and INGUAT

**(6) Assessment of the impacts on international visitor arrivals by the incident in N.Y. on 11 Sep. 2001**

The incident in N.Y. on 11 Sep. 2001 gave a serious damage to the global tourism situation. Outbound tourists decreased all over the world, which would also affect the visitor arrival of Guatemala.

There were two times of decreasing or stagnant periods in Guatemala caused by the civil war, and political situation before the Peace Agreements. These priods, however, did not last long. The Study Team considered this trend already for the estimation of international tourism demand in this section.



Assuming the situation of future visitor arrival, it would be expected to recover the number after decreasing in 2001. If the volume of visitor recovers at the present level in 2002 or 2003, the number of visitor can attain to the frame of 2010 by annual 5.0 - 5.5% growth.

A similar situation of visitor arrival occurred in the early 90's: decline and stagnant situation of the international visitor arrival. Until the Peace Agreement, the number of international arrival fluctuated in the early 90's. The situation, however, was shifted to an immediate sharp increase (annual 8% growth) after the Peace Agreement.

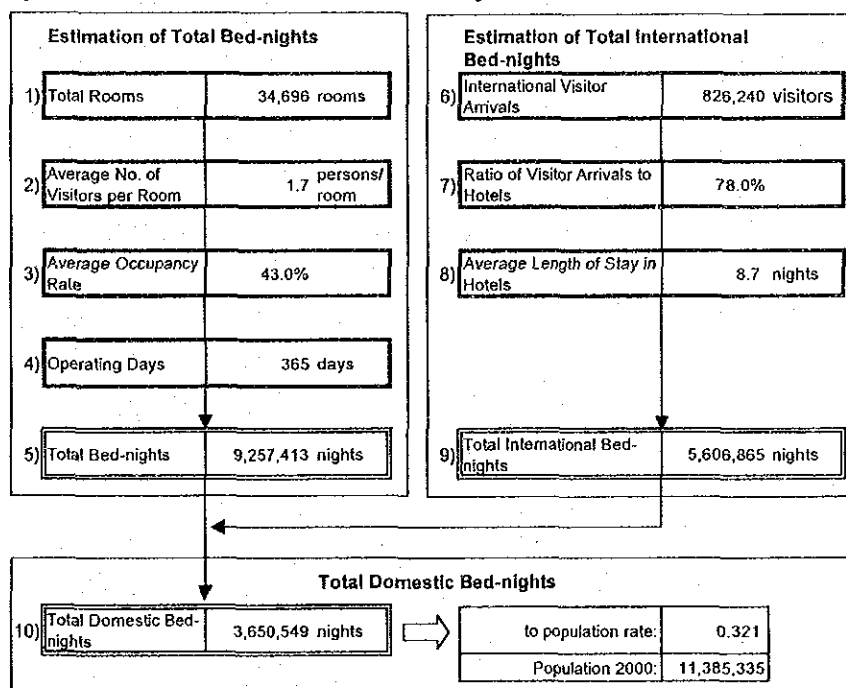
Around annual 5% growth is not so far from the reality to accomplish considering the past situation. Surely, the government will impel tourism measures as one of their main policy. Moreover, the pilot projects recommended in the study would be completed by 2005. The other short-term projects would also be completed by 2010.

**2.5.2. Domestic Tourism Demand Forecast**

**(1) Estimation of the present domestic visitor volume in Guatemala**

No statistical information on the domestic visitor volume is available in Guatemala. Hence, JICA Study Team estimated the present domestic visitor volume at 3.65 million bed-nights, by supplementing existing INGUAT data with the results of the visitor survey conducted in March and July 2001. Figure 2.12 shows the overall procedure to estimate current domestic visitor volume. The following section elaborates on the procedure.

**Figure 2.12 Estimation of the domestic bed-nights in 2000**



Source: JICA Study Team, INGUAT and INE

- The occupancy rates were taken from those of “recommended” and “not recommended” hotels.
- The total number of hotel rooms in Guatemala was obtained from the hotel list provided by INGUAT. The figure included both “recommended” and “not recommended” hotels.
- Average number of guests per room was set at 1.7 based on the results of interviews with tour operators and hoteliers as well as examples in other countries.
- Average occupancy rate was calculated at 43% based on the assumption that the occupancy rate of the 16,230 “recommended hotel rooms” is 51.5% and that of 18,446 “not recommended hotel rooms” is around 35%: the lowest level to carry on their business.
- All the hotels are assumed to operate 365 days in a year.
- Total visitor volume was calculated at 9.3 million bed-nights.
- The number of international visitor arrivals in 2000 was 826,240. It is taken from the statistics elaborated by INGUAT’s statistics section based on the data from the General Migration Management Office (Dirección General de Migración).
- Percentage of international visitors who used hotels was obtained from the results of the visitor survey (March and July), which is 78%.
- Average length of stay for international visitors who used hotel is also obtained from the visitor survey, which was 8.7 nights.
- Total volume of international visitors who used hotels was calculated at 5.6 million bed-nights.
- The volume of domestic visitors is calculated at 3.7 million bed-nights: 9.3 million nights minus 5.6 million bed-nights.

## **(2) Domestic tourism demand forecast**

### **a. Method**

Socioeconomic indicators of population, GDP, and GDP per capita are used for the domestic tourism demand forecast.

### **b. Assumptions of the calculation**

Institute Nacional de Estadística (INE) has a forecast of Guatemala’s population until 2005. 2010 and 2020 population was calculated by annual growth rates of 2005-2015 and 2015-2025. United Nations Population Division has a forecast of the population of 2015 and 2025. Table 2.12 shows the summary of demographic information.

**Table 2.12 Population growth**

Item/Year	2000	2005	2010	2020	Annual Growth 2000-2020
Population (Thousand)	11,385	12,952	14,631	18,123	
Annual Growth Rate	2.69%	2.61%	2.47%	2.16%	2.3%

Source: JICA Study Team, Economic Commission for Latin America and the Caribbean, and INE

Future growth rates of GDP and per capita GDP was estimated based on the data 1990-1999. A logarithm regression formulas and a line regression formula were used to estimate the future growth rates. Table 2.13 shows the summary of the information about GDP and per-capita GDP.

**Table 2.13 GDP and per capita GDP growth**

Item/Year	1999*	2000	2005	2010	2020	Growth (00-20)	Note
GDP (million quetzales)	5,460	5,693	7,056	8,779	13,740		Logarithm Curve
Annual Growth Rate	3.8%	4.28%	4.39%	4.47%	4.58%	4.5%	
Per Capita GDP-1 (quetzales/person)	1,583	1,605	1,742	1,906	2,334		Logarithm Curve
Annual Growth Rate	1.3%	1.43%	1.65%	1.81%	2.04%	1.9%	
Per Capita GDP-2 (quetzales/person)	1,583	1,610	1,810	2,035	2,993		Line Regression
Annual Growth Rate	1.3%	1.70%	2.43%	3.16%	4.62%	3.9%	

Note: \*The figure of the year 1999 is obtained from existing data.

Source: JICA Study Team, Banco de Guatemala, and INE

4 scenarios with different socioeconomic indicators were prepared to forecast future tourism demand.

- Scenario-1: Based on GDP growth rates
- Scenario-2: Based on per capita GDP growth rates (Line Regression)
- Scenario-3: Based on population growth rates
- Scenario-4: Based per capita GDP growth rates (Logarithm Curve)

### c. Results

The Study Team estimated the domestic tourism demand as shown in Table 2.14. Table 2.15 is prepared to evaluate the results by examining the bed-nights per population ratio. It shows that the scenario 3 and 4 are too conservative since the bed-nights per population ratio of the scenarios are decreasing.

The scenario 1, which is based on the economic growth, is the highest growth. The growth, however, would have low validity to apply for the growth rates of the future domestic bed-nights because this is consequently higher than the growth of international bed-nights. This higher growth of the domestic bed-nights could not be expected in the future. The scenario 2, the growth of per capita GDP, is the most relevant result for the future domestic bed-nights, although this is also not so much different from the result of Scenario 3. Increase of personal gains will act on encouragement of domestic tourism opportunities.

**Table 2.14 Comparison of the results of the estimations**

Forecast/Year	Domestic Bed-nights (,000)					Annual growth 00-20
	1999*	2000*	2005	2010	2020	
Scenario-1: High growth by GDP growth rate	3,535	3,651	4,525	5,629	8,810	
Annual growth rate		3.3%	4.4%	4.5%	4.6%	4.5%
Scenario-2: Middle growth by per capita GDP growth rate (line regression)	3,535	3,651	4,115	4,807	7,548	
Annual Growth Rate		3.3%	2.4%	3.2%	4.6%	3.7%
Scenario-3: Middle growth by population growth rate	3,535	3,651	4,153	4,691	5,811	
Annual growth rate		3.3%	2.6%	2.5%	2.2%	2.4%
Scenario-4: Low growth by per capita GDP growth rate (logarithm curve)	3,535	3,651	3,962	4,334	5,306	
Annual Growth rate		3.3%	1.6%	1.8%	2.0%	1.9%

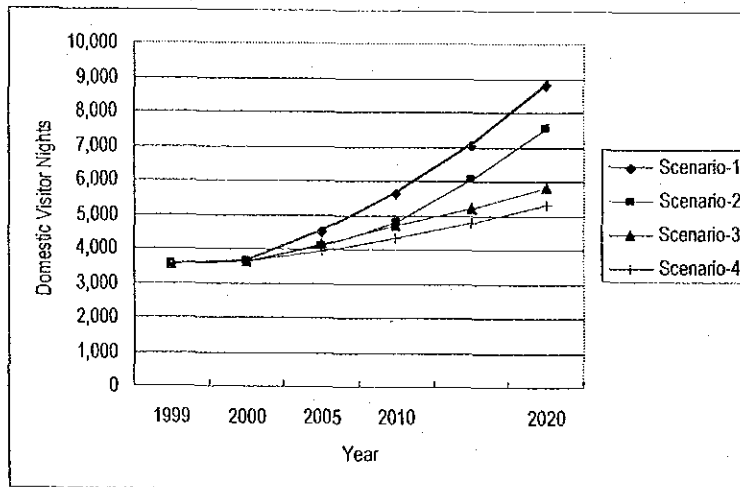
Note: \*JICA Study Team also estimated the figures of the year 1999 and 2000  
Source: JICA Study Team, Banco de Guatemala, and INE

**Table 2.15 Comparison of bed-nights per population ratio**

Item/Year	1999*	2000*	2005	2010	2020
Population (,000)	11,087	11,385	12,952	14,631	18,123
Scenario-1	0.319	0.321	0.349	0.385	0.486
Scenario-2	0.319	0.321	0.318	0.329	0.416
Scenario-3	0.319	0.321	0.321	0.321	0.321
Scenario-4	0.319	0.321	0.306	0.296	0.293

Note: \*JICA Study Team also estimated the figures of the year 1999 and 2000  
Source: JICA Study Team, INE and United Nations Population Division

**Figure 2.13 Comparison of the results of the forecasts**



Source: JICA Study Team

### 2.5.3. National Development Framework

#### (1) Estimation of the current regional bed-nights

##### a. International bed-nights

The Study Team estimated the regional distribution of the international visitor volume (bed-nights) using the results of the visitor survey in March and July 2001. Table 2.16 is the summary of the calculation.

**Table 2.16 Estimation of regional International bed-nights**

Tourism Region		Distribution of Int'l Bed-nights (Visitor Survey)	Estimated International Bed-nights
I.	Modern & Colonial Guatemala	50.2%	2,816,427
II.	Living Indigenous Highlands	20.5%	1,149,551
	(SW Highlands PTDA)	(5.3%)	(298,194)
III.	Mayan Adventure (El Petén PTDA)	10.0%	558,908
IV.	A Different Caribbean	6.1%	341,418
V.	Nature Paradise (Las Verapaces PTDA)	2.2%	123,655
VI.	Guatemala for Discovery	4.8%	266,459
VII.	Pacific Coast	6.3%	350,446
	Total	100.0%	5,606,865

Source: JICA Study Team, Visitor Survey

#### b. Assumptions of occupancy rates and other indicators

The average occupancy rates are calculated using the occupancy rates of the “recommendable” and “not recommendable” hotels. The occupancy rate for recommendable hotels derives from the statistics section of INGUAT, while that of “not recommendable” hotels are assumed that the national average is 35%. The total number of rooms by Tourism Region is also obtained from the statistics section of INGUAT. The average number of guests per room is assumed to be 1.7.

#### c. Total bed-nights

Total bed-nights are calculated from the indicators of averages occupancy rate, total accommodation rooms and average person per room.

#### d. Regional domestic bed-nights

The regional domestic bed-nights were calculated by excluding the international bed-nights from the total bed-nights. Table 2.17 shows the breakdown of domestic and international bed-nights by Tourism Region.

**Table 2.17 Estimation of Bed-nights by Tourism Regions 2000**

Tourism Region		Domestic	International	Total
I.	Modern and Colonial Guatemala	345,007	2,816,427	3,161,434
II.	Living Indigenous Highlands (SW Highlands PTDA)	864,499 (475,346)	1,149,551 (298,194)	2,014,050 (773,540)
III.	Mayan Adventure (El Petén PTDA)	135,629	558,908	694,537
IV.	Different Caribbean	201,425	341,418	542,843
V.	Nature Paradise (Las Verapaces PTDA)	262,307	123,655	385,962
VI.	Guatemala for Discovery	866,592	266,459	1,133,051
VII.	Pacific Coast	975,089	350,446	1,325,535
	Total	3,650,549	5,606,865	9,257,413

Source: JICA Study Team

## (2) National framework

The Study Team estimated the national framework according to the international and domestic tourism demand forecast. The future international bed-nights were summed up

from each geographical region's bed-nights calculated in the next section, "b. Regional level" of "(2) International bed-nights" in "2.5.4. Regional Development Framework".

**Table 2.18 National framework**

Item/Year	Unit	2000	2010	2020
International Visitor Arrivals	Thousand	826	1,200	1,800
International Bed-nights	Thousand	5,607	*8,511	*12,625
Domestic Bed-nights	Thousand	3,651	4,807	7,548
Total Bed-nights	Thousand	9,257	13,318	20,173

Note: \* Summed up from the regional bed-nights calculated in the next section b. of (2) in 2.5.4. Total does not always meet the sum of figures in the table due to the rounding.

Source: JICA Study Team

## 2.5.4. Regional Development Framework

### (1) Procedure of estimating the regional framework

The Study Team assumed that the visitor nights and bed-nights of geographical regions (visitors' origin), purposes of visit, principal attractions and tourism resources in Tourism Regions are correlated with the regional distribution of bed-nights. Therefore, the following procedure was taken to estimate the regional frameworks.

#### a. Estimation at the national level

Estimation of the international visitor arrival shares by geographical regions

- Estimation of the visitor arrivals by geographical regions
- Assumption of the visitor arrival shares by geographical regions, purposes to visit Guatemala and principal attractions.
- Estimation of the visitor nights by geographical regions, purposes to visit Guatemala and principal attractions by averages length of stay.

#### b. Estimation at the regional level

- Estimation of the regional visitor night shares by geographical region and principal attraction taking into account the current shares, results of tourism resources, and environmental factors.
- Distribution of the regional visitor nights.
- Calculation of the regional bed-nights by bed-night ratios from the visitor nights.
- Assumption of the regional domestic bed-night shares.
- Estimation of the regional domestic bed-nights.

#### c. Attentions for the estimation of international visitor nights and bed-nights

##### Estimating the future visitor shares of the geographical regions

In Guatemala, there is a clear relationship among geographical regions (visitors' origin countries), visitors' principal attraction, resources and tourism regions. For example, Europeans mainly visit Guatemala for "archaeological sites" and "indigenous culture".

Consequently, their typical itineraries tend to be Antigua – Solola – Peten – Izabal (Izabal is an optional destination in many cases). Therefore, the Study Team regarded the future visitor shares of respective geographical regions as the primary indicator.

#### **Separation of the non-tourist visitor nights**

The non-tourist visitor nights were separated from the total visitor nights: VFR, learning Spanish, meeting, incentive travel, conference, event, business/trade, sports/arts and others. The visitor night shares of the non-tourist visitors by geographical regions and the Tourism Regions were kept at the present levels.

#### **Shares of visitor arrivals by principal attraction**

The shares of international visitors with the following purposes are assumed to increase in the future taking into account Guatemala's untapped potential to develop these types of tourism products:

- Tourists for nature-based attractions, and
- Tourists for beach and other resort attractions.

#### **Averages length of stay by the geographical region, purpose and principal attraction**

Averages length of stay are held at the present levels by geographical regions, purposes and principal attractions according to the visitor survey results.

#### **Calculation of regional scores for distribution**

The following indicators are used to distribute tourism demand to respective Tourism Regions.

- Current regional bed-nights shares,
- Results of the tourism resources evaluation, and
- Percentage of protected area as an indicator for restriction.

#### **d. Attentions for the estimation of domestic bed-nights**

The volume of the domestic bed-night tends to concentrate in the southern part of Guatemala such as Tourism Region VI- Guatemala for Discovery, VII- Pacific Coast, and II- Living Indigenous Highlands due to the proximity to Guatemala City: the largest urban center in Central America. It is difficult to separate tourist bed-nights and non-tourist bed-nights.

The Study Team assumed that the regional shares of the domestic bed-nights would be enhanced for the following Tourism Regions in the future.

- III-Mayan Adventure, and
- V-Nature Paradise.

## (2) International bed-nights

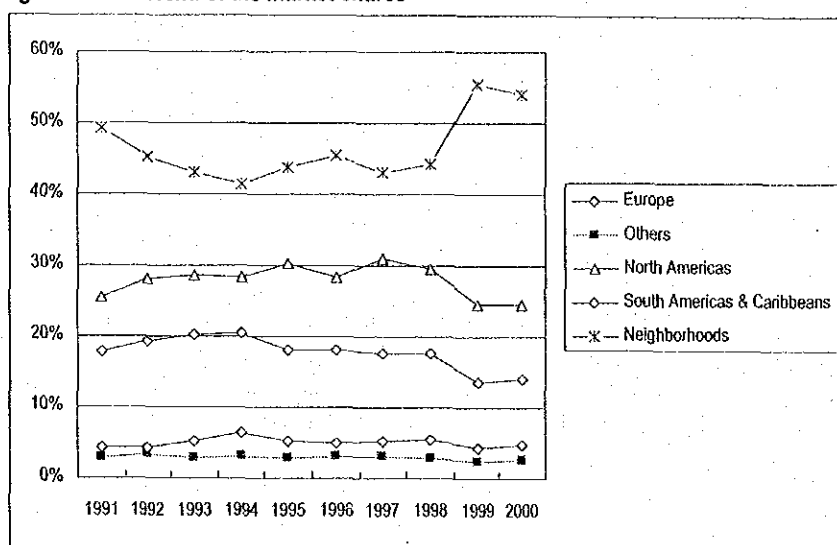
### a. National level

#### Estimation of the future shares of geographical regions

The Study Team estimated the future market shares according to trends of visitor arrivals by geographical regions. The trends are summarized as follows:

- Long haul market: Europe and other countries, is decreasing its share
- Middle haul market: North America, South America & Caribbean countries, is also decreasing its share.
- Short haul market: neighboring countries, is increasing its the share.

Figure 2.14 Trend of the market shares



Source: JICA Study Team

The above trends, however, became dominant only in the recent five years, and its is not certain how sustainable the trend would be in the future. Therefore, the Study Team estimated the future market shares for two cases. Both cases use the past trend, but in different ways.

- Case-1: the shares were calculated with a logarithm curve according to the recent five years trend.
- Case-2: the shares were calculated with a logarithm curve according to the recent ten years trend.

The results show that the case-1 is on the short haul market conscious, and case-2 is on the long haul market conscious. Thus, the result of the case-1 is suite for the policy of the Study.



**Table 2.19 Estimation of the future market shares**

Case	Case-1			Case -2		
	2005	2010	2020	2005	2010	2020
Geographical region/Year						
Long Haul Market	18.9%	18.3%	17.6%	21.3%	21.0%	20.7%
Europe	16.1%	15.6%	14.9%	18.3%	18.1%	17.8%
Others	2.8%	2.7%	2.7%	3.0%	3.0%	2.9%
Middle Haul Market	32.4%	31.9%	31.2%	32.7%	32.8%	32.9%
North Americas	27.5%	27.0%	26.4%	27.8%	27.8%	27.9%
South Americas & Caribbean	4.9%	4.9%	4.8%	5.0%	5.0%	5.0%
Short Haul Market	48.7%	49.8%	51.2%	46.0%	46.2%	46.4%
Neighborhoods	48.7%	49.8%	51.2%	46.0%	46.2%	46.4%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Source: JICA Study Team.

### **Arrival shares by geographical region, purpose and principal attraction**

The present visitor arrival shares of geographical regions are summarized as: around 40% international visitor arrivals are generated by tourists; 20% are by VFR, 5% are by learning Spanish and 30% are by business/works.

For the principal attractions of "holiday" purposes, "Archaeological sites" is the major attraction for any geographical regions. "Living Indigenous Cultures" is especially important for North America and Europe. "Nature and Beaches" is the most important attraction for those from neighboring countries.

The Study Team assumed the future arrival shares by geographical region, purpose to visit Guatemala and principal attraction. The shares of 2010 and 2020 were assumed in consideration of the present shares and results of visitor survey: the questions about types of tourism projects that would enhance tourism attractiveness. The shares of "Nature" and "Beaches" were increased in particular.

### **Visitor arrivals by geographical region, purpose to visit Guatemala and principal attraction**

According to the international visitor arrival shares, the Study Team calculated the international visitor arrivals by geographical region, purpose to visit Guatemala and principal attraction.

### **Averages length of stay (ALS) by geographical region, purpose to visit Guatemala and principal attraction**

The Study Team calculated the averages length of stay for respective geographical regions by purpose to visit Guatemala and principal attraction based on the visitor survey results in March and July 2001.

### **Total visitor nights by geographical region, purpose to visit Guatemala and principal attraction**

Using the international visitor arrival, and averages length of stay, the Study Team calculated the international visitor nights by geographical region, purpose to visit Guatemala and principal attraction.

**b. Regional level**

**Evaluation of tourism resources and the environmental factor**

The Study Team calculated the regional visitor night shares by principal attraction taking into account: the current shares, tourism resources, and reserve areas. These indicators were totaled as “point” for Tourism Regions after a process of quantification. Comparative weights were applied for the respective indicators as follows.

- The current shares: 1.0.
- The tourism resources: 0.5 and 1.0 for 2010 and 2020.
- The reserve areas: 0.25 (1/4 of the other indicators). Comparatively, the indicator is not so suitable than the other ones.

**Tourism resources point**

Tourism resources points were calculated based on the shares of the total scores of the tourism resources in respective Tourism Regions to the national total. The scores include an evaluation of the attractiveness and accessibility of respective tourism resources.

**Table 2.20 Points of tourism resources attractiveness by Tourism Region**

Tourism Region /Tourism Resource	Arch. Sites	Colonial Cities & Archi.	Living Indig. Culture	Nature	Beach	Others	Total
I. Modern & Colonial Guatemala	9.4	55.9	25.3	6.3	0.0	53.1	24.0
II. Living Indigenous Highlands (SW Highlands PTDA)	2.6	18.4	64.5	12.7	0.0	14.2	25.1
	0.0	12.5	17.3	8.2	0.0	10.2	9.8
III. Mayan Adventure (El Petén PTDA)	69.3	7.2	0.0	18.1	0.0	4.9	17.7
IV. Different Caribbean	5.8	2.2	0.0	13.0	2.9	10.0	6.6
V. Nature Paradise (Las Verapaces PTDA)	0.0	8.6	8.9	25.2	0.0	10.6	12.2
VI. Guatemala for Discovery	0.0	3.3	0.3	7.3	0.0	1.3	2.7
VII. Pacific Coast	12.8	4.4	1.0	17.3	97.1	5.9	11.7
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Note: \* The points (shares) were calculated by the scores of the tourism resources evaluation. The scores include an evaluation of accessibility.

Source: JICA Study Team

**Environmental point**

Percentage of the total protected areas to the total department area was converted to an environmental point as explained in Table 2.21. A Tourism Region with a larger environmental point, which means the Tourism Region has a smaller percentage of protected areas, would get larger distribution of visitors.

**Table 2.21 Regional points of reserve areas**

Tourism Region/ Environmental point	*Score	Reversed Score	Point
I. Modern & Colonial Guatemala	3.6	1.00	38.42
II. Living Indigenous Highlands (SW Highlands PTDA)	76 (19.9)	0.25 (0.18)	9.47 (6.99)
III. Mayan Adventure (El Petén PTDA)	47.5	0.08	2.93
IV. Different Caribbean	9.7	0.37	14.36
V. Nature Paradise (Las Verapaces PTDA)	21.5	0.17	6.45
VI. Guatemala for Discovery	29.5	0.12	4.70
VII. Pacific Coast	5.9	0.62	23.67
Total	194	2.60	100.00

Note: \* Scores are the ratios of the total protected areas to the total department area.

Source: JICA Study Team

### **Regional distribution of the visitor nights and bed-nights**

The Study Team calculated the regional visitor nights by the regional share (point) mentioned above. Based on these results, hotel bed-nights were calculated by multiplying the hotel bed-night ratios to the visitor nights. The ratios were computed from the results of visitor survey. The results of the bed-night distributions are summarized in Table 2.22 and Table 2.23. The national totals of bed-nights in 2010 and 2020: 8,511 thousands and 12,625 thousands are used for the national frame in the section “(2) National framework” of “2.5.3 National Development Framework”.

**Table 2.22 Bed-nights distribution in 2010**

Geographical region		Short Haul	Middle Haul		Long Haul		Total
Tourism Region		Neighboring countries	North America	South America	Europe	Others	
I.	Modern and Colonial	1,097.0	1,164.1	287.2	1,252.0	214.2	4,014.4
II.	Living Indigenous Highlands (SW Highlands PTDA)	416.3 152.0	541.0 151.6	66.1 7.0	525.8 115.6	33.1 10.5	1,582.3 436.7
III.	Mayan Adventur (El Petén PTDA)	198.5	322.6	70.6	354.9	39.7	986.4
IV.	Different Caribbean	154.1	104.0	48.9	249.3	20.6	576.8
V.	Nature Paradise (Las Verapaces PTDA)	98.1	67.9	5.9	90.6	7.7	270.1
VI.	Guatemala for Discovery	227.6	48.2	1.5	44.0	4.5	325.9
VII.	Pacific Coast	269.2	225.4	22.7	227.0	10.5	754.8
	Total	2,460.8	2,473.2	502.8	2,743.6	330.3	8,510.8

Note: Unit: thousand nights

Total does not always meet the sum of figures in the table due to the rounding.

Source: JICA Study Team

**Table 2.23 Bed-nights distribution in 2020**

Geographical region		Short Haul	Middle Haul		Long Haul		Total
Tourism Region		Neighboring countries	North America	South America	Europe	Others	
I.	Modern and Colonial Guatemala	1,636.5	1,658.7	409.5	1,736.3	302.8	5,743.7
II.	Living Indigenous Highlands	631.0	794.7	98.1	788.2	46.9	2,358.9
	(SW Highlands PTDA)	240.2	222.6	12.6	177.8	15.7	668.9
III.	Mayan Adventure (El Petén PTDA)	355.6	487.1	118.9	579.3	61.8	1,602.8
IV.	Different Caribbean	231.4	147.9	69.9	347.9	30.8	827.9
V.	Nature Paradise (Las Verapaces PTDA)	174.1	113.6	8.7	138.9	13.1	448.3
VI.	Guatemala for Discovery	329.4	65.7	1.6	63.8	7.0	467.4
VII.	Pacific Coast	456.8	334.4	33.1	335.3	16.4	1,176.1
	Total	3,814.6	3,602.1	740.0	3,989.7	478.7	12,625.1

Note: Unit: thousand nights

Total does not always meet the sum of figures in the table due to the rounding.

Source: JICA Study Team

### (3) Domestic bed-nights

The Study Team estimated the present domestic bed-nights by Tourism Regions as discussed previously. In the future, the shares of Tourism Regions will be changed as follows.

- Mayan Adventure Region (El Peten PTDA): the share of region will be higher cause of improvement of the North-South Corridor, acknowledgement of nature tourism and implementation of resort developments.
- Nature Paradise Region (Las Verapacez PTDA): the share of region will be higher cause of improvement of the North-South Corridor and acknowledgement of nature tourism.

**Table 2.24 Domestic bed-nights distributions for the Tourism Regions**

Tourism Region/Year		2000	2010	2020
I.	Modern & Colonial Guatemala	345	499	835
II.	Living Indigenous Highlands	864	1,141	1,802
	(SW Highlands PTDA)	475	618	963
III.	Mayan Adventure (El Petén PTDA)	136	198	340
IV.	A Different Caribbean	201	271	430
V.	Nature Paradise (Las Verapaces PTDA)	262	358	582
VI.	Guatemala for Discovery	867	1,088	1,642
VII.	Pacific Coast	975	1,251	1,917
	Total	3,651	4,807	7,548

Note: Unit: thousand nights.

Total does not always meet the sum of figures in the table due to rounding.

Source: JICA Study Team

**Table 2.25 Domestic bed-nights shares for the Tourism Regions**

Tourism Region/Year		2000	2010	2020
I.	Modern & Colonial Guatemala	9.5%	10.4%	11.1%
II.	Living Indigenous Highlands (SW Highlands PTDA)	23.7%	23.7%	23.9%
		13.0%	12.9%	12.8%
III.	Mayan Adventure (El Petén PTDA)	3.7%	4.1%	4.5%
IV.	Different Caribbean	5.5%	5.6%	5.7%
V.	Nature Paradise (Las Verapaces PTDA)	7.2%	7.5%	7.7%
VI.	Guatemala for Discovery	23.7%	22.6%	21.7%
VII.	Pacific Coast	26.7%	26.0%	25.4%
Total		100.0%	100.0%	100.0%

Source: JICA Study Team

**(4) Regional framework**

Finally, regional distributions of the total bed-nights are summarized in Table 2.26.

**Table 2.26 Total bed-nights distributions**

Tourism Region/Year	2000			2010			2020		
	Dom.	Inter.	Total	Dom.	Inter.	Total	Dom.	Inter.	Total
I. Modern & Colonial Guatemala	345	2,816	3,161	499	4,014	4,514	835	5,744	6,579
II. Living Indigenous Highlands (SW Highlands PTDA)	864	1,149	2,015	1,141	1,583	2,723	1,802	2,359	4,160
	475	298	774	618	437	1,055	963	669	1,631
III. Mayan Adventure (El Petén PTDA)	136	559	695	198	986	1,185	340	1,603	1,943
IV. A Different Caribbean	201	341	543	271	577	848	430	828	1,258
V. Nature Paradise (Las Verapaces PTDA)	262	124	386	358	270	629	582	448	1,030
VI. Guatemala for Discovery	867	266	1,133	1,088	326	1,414	1,642	467	2,109
VII. Pacific Coast	975	350	1,326	1,251	755	2,005	1,917	1,176	3,094
Total	3,650	5,607	9,257	4,807	8,511	13,318	7,548	12,625	20,173

Note: Unit: thousand. Total does not always meet the sum of figures in the table due to rounding.

Source: JICA Study Team

**2.5.5. Accommodation requirements**

The followings are assumptions to calculate the future room requirements.

- Number of guest per room: 1.7 persons/room.
- Occupancy rates: 75% for high class, 65% for middle class and 55% for low class hotels.
- Bed-nights shares by hotel classes and domestic/international visitors were assumed that; the middle class would increase the shares for both domestic/international visitors; and the high class would increase the share for international visitors.

Table 2.27 shows the number of existing hotel rooms by Tourism Region. Table 2.28 shows the room requirements in 2010 and 2020.

**Table 2.27 Existing stock of the accommodation rooms**

Tourism Region/Year	2000			
	High	Middle	Low	Total
I. Modern & Colonial Guatemala	3,140	3,367	5,463	11,970
II. Living Indigenous Highlands (SW Highlands PTDA)	284 (75)	2,803 (924)	4,029 (1,711)	7,116 (2,710)
III. Mayan Adventure (El Petén PTDA)	72	821	1,028	1,921
IV. Different Caribbean	225	813	1,042	2,080
V. Nature Paradise (Las Verapaces PTDA)	0	576	738	1,314
VI. Guatemala for Discovery	76	1,494	2,587	4,157
VII. Pacific Coast	0	2,082	4,056	6,138
Total	3,797	11,956	18,943	34,696

Note: High class: 4-5 star hotels, Middle class: 1-3 star and the other recommendable hotels, Low class: "not-recommendable" hotels. A basic standard of the classification is from INGUAT.

Source: JICA Study Team, INGUAT

**Table 2.28 Accommodation room requirements**

Tourism Region/Year	2010				2020			
	High	Middle	Low	Total	High	Middle	Low	Total
I. Modern & Colonial Guatemala	3,140	3,979	5,463	12,582	5,027	6,628	5,463	17,118
II. Living Indigenous Highlands (SW Highlands PTDA)	416 113	3,158 1,155	4,029 1,711	7,603 2,979	700 247	5,472 2,022	4,770 2,053	10,942 4,323
III. Mayan Adventure (El Petén PTDA)	233	1,518	1,360	3,111	553	2,776	1,658	4,988
IV. Different Caribbean	277	1,018	1,042	2,337	537	1,662	1,042	3,242
V. Nature Paradise (Las Verapaces PTDA)	68	779	829	1,675	159	1,476	1,056	2,691
VI. Guatemala for Discovery	152	1,494	2,587	4,233	277	2,679	2,644	5,593
VII. Pacific Coast	215	2,176	4,056	6,448	459	4,127	4,056	8,641
Total	4,501	14,122	19,365	37,988	7,712	24,814	20,689	53,215

Note: High class: 4-5 star hotels, Middle class: 1-3 star and the other recommendable hotels, Low class: "not-recommendable" hotels. A basic standard of the classification is from INGUAT.

Source: JICA Study Team

## **2.6. Initial Environmental Examination (IEE)**

### **2.6.1. Objectives and Approach of IEE**

An Initial Environmental Examination (IEE) has been conducted based on the concept of Strategic Environmental Assessment (SEA). The concept of SEA is to ensure that environmental issues are addressed at early stages of the process of formulating plans and programs.

Tourism development plans are roughly divided into the following five categories.

#### **Tourism use of living indigenous cultures**

- Development of Community Tourism
- Design and quality improvement of handicraft

#### **Cultural tourism development**

- Restoration and visitor facility development at archaeological site
- Tourism improvement of historical cities/towns (beautification, etc.)

#### **Nature tourism development**

- Canopy walkway (hanging walkway over forest to observe tree canopy)
- River cruise on the way to archaeological sites through nature areas

#### **Lakeside resort development**

- Lakeside resort development around Lake Izabal, Peten Itza, etc

#### **Development/ Improvement of access roads**

- Development/improvement of access roads to tourism sites

The followings are the results of IEE, which are to be reflected in the tourism development plans in the following chapters. It is noted that EIA (environmental impact assessment) was conducted for respective short-term pilot projects, and its details are presented in Volume 3: Project Evaluation.

## 2.6.2. Results of the IEE

### (1) Tourism use of living indigenous cultures

Table 2.29 shows the results of the IEE. The local peoples will receive socioeconomic benefits from this type of development directions. For example, "Community Tourism" is a concept to facilitate tourists to visit and stay in indigenous community. As slight adverse impacts such as tourist congestions and littering are expected, the countermeasures should be considered taking into account the capacities of the communities.

No significant impacts on natural environment are expected by this type of development directions, if tourism facilities like those constitute Community Tourism are in a small scale and taking into account the conservation of the existing ecosystems and landscapes. This type of the development directions expects no significant adverse impacts in terms of pollution.

**Table 2.29 Results of IEE for tourism use of living indigenous cultures**

Environmental Items	Evaluation	Remarks and Recommendation
<b>Social Environment</b>		
Resettlement		No resettlement should occur by this type of development directions.
Economic Activity	+	Possible significant favorable impacts will be expected.
Traffic/Public Facilities	-	Possible increase in tourism traffic in community.
Community Severance		
Cultural Property	+	Existing cultural properties should be improved as tourism resources.
Right of Common	?	Further considerations needed.
Public Health Condition	?	
Waste	-	Possible littering by tourists should be prevented.
Hazards (Risk)		
<b>Natural Environment</b>		
Topography and Geology		
Soil erosion		
Groundwater		
Hydrological Situation		
Coastal Zone		
Fauna and Flora	-	Existing ecosystems should not be disturbed as much as possible.
Meteorology		
Landscape	-	Present landscapes should not be degraded by a facility.
<b>Pollution</b>		
Air Pollution		
Water Pollution	-	Risk of water contamination mainly due to the visitors.
Soil Contamination		
Noise and Vibration	-	Possible risk of noise due to the increase in tourism traffic.
Land Subsidence		
Offensive Odor		

Note: Evaluation Categories

+-: Possible significant favorable Impact, + : Possible slight favorable impact,  
 -: Possible significant adverse impact, - : Possible slight adverse impact,  
 ?: unclear, Blank is not concerned.

Source: JICA Study Team



**(2) Cultural tourism development**

Table 2.30 shows the results of the IEE. Some of the socio-economic favorable impacts on economic activities, cultural property, and waste are expected. For example, the beautification will lead to the improvement of waste collection.

Concerning the natural environment, this type of the development directions expects no significant adverse impacts by taking into account the conservation of existing ecosystems and landscapes. In terms of pollution, there is a risk of facility construction noise, which may disturb the historical atmosphere of the sites.

**Table 2.30 Results of IEE for cultural tourism development**

Environmental Items	Evaluation	Remarks and Recommendation
<b>Social Environment</b>		
Resettlement	--	Possible resettlement will occur by this type of development.
Economic Activity	+ -	Possible significant favorable impacts will be expected.
Traffic/Public Facilities	-	Possible increase in tourism traffic in the cities and towns
Community Severance		
Cultural Property	+	Existing cultural properties will be improved as main tourism resources.
Right of Common	-	Significant conflicts may occur due to creation of new spaces.
Public Health Condition	+	Possible favorable impacts may cause due to beautification.
Waste	+	Significant improvement will be expected by the development.
Hazards (Risk)		
<b>Topography and Geology</b>		
Soil erosion		
Groundwater		
<b>Hydrological Situation</b>		
Coastal Zone		
Fauna and Flora	-	Existing ecosystems should not be disturbed as much as possible.
Meteorology		
Landscape	+	Significant improvement will be expected.
<b>Pollution</b>		
Air Pollution		
Water Pollution		
Soil Contamination		
Noise and Vibration	-	Risk of facilities construction noise should be considered.
Land Subsidence		
Offensive Odor		

Note: Evaluation Categories

+ -: Possible significant favorable impact, + : Possible slight favorable impact,

- : Possible significant adverse impact, - : Possible slight adverse impact,

? : unclear, Blank is not concerned.

Source: JICA Study Team

**(3) Nature tourism development**

Table 2.31 shows the results of the IEE. Concerning the social environment, possible slight favorable impacts such as economic activities and traffic in the remote areas will be improved. On the other hand, some of the nature based tourism development such as river cruise and canopy walking have risks of natural resources user conflicts related to rights of common.

In principle, this type of tourism development will conserve the natural environment itself. Nature-based tourism development may have a chance to improve the quality of the natural environment. In terms of pollution, no possible significant adverse impacts may occur taking into account of the type of development.

**Table 2.31 Results of IEE for nature tourism development**

Environmental Items	Evaluation	Remarks and Recommendation
<b>Social Environment</b>		
Resettlement		
Economic Activity	+	Slight favorable impacts will be expected by the tourism.
Traffic/Public Facilities	+	Some of the nature based tourism may facilitate the traffic improvement in remote areas.
Community Severance		
Cultural Property		
Right of Common	-	Resources user conflicts may occur by the development.
Public Health Condition		
Waste	-	Possible littering may occur mainly by the tourists.
Hazards (Risk)		
<b>Natural Environment</b>		
Topography and Geology		
Soil erosion	+	The risk of soil erosion will reduce by this type of project.
Groundwater		
Hydrological Situation	?	Hydrological situation may have some impacts, but unclear at present.
Coastal Zone		
Fauna and Flora	+-	Existing fauna and flora will conserve by this type of project.
Meteorology		
Landscape	+-	Existing landscapes will improve by this type of project.
<b>Pollution</b>		
Air Pollution		
Water Pollution	?	Water pollution may have some impacts, but unclear at present.
Soil Contamination		
Noise and Vibration		
Land Subsidence		
Offensive Odor		

Note: Evaluation Categories

+-: Possible significant favorable impact, +: Possible slight favorable impact,

-: Possible significant adverse impact, -: Possible slight adverse impact,

?: unclear, Blank is not concerned.

Source: JICA Study Team

**(4) Lakeside resort development**

Table 2.32 shows the result of IEE. This type of development directions will be expected significant economic benefits in the tourism sites. However, present social environment including cultural property may be degraded by inappropriate hotel construction or bad tourists activities. Also, tourists littering around the lake may occur.

In terms of the natural environment, for example, soil erosion and sedimentation in the lake may occur, if no mitigation measure is taken during hotel construction.

Concerning the pollution, possible water contamination in the lake by wastewater discharges from hotel should be considered. Also, the traffic and construction noise may occur, if appropriate countermeasures are not taken.

**Table 2.32 Results of IEE for lakeside resort development**

Environmental Items	Evaluation	Remarks and Recommendation
<b>Social Environment</b>		
Resettlement	-	Possible resettlement will occur by this type of development.
Economic Activity	+	Possible significant favorable impacts will be expected.
Traffic/Public Facilities	-	Slight adverse impacts will occur by the tourism traffic.
Community Severance		
Cultural Property	-	Present cultural property has a risk of the degradation.
Right of Common	?	Further considerations needed.
Public Health Condition	?	Further considerations needed.
Waste	-	Possible tourist littering should be prevented.
Hazards (Risk)		
<b>Natural Environment</b>		
<i>Topography and Geology</i>		
Soil erosion	-	Possible of topsoil erosion may occur in the steep areas.
Groundwater		
Hydrological Situation		
Coastal Zone		
Fauna and Flora	-	Existing ecosystems may be disturbed by this development.
Meteorology		
Landscape	-	Existing landscapes may be disturbed by this development.
<b>Pollution</b>		
<i>Air Pollution</i>		
Water Pollution	-	Possible slight adverse impacts such as wastewater contamination related to the hotel should be prevented.
Soil Contamination		
Noise and Vibration	-	Construction and traffic noise risks may occur.
Land Subsidence		
Offensive Odor		

Note: Evaluation Categories

+: Possible significant favorable impact, +: Possible slight favorable impact,

-: Possible significant adverse impact, -: Possible slight adverse impact,

?: unclear, Blank is not concerned.

Source: JICA Study Team

(5) **Development/ Improvement of access roads**

Table 2.33 shows the result of IEE. This type of development directions may cause significant adverse natural environmental impacts. However, the access road to the remote tourism sites is one of the main basic tourism infrastructures in remote areas. So, it should be carefully selected the route taking into account of the vulnerability of the ecosystems.

In terms of social environment, the access roads will contributed to the economic development in the remote areas. On the other hand, the access roads may disturb the rights of common in the traditional community.

**Table 2.33 Results of IEE for development/improvement of access roads**

Environmental Items	Evaluation	Remarks and Recommendation
<b>Social Environment</b>		
Resettlement	-	No resettlement should not occur as much as possible.
Economic Activity	+	Possible significant favorable impacts will be expected.
Traffic/Public Facilities	+	Possible slight favorable impacts will be expected.
Community Severance	-	There is a risk of community severance in a community.
Cultural Property		
Right of Common	?	Further considerations needed.
Public Health Condition		
Waste	-	Possible tourist littering and construction waste should be managed appropriately.
Hazards (Risk)	-	Traffic accident may increase.
<b>Natural Environment</b>		
Topography and Geology	?	Further assessment needed.
Soil erosion	-	Possible soil erosion may occur in steep slope areas.
Groundwater	?	Further assessment needed.
Hydrological Situation	?	Further assessment needed.
Coastal Zone	?	Further assessment needed.
Fauna and Flora	-	Existing ecosystems should not be disturbed as possible.
Meteorology		
Landscape	-	Existing landscapes should not be degraded as possible.
<b>Pollution</b>		
Air Pollution	-	Possible slight air pollution may occur by the increase in traffic.
Water Pollution	-	Construction wastes and oil spill may lead water contamination.
Soil Contamination		
Noise and Vibration	-	Construction and traffic noise may occur.
Land Subsidence		
Offensive Odor		

Note: Evaluation Categories

+: Possible significant favorable impact, + : Possible slight favorable impact,  
 -: Possible significant adverse impact, - : Possible slight adverse impact,  
 ?: unclear, Blank is not concerned.

Source: JICA Study Team