Appendix -1 :

A.2. Results of tourism demand forecasts

A.2. Results of tourism demand forecasts

A.2.1. Method of setting tourism framework at the national level

A.2.1.1. Estimation of domestic visitors

As mentioned in Section 2.3. of Volume-2, a multi-regression analysis was applied to forecast the future visitor inflow. The multi-regression analysis was also applied to forecast the visitor inflow by FONATUR-IDB study in 1992. In the analysis of the JICA study, some data and information are quoted from the FONATUR-IDB study for items of which data are not available.

(1) Basic point of view for the regression analysis

A multiple regression model applied by the FONATUR-IDB study to forecast the hotel arrivals of domestic visitors is as follows:

$$Y=b_0 \times X_1^{b1} \times \ldots \times X_k^{bk}$$

After various trial calculations, the FONATUR-IDB study selected explanatory variables as follows:

- Population
- Income (GDP per capita)
- Travel cost (Real exchange rate and transport operation cost)
- Indicator (Effect of the statistical discontinuity in 1985)

It is considered that the above mentioned model and the explanatory variables are quite appropriate and they are used in general for the forecast. Therefore the same method is applied in this study basically.

But JICA study team considered the trend of increase of outbound tourism (from Mexico to foreign countries by Mexican people) more than domestic tourism, and estimated the total demand of tourism and the outbound tourism first. The number of hotel arrivals in Mexico is calculated by subtracting the border tourism and the outbound tourism from the total demand of tourism as follows.

HAt=TDt-BTt-OTt

t: Year

HA: number of hotel arrival

TD: total demand of tourism

BT: Border tourism

OT: outbound tourism of Mexican

The FONATUR-IDB study, however, used the regression coefficients in case that the constant term is zero, which tends to overestimate figures when the constant term is larger than zero. Therefore the regression coefficients with a constant term calculated in ordinary is adopted in this study.

(2) Data and the result of the regression analysis

Concerning the criteria variable, the number of total demand of tourism, that of border tourism and that of outbound tourism are adopted for the estimation of domestic visitor inflow. The data used in this study is shown in Table A.2. 1

Table A.2. 1 Data used in the regression analysis of domestic visitors

	Population	G D P		Real exchange rate	Transport cost	Indicator	Total Demand	Border tourism	Outbound tourism	Hotel arrival
	million	billion $ 1980 price	per capita 1000 $	1975 =100	$ / vehicle		1000	1000	1000	1000
1981	68.1	4,862	71.40	118.69	313.5	0	26,858	2,699	3,959	20,200
1982	69.4	4,832	69.63	86.73	349.3	0	27,844	2,573	2,671	22,600
1983	70.8	4,629	65.38	79.72	341.0	0	26,954	2,383	1,971	22,600
1984	72.1	4,796	66.52	97.21	344.7	0	27,701	4,004	2,697	21,000
1985	73.6	4,920	66.85	100.88	382.4	0	26,192	2,461	2,731	21,000
1986	75.0	4,736	63.15	69.13	422.2	1	38,584	3,920	2,470	32,194
1987	76.5	4,824	63.06	63.64	503.5	1	38,974	2,383	2,882	33,709
1988	78.0	4,884	62.62	77.42	357.2	1	42,025	4,614	3,351	34,060
1989	79.6	5,047	63.40	83.45	332.2	1	42,788	3,454	3,863	35,471
1990	81.2	5,272	64.89	82.99	349.5	1	43,912	3,036	4,321	36,555
1991	83.4	5,463	65.50	91.14	349.5	1	45,149	3,540	4,173	37,436
1992	85.6	5,616	65.61	96.84	350.0	1	49,469	6,548	4,678	38,243
1993	87.6	5,649	64.49	103.15	350.0	1	47,523	5,407	4,778	37,338
1994	89.6	5,848	65.27	97.24	350.0	1	49,625	6,982	5,047	37,596
1995	91.1	5,442	59.74	59.96	350.0	1	43,007	4,716	3,703	34,588

Sources:Population;1980-89 from FONATUR-IDB study, page A4-13, 1990 and 1992 by INEGI data, 1994 Banco de Mexico "The Mexican Economy" ,1995, and 1991 and 1992 are calculated by JICA study team / GDP; Banco de Mexico above / Real exchange rate; Banco de Mexico above / Transport costs; FONATUR-IDB study above / Indicator; FONATUR-IDB study above

The results of the regression analysis are shown in Table A.2. 2

Table A.2. 2 The Results of the regression analysis of domestic visitors

	Total Demand		Border tourism		Outbound tourism	
Y(constant term)	0	0.035446	2.97834	0.238574	-20.1692	0.144943
R2(coefficient of determination)	0.985248		0.687319		0.810034	
X(regression coefficient)						
Population	1.024757	0.13994	1.120328	2.390093	3.400993	0.923632
GDP per capita	1.572997	0.269522	0.704853	2.573252	1.811106	3.14537
Real exchange rate	-0.04465	0.089295	-0.50193	2.539971	0.409042	0.468435
Transportation cost	-0.10083	0.105115	(not adopted)		0.756718	1.549216
Indicator of statistic effect	0.424082	0.038467	0.421414	0.273899	(not adopted)	

Note: The figures in ( ) mean standard errors.
Source: JICA study team

(3) Various indications by this study

In this study variable condition is only the past GDP growth rates, though the FONATUR-IDB study set alternatives based on the growth rate of GDP and changes of real exchange rate.

The GDP growth rates in the past were designated as shown in Table A.2. 3 and the indications are shown below:

Indication-1: The highest growth rate in the past as shown in Table A 3.

Indication-2: The middle growth rate shown in Table A 3.

Indication-3: The lowest growth rates in the past shown in Table A 3.

Table A.2. 3 GDP growth rates applied to the study

Year	GDP of Mexico (billion peso 1980 price)	5 years interval		10 years interval		15 years interval	
		Year	Average growth rate (%)	Year	Average growth rate (%)	Year	Average growth rate (%)
1975	3238						
1976	3376						
1977	3491						
1978	3780						
1979	4126						
1980	4470	80/75	6.66				
1981	4862	81/76	7.57				
1982	4832	82/77	6.72				
1983	4629	83/78	4.14				
1984	4796	84/79	3.06				
1985	4920	85/80	1.94	85/75	4.27		
1986	4736	86/81	-0.52	86/76	3.44		
1987	4824	87/82	-0.03	87/77	3.29		
1988	4884	88/83	1.08	88/78	2.60		
1989	5047	89/84	1.03	89/79	2.04		
1990	5272	90/85	1.39	90/80	1.66	90/75	3.30
1991	5463	91/86	2.90	91/81	1.17	91/76	3.26
1992	5616	92/87	3.09	92/82	1.51	92/77	3.22
1993	5649	93/88	2.95	93/83	2.01	93/78	2.71
1994	5848	94/89	2.99	94/84	2.00	94/79	2.35
1995	5442	95/90	0.64	95/85	1.01	95/80	1.32
Average			2.85		2.27		2.70

Source: Banco de México "The Mexican Economy 1995", IMF(1975-1979), INEGI(1980-1995)

(4) The result of forecast until 2010

The results of the analyses based on the above three indications are shown in Table A.2. 4

Table A.2. 4 Result of the estimation of domestic visitors

	Popu-lation	GDP		Real Exchange rate	Transpor-tation Cost	Indicator	Tourism (1000)			
	million	billion $ 1980 price	per capita 1000 $	1975=100	$ / vehicle		Total demand	Mexican Tourists in Border	Mexican Tourists in abroad	Mexican Tourists in Mexico (Hotel arrival)
high case		Increase rate (%)								
2000/1995		7.57								
2005/2001		4.27								
2010/2006		3.30								
1996	92.6	5,854	63.2	62.4	336.0	1	49,824	5,832	4,680	39,312
1997	94.0	6,297	67.0	63.6	322.6	1	55,579	6,180	5,522	43,877
1998	95.5	6,774	70.9	64.9	309.7	1	61,999	6,550	6,516	48,934
1999	97.1	7,287	75.1	66.2	297.3	1	69,160	6,941	7,688	54,531
2000	98.6	7,838	79.5	67.5	285.4	1	77,149	7,356	9,072	60,722
2001	99.9	8,173	81.8	68.8	264.0	1	82,386	7,795	10,070	64,520
2002	101.2	8,522	84.2	70.2	244.2	1	87,977	8,071	11,178	68,728
2003	102.5	8,886	86.7	71.6	225.9	1	93,949	8,358	12,408	73,183
2004	103.9	9,265	89.2	73.1	208.9	1	100,325	8,654	13,773	77,899
2005	105.2	9,661	91.8	74.5	193.3	1	107,134	8,961	15,288	82,886
2006	106.6	9,980	93.6	76.0	173.9	1	113,048	9,278	16,684	87,085
2007	108.0	10,309	95.5	77.5	156.5	1	119,288	9,544	18,209	91,535
2008	109.4	10,649	97.4	79.1	140.9	1	125,872	9,818	19,873	96,182
2009	110.8	11,001	99.3	80.7	126.8	1	132,820	10,099	21,689	101,033
2010	112.2	11,364	101.3	82.3	114.1	1	140,152	10,388	23,670	106,093
mid.case										
2000/1995		2.85								
2005/2001		2.27								
2010/2006		2.70								
1996	92.6	5,597	60.5	62.4	336.0	1	46,428	5,832	4,314	36,282
1997	94.0	5,757	61.2	63.6	322.6	1	48,262	5,988	4,694	37,580
1998	95.5	5,921	62.0	64.9	309.7	1	50,168	6,148	5,106	38,914
1999	97.1	6,089	62.7	66.2	297.3	1	52,149	6,313	5,555	40,282
2000	98.6	6,263	63.5	67.5	285.4	1	54,209	6,481	6,043	41,684
2001	99.9	6,405	64.1	68.8	264.0	1	56,151	6,655	6,477	43,020
2002	101.2	6,551	64.7	70.2	244.2	1	58,163	6,797	6,941	44,424
2003	102.5	6,699	65.3	71.6	225.9	1	60,247	6,943	7,439	45,865
2004	103.9	6,851	66.0	73.1	208.9	1	62,405	7,092	7,973	47,341
2005	105.2	7,007	66.6	74.5	193.3	1	64,641	7,243	8,545	48,853
2006	106.6	7,196	67.5	76.0	173.9	1	67,587	7,399	9,228	50,961
2007	108.0	7,390	68.5	77.5	156.5	1	70,668	7,579	9,965	53,123
2008	109.4	7,590	69.4	79.1	140.9	1	73,888	7,765	10,762	55,362
2009	110.8	7,795	70.4	80.7	126.8	1	77,256	7,954	11,622	57,679
2010	112.2	8,005	71.3	82.3	114.1	1	80,776	8,149	12,551	60,077
low case										
2000/1995		0.64								
2005/2001		1.01								
2010/2006		1.32								
1996	92.6	5,477	59.2	62.4	336.0	1	44,869	5,832	4,148	34,889
1997	94.0	5,512	58.6	63.6	322.6	1	45,074	5,897	4,338	34,839
1998	95.5	5,547	58.1	64.9	309.7	1	45,280	5,963	4,538	34,780

1999	97.1	5,583	57.5	66.2	297.3	1	45,487	6,029	4,746	34,712
2000	98.6	5,618	57.0	67.5	285.4	1	45,695	6,096	4,964	34,635
2001	99.9	5,675	56.8	68.8	264.0	1	46,419	6,164	5,202	35,052
2002	101.2	5,732	56.6	70.2	244.2	1	47,153	6,242	5,451	35,460
2003	102.5	5,790	56.5	71.6	225.9	1	47,900	6,320	5,713	35,867
2004	103.9	5,849	56.3	73.1	208.9	1	48,658	6,399	5,987	36,272
2005	105.2	5,908	56.2	74.5	193.3	1	49,428	6,479	6,274	36,675
2006	106.6	5,986	56.2	76.0	173.9	1	50,592	6,560	6,611	37,421
2007	108.0	6,065	56.2	77.5	156.5	1	51,784	6,657	6,967	38,161
2008	109.4	6,145	56.2	79.1	140.9	1	53,004	6,755	7,341	38,908
2009	110.8	6,226	56.2	80.7	126.8	1	54,253	6,854	7,736	39,662
2010	112.2	6,308	56.2	82.3	114.1	1	55,531	6,955	8,152	40,424

Source: JICA Study Team

The JICA study team recommended a target of hotel arrivals for the development framework, considering these results and the past average growth, as 70 million hotel arrivals in domestic tourism in 2010 (approximately 2.0 times larger than that of 1995) and 95 million demand of Mexicans' tourism.

A.2.1.2. Estimation of international visitors

For the forecast of the international visitors arrivals, the past trend analysis is basically applied but a method of the multi-regression analysis is also applied for the reference.

(1) Past trend method

A trend analysis method based on the past data (1985) of international tourist arrivals to Mexico was employed for making three forecasts.

Forecast-F1 (high case)

The past highest growth rate of each period was selected to estimate the number of international visitor arrivals to Mexico in each period.

Forecast-F2 (middle case)

The past medium (average) growth rate of each period was chosen to estimate the number of international visitor arrivals to Mexico in each period.

Forecast-F3 (low case)

The past lowest growth rate of each period was chosen to estimate the number of international visitor arrivals to Mexico in each period.

(2) Mexico multi-regression analysis method

As for reference an analysis with a multi-regression analysis is applied for the international visitor arrivals.

a. Basic point of view

The FONATUR-IDB study estimated the figures only considering the visitors from USA, and set alternatives based on the growth rate of disposable income.

However, the JICA study team tried to make analysis with a model taking other international market regions, in accordance with the objectives and strategies defined in the Tourism Sector Development Program 1995-2000 which aims at diversification of tourism supply and demand of Mexico. The market regions are set as follows:

- USA
- Pisano

- Canada
- Europe
- Latin America
- Asia
- Other areas
- Boarder tourism

b. Data and the result of the regression analysis

The FONATUR-IDB study used the explanatory variables as follows:

- Disposable Income per capita
- Transportation cost of airplane
- Indicator(Effect of the great earthquake in 1985)

The criteria used by the FONATUR-IDB study is the frequency of visiting Mexico per capita.

In this study the international tourist arrivals to Mexico for each market segment is used for the criteria. In that case it is necessary to consider the mental distance such as familiarity or unconsciousness of Mexico. Some parts of the residual, which is not explained sufficiently in the model, are assumed to be the area characteristics including mental distance in this study.

The data used in the study is shown in Table A.2. 5 and Table A.2. 6.

Table A.2. 5 Criteria variable used in the regression analysis of inernational visitors (unit: 1,000 arrivals)

	USA	Pisano	Canada	Europe	Latin America	Asia	Others	Sub-total	Boarder	Total
1980	2,947	496	170	241	254	30	7	4,144	8,821	12,965
1981	2,907	538	123	168	266	23	6	4,031	9,158	13,189
1982	2,728	513	86	173	242	22	5	3,768	8,866	12,634
1983	3,600	493	170	180	279	22	5	4,749	8,803	13,552
1984	2,864	1,071	188	214	290	23	6	4,654	7,992	12,646
1985	3,037	504	193	146	301	21	5	4,207	8,643	12,850
1986	3,363	532	247	149	318	13	3	4,625	7,633	12,258
1987	4,068	582	266	176	297	15	4	5,407	8,954	14,361
1988	4,072	945	313	112	225	21	5	5,692	8,448	14,140
1989	4,142	1,244	361	157	261	17	4	6,186	8,778	14,964
1990	4,144	1,454	294	189	277	29	7	6,393	10,779	17,172
1991	3,936	1,411	260	328	398	32	8	6,372	9,695	16,067
1992	3,764	1,556	276	362	363	26	7	6,352	10,794	17,146
1993	3,763	1,706	237	473	409	30	7	6,625	9,815	16,440
1994	4,190	1,835	213	412	439	37	9	7,135	10,047	17,182
1995	4,922	1,841	197	339	445	32	8	7,784	12,378	20,162

Source: JICA Study Team

Because it is difficult to get the disposable income of the whole areas, GDP per capita is used instead of it in this study. The same explanatory variables adopted for the model of domestic visitors are applied correspondingly as follows:

- Population
- Income(GDP per capita)
- Travel cost(Real exchange rate and transport operation cost)
- Indicator(Effect of the great earthquake in 1985)

It is also difficult to get the time series data of whole countries in each areas, the following countries are assumed to stand for each area.

- Europe: France
- Latin America: Argentina
- Asia: Korea

Other area is assumed to be a quarter of Asia.

The population of areas are calculated in proportion to the population of the representative country to that of countries excluding low development countries, where GDP per capita is less than 700 US$ in 1993. The ratios used in this study are as follows:

- France/Europe 0.13
- Argentina/Latin America 0.10
- Korea/Asia 0.09

GDP per capita is adjusted to the data of "World Development Report", 1992.

The real exchange rate used in this analysis is as same as that in domestic visitors analysis.

Transportation costs are calculated based on the economy air fare mentioned below to the time series change shown in the FONATUR-IDB study in 1992.

	US$
– USA	438 (average of Washington, Miami, Los Angers, New York, Houston and Chicago)
– Canada	411 (average of Toronto and Vancouver)
– Europe	935 (Paris)
– Latin America	1082 (Buenos Aires)
– Asia	1361 (Soul)

The indicator of earthquake effects is as same as the FONATUR-IDB study in 1992.

In order to estimate the regional factor including mental distance, the regression analysis had two steps. In the first step, the regression analysis was done without regional factor. After that, the regional factor was set considering the residual figures and the coefficient of determination in the first step. In the second step, the regression analysis was done with the regional factors.

Table A.2. 6 Data used in the regression analysis of international visitors

		Tourist 1,000	Population million	GDP per capita US$	Real Exchange 1980=100	Trans.Cost Factor	Earth Q.	Regional Factor*
USA	1984	2,864	225.8	19,595	97.2	2.9	0	0.99
	1985	3,037	227.5	20,035	100.9	2.8	1	0.99
	1986	3,363	229.2	20,432	69.2	2.8	1	0.99
	1987	4,068	230.9	20,873	63.6	2.7	0	1.03
	1988	4,072	232.6	21,497	77.4	2.7	0	1.03
	1989	4,142	234.4	21,839	83.5	2.7	0	1.03
	1990	4,144	236.4	21,790	83.1	2.7	0	1.03
	1991	3,936	238.6	21,305	91.2	2.7	0	1.03
	1992	3,764	240.8	21,766	96.9	2.7	0	1.03
	1993	3,763	243.0	22,209	103.2	2.6	0	0.92
	1994	4,190	244.9	22,890	96.9	2.5	0	0.92
	1995	4,922	246.9	23,593	96.9	2.5	0	0.92
Pisano	1984	1,071	10.5	15,075	97.2	2.9	0	-0.83
	1985	504	11.0	15,043	100.9	2.8	1	-0.83
	1986	532	11.5	15,393	69.2	2.8	1	-0.83
	1987	582	12.0	15,963	63.6	2.7	0	-0.49

	1988	945	12.5	16,426	77.4	2.7	0	-0.49
	1989	1,244	13.0	16,739	83.5	2.7	0	-0.49
	1990	1,454	13.5	16,296	83.1	2.7	0	-0.49
	1991	1,411	14.0	16,221	91.2	2.7	0	-0.49
	1992	1,556	14.6	16,152	96.9	2.7	0	-0.49
	1993	1,706	15.1	16,238	103.2	2.6	0	-0.13
	1994	1,835	15.7	16,760	96.9	2.5	0	-0.13
	1995	1,841	16.3	17,255	96.9	2.5	0	-0.13
Canada	1984	188	25.0	18,005	97.2	2.7	0	-2.13
	1985	193	25.2	18,728	100.9	2.6	1	-2.13
	1986	247	25.4	19,204	69.2	2.6	1	-2.13
	1987	266	25.6	19,812	63.6	2.5	0	-2.00
	1988	313	25.9	20,546	77.4	2.5	0	-2.00
	1989	361	26.2	20,784	83.5	2.5	0	-2.00
	1990	294	26.6	20,470	83.1	2.5	0	-2.00
	1991	260	28.1	19,003	91.2	2.5	0	-2.00
	1992	276	28.4	18,940	96.9	2.5	0	-2.00
	1993	237	28.9	19,019	103.2	2.5	0	-2.36
	1994	213	29.3	19,681	96.9	2.4	0	-2.36
	1995	213	29.6	20,365	96.9	2.4	0	-2.36
Europe	1984	214	343.4	16,871	97.2	6.2	0	-0.92
	1985	146	344.8	17,120	100.9	6.0	1	-0.92
	1986	149	346.2	17,481	69.2	6.0	1	-0.92
	1987	176	347.7	17,798	63.6	5.7	0	-0.99
	1988	112	349.3	18,515	77.4	5.8	0	-0.99
	1989	157	351.0	19,206	83.5	5.8	0	-0.99
	1990	189	354.6	19,490	83.1	5.7	0	-0.99
	1991	328	356.6	19,532	91.2	5.7	0	-0.99
	1992	362	358.4	19,692	96.9	5.7	0	-0.99
	1993	473	360.4	19,299	103.2	5.6	0	-0.38
	1994	412	361.2	19,768	96.9	5.4	0	-0.38
	1995	412	362.1	20,249	96.9	5.4	0	-0.38
Latin America	1984	290	373.5	2,727	97.2	7.1	0	2.05
	1985	301	379.0	2,510	100.9	6.9	1	2.05
	1986	318	384.6	2,654	69.2	6.9	1	2.05
	1987	297	390.3	2,684	63.6	6.6	0	1.93
	1988	225	395.9	2,596	77.4	6.7	0	1.93
	1989	261	401.4	2,401	83.5	6.7	0	1.93
	1990	277	406.9	2,370	83.1	6.6	0	1.93
	1991	398	412.1	2,548	91.2	6.6	0	1.93
	1992	363	417.1	2,735	96.9	6.6	0	1.93
	1993	409	420.9	2,875	103.2	6.5	0	2.00
	1994	439	427.3	3,033	96.9	6.3	0	2.00
	1995	439	433.7	3,199	96.9	6.3	0	2.00
Asia	1984	23	449.0	3,322	97.2	9.0	0	-0.84
	1985	21	453.4	3,517	100.9	8.7	1	-0.84
	1986	13	457.9	3,886	69.2	8.7	1	-0.84
	1987	15	462.4	4,291	63.6	8.3	0	-1.24
	1988	21	467.0	4,728	77.4	8.4	0	-1.24
	1989	17	471.7	4,980	83.5	8.4	0	-1.24
	1990	29	476.3	5,400	83.1	8.3	0	-1.24
	1991	32	480.8	5,839	91.2	8.3	0	-1.24
	1992	26	485.1	6,080	96.9	8.3	0	-1.24
	1993	30	489.6	6,371	103.2	8.2	0	-1.24
	1994	37	493.9	6,844	96.9	7.9	0	-1.24
	1995	37	498.3	7,352	96.9	7.9	0	-1.24

Border tourism	1984	7,992	45.7	19,595	97.2	2.9	0	1.64
	1985	8,643	46.7	20,035	100.9	2.8	1	1.64
	1986	7,633	47.7	20,432	69.2	2.8	1	1.64
	1987	8,954	48.7	20,873	63.6	2.7	0	1.58
	1988	8,448	49.8	21,497	77.4	2.7	0	1.58
	1989	8,778	50.8	21,839	83.5	2.7	0	1.58
	1990	10,779	51.9	21,790	83.1	2.7	0	1.58
	1991	9,695	52.9	21,305	91.2	2.7	0	1.58
	1992	10,794	53.8	21,766	96.9	2.7	0	1.58
	1993	9,815	54.8	22,209	103.2	2.6	0	1.54
	1994	10,047	55.7	22,890	96.9	2.5	0	1.54
	1995	12,378	56.8	23,593	96.9	2.5	0	1.54

Note: Regional factor is set after the first regression analysis without regional factor.
Source: JICA Study Team

The result of the regression analysis is shown in Table A.2. 7

Table A.2. 7 The result of the regression analysis of international visitors

Y (constant term)	-4.56208	0.177994
R2 (coefficient of determination)	0.991697	
X (regression coefficient)		
Population	-0.1977	0.030129
GDP per capita	1.177494	0.050046
Real exchange rate	0.48567	0.131216
Transportation cost	-0.99163	0.119624
Indicator of earthquake effect	-0.16669	0.052826
Indicator of regional	0.998724	0.018443

Source: JICA Study Team

c. The result of forecast until 2010

The forecasts of population and the growth rate of GDP are set as in Table A.2. 8 based on the World Bank "Global economic Prospect and Developing Countries", 1995.

Table A.2. 8 Increasing rate of population and GDP

	Market region Area	Increasing rate per annum (%)	Reference
Population	USA	0.9	average increasing rate from 1980 to 1994
	Canada	1.4	ditto
	Europe	0.3	average increasing rate of the former west Germany from 1980 to 1989
	Latin America	1.8	World Bank*
	Asia	1.4	ditto
GDP	USA	2.5	average increasing rate from 1980 to 1994
	Canada	2.5	ditto
	Europe	2.1	average increasing rate of the former west Germany from 1980 to 1989
	Latin America	3.5	World Bank**
	Asia	7.7	ditto

Source : *"World Development Report", 1990
** "Global Economic Prospects and Developing Countries", 1995

The real exchange rate is assumed to be improved from 1996 to 2010 as shown as Table A.2. 9.

The indicators of transportation cost for USA, Canada and Latin America are assumed to change until 1999, and after 2000 it is assumed to be as same as that of 1999 referred to the FONATUR-IDB study. Concerning Europe and Asia the indicators are assumed to decrease after 2000 because of the strategic promotion to attract tourists from these market segment as shown in the following table.

Table A.2. 9 Changes of the real exchange rate and the indicators of transportation cost

	Real exchange rate	Indications of Transportation cost				
		USA	Canada	Europe	Latin	Asia
		438	411	935	1,082	1,361
1995	60.0	2.5	2.3	5.2	6.1	7.6
1996	62.4	2.4	2.3	5.1	6.0	7.5
1997	63.6	2.3	2.2	5.0	5.7	7.2
1998	64.9	2.3	2.1	4.9	5.6	7.1
1999	66.2	2.3	2.1	4.7	5.4	6.8
2000	67.5	2.3	2.0	4.6	5.3	6.7
2001	68.8	2.3	2.0	4.4	5.3	6.3
2002	70.2	2.3	2.0	4.1	5.3	5.9
2003	71.6	2.3	2.0	3.9	5.3	5.5
2004	73.1	2.3	2.0	3.7	5.3	5.2
2005	74.5	2.3	2.0	3.5	5.3	4.9
2006	76.0	2.3	2.0	3.4	5.3	4.6
2007	77.5	2.3	2.0	3.2	5.3	4.3
2008	79.1	2.3	2.0	3.0	5.3	4.1
2009	80.7	2.3	2.0	2.9	5.3	3.8
2010	82.3	2.3	2.0	2.7	5.3	3.6

Source: JICA study team

The indicator of carthquake and the indicator of regional characteristics from 1996 to 2010 are assumed as same as that of 1994,

The calculation results are shown in Table A.2. 10

Table A.2. 10 Result of the estimation of international visitors

	USA	Pisano	Canada	Europe	Latin America	Asia	Others	Sub-total	Boarder	Total
1996	4,025	1,651	204	403	406	38	10	6,737	10,123	16,860
1997	4,384	1,778	220	439	444	45	11	7,321	11,009	18,330
1998	4,602	1,846	233	468	477	53	13	7,693	11,542	19,235
1999	4,831	1,917	252	510	524	63	16	8,113	12,101	20,213
2000	5,072	1,990	268	545	563	73	18	8,531	12,687	21,217
2001	5,325	2,067	279	601	594	89	22	8,977	13,301	22,278
2002	5,590	2,146	290	663	626	109	27	9,452	13,945	23,397
2003	5,869	2,229	302	731	661	132	33	9,957	14,621	24,578
2004	6,161	2,316	314	806	697	161	40	10,495	15,330	25,824
2005	6,468	2,405	326	889	735	196	49	11,068	16,073	27,141
2006	6,790	2,499	340	980	775	239	60	11,682	16,852	28,534
2007	7,129	2,596	353	1,081	817	290	73	12,339	17,670	30,008
2008	7,484	2,697	368	1,192	862	354	88	13,044	18,527	31,571
2009	7,857	2,802	382	1,314	909	430	108	13,802	19,426	33,228
2010	8,249	2,911	398	1,449	958	524	131	14,620	20,369	34,989

Source: JICA study team

A.2.2. Method of distributing visitors to the six destinations

A.2.2.1. Distribution model of domestic visitors

The work flow to estimate the demand and distribution is shown in Figure A.2. 1.

In order to forecast the visitor hotel arrivals of the selected destinations, a macro approach is applied to distribute the forecast domestic hotel arrivals in the national level to each state for avoiding discrepancies between the national and destination levels.

For the distribution, two models are adopted as follows:

Model-1 analysis:

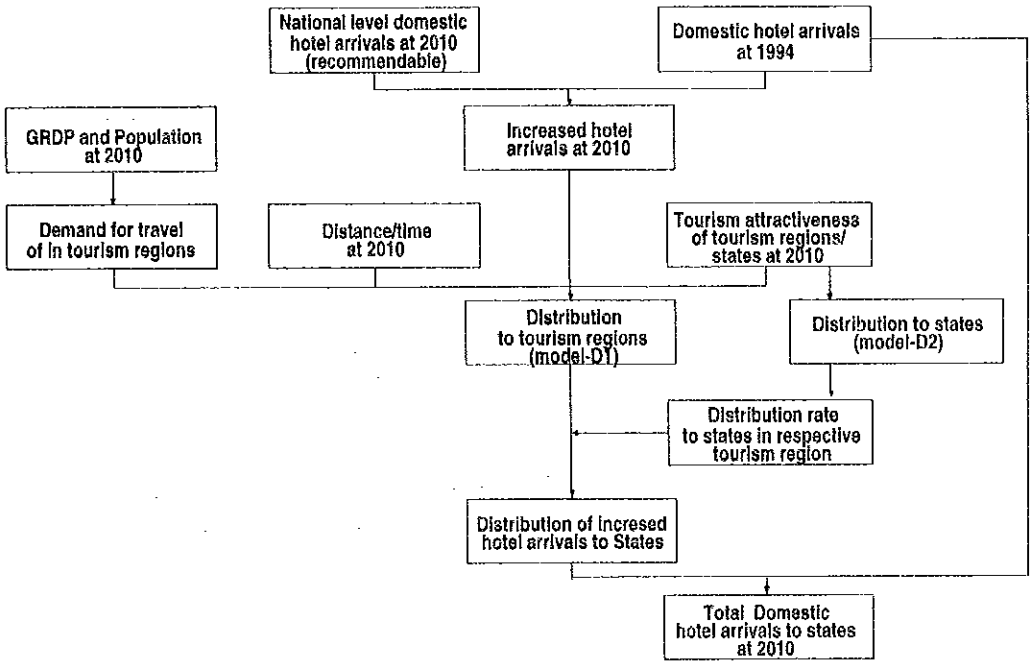
This is a main analysis of the study with various components such as domestic visitor demand from GDP and population, tourism demand from tourism attractiveness of each state, constraints as transportation distance and time. This is an indirect method to distribute the national level hotel arrivals through 10 tourism regions which are applied in the FONATUR-IDB study, because the OD (origins/destinations) data of visitors by the states or destinations are not available. Therefore, two step analyses are applied; 1st. step: distribution to the tourism region and 2nd step: redistribution to each state with the tourism region.

Model-2 analysis:

This is a direct analysis of the distribution of hotel arrivals to each state, but only based on the tourism attractiveness; increased attractiveness of the each state in 2010 from 1992, for estimates proportions of hotel arrivals to each states in the tourism regions.

The distribution is made to the increased portion of the domestic hotel arrivals at 2010 in the national level forecast, then added the existing arrivals (in 1994) as the total of each states at 2010.

Figure A.2. 1 Work flow of distribution of domestic visitors



Source: JICA study team

(2) Basic point of view

The FONATUR-IDB study explained the demand of domestic visitors in areas using the time series data in the same way adopted for estimation of total demand in Mexico. The time series data of each origin area has not be gathered, the cross section analysis is adopted to estimate regression coefficients.

$$Tdi=POBik1 \times PIBPCik2$$

After calculating origin demand of visitors, the gravity model was used to explain OD(origin-distribution) of visitors in the same way of the FONATUR-IDB study.

$$Td_{ij}=k_0 \times Td_i \times \left(\frac{ATR_j^{k1} \times DIST_{ij}^{k2}}{f^{\circ} ATR_j^{k1} \times DIST_{ij}^{k2}} \right)$$

In order to distribute the domestic visitors to states, the tourist attractiveness is used for explanatory variables.

$$TD_j=K_0 \times An_j^{k1} \times Ac_j^{k2} \times Aa_j^{k3} \times AF_j^{k4}$$

j: Distribution area

TDj: Visitors to j area

ANj: Natural attractiveness in j area

ACj: Cultural attractiveness in j area

AAj: Attraction attractiveness in j area

AFj: Facilities attractiveness in j area

(3) Data and the result of the regression analysis

The data shown in the FONATUR-IDB study have inaccuracy, therefore only the portions are used in this study as shown in Table A.2. 11.

Table A.2. 11 The OD used in this study in 1992

	Distribution										
Origin	California	Noroeste	Norte	Noreste	N.Centro	C.Pacifico	Centro	C.Golfo	P.Sur	Sureste	Total
California	4.9	10.9	3.2	2.5	11.2	30.4	36.1	0.0	0.4	0.4	100.0
Noroeste	21.9	8.9	3.3	6.3	0.3	19.1	40.2	0.0	0.0	0.0	100.0
Norte	19.3	12.0	0.0	18.2	0.0	6.5	44.0	0.0	0.0	0.0	100.0
Noreste	3.5	4.5	3.2	3.9	0.0	11.4	71.3	1.6	0.0	0.6	100.0
N.Centro	49.9	0.7	0.0	0.0	0.0	0.0	49.4	0.0	0.0	0.0	100.0
C.Pacifico	27.7	9.9	1.0	7.3	2.1	24.1	21.6	0.0	5.0	1.3	100.0
Centro	8.0	5.0	1.8	14.4	2.1	21.8	0.0	5.8	19.9	21.2	100.0
C.Golfo*	0.0	0.0	0.0	4.2	0.0	0.0	80.4	10.7	0.0	4.7	100.0
P.Sur	0.5	0.0	0.0	0.0	0.0	5.0	92.1	0.0	1.0	1.4	100.0
Sureste	0.4	0.0	0.0	0.6	0.0	1.2	68.9	1.4	1.4	26.2	100.0

Source : JICA study team

Table A.2. 12 Data and estimation result (Demand of tour)

	1992			2010			
	Population	GRDP	Demand	Population	GRDP	Demand	
1 California	2,260	163.9	860	5,714	272.0	2,333	765
2 Noroeste	4,208	255.4	1,606	5,760	325.7	3,317	1,429
3 Norte	5,938	396.1	2,615	7,311	596.6	8,624	2,328
4 Noreste	5,688	461.1	3,477	8,764	561.8	6,295	3,094
5 N.Centro	4,169	197.8	995	5,596	332.7	3,570	885
6 C.Pacifico	10,747	528.0	4,121	16,548	608.8	3,738	3,668
7 Centro	32,703	2,191.3	24,160	48,197	2,428.2	18,922	21,502
8 C.Golfo	6,405	274.1	1,725	7,786	258.2	1,509	1,535
9 P.Sur	5,940	180.6	875	8,528	218.6	981	779
10 Sureste	7,569	294.0	2,487	12,135	527.3	3,911	2,214
Total	85,628	4,942.1	42,921	126,337	6,129.9	53,199	38,200

Source : JICA study team

The result of regression analysis shows low correlation as shown in Table A.2. 12. Therefore the adjustment ratio is adopted to get the estimation based on the gap in 1994 between the figures from the regression model and the statistic data on the domestic visitors.

Table A.2. 13 Result of regression analysis (OD)

	Calculated constant term	Zero constant term
Y(constant term)	-0.040651 (1.3587601)	0 (1.3481112)
R2(coefficient of determination)	0.2253781	0.2253686
X(regression coefficient)		
Attractiveness	1.149435 (0.3323273)	1.1402744 (0.0376487)
Distance	-0.40007 (0.1454315)	-0.39979 (0.1439427)

Source: JICA study team

(4) The basic date applied and results to the distribution until 2010

a. Basic data applied for the analysis

The basic data are shown in Table A.2. 14 and Table A.2. 15 below:

Table A.2. 14 Time distance in 1994 and 2010

T. Regions	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	
(1) California		45.0	46.5	55.5	57.0	52.0	59.0	65.5	64.0	84.0	▲
(2) Noroeste	● 44.2		16.0	10.5	12.0	7.0	14.0	20.5	19.0	39.0	
(3) Norte	● 41.9	● 14.5		19.5	16.0	18.5	21.0	27.5	26.0	46.0	
(4) Noreste	● 53.1	● 9.7	19.5		3.5	3.5	4.5	11.0	9.5	29.5	
(5) N.Centro	● 54.7	● 10.5	16.0	● 2.8		5.0	5.0	11.5	10.0	30.0	1994
(6) C.Pacifico	● 50.4	● 6.2	18.5	3.5	● 4.3		7.0	13.5	12.0	32.0	
(7) Centro	● 57.4	● 13.2	21.0	4.5	● 4.8	7.0		6.5	5.0	25.0	
(8) C.Golfo	● 63.9	● 19.7	27.5	11.0	● 11.3	13.5	6.5		11.5	20.0	
(9) P.Sur	● 62.4	● 18.2	26.0	9.5	● 9.8	12.0	5.0	11.3		30.0	
(10) Sureste	● 78.2	● 34.0	46.0	● 25.3	● 25.6	● 25.6	● 25.6	● 25.6	● 25.6		▼
	◀				2010					▶	(hrs.)

Note: The figures with black dots are the OD of which time distance in 1994 were estimated as changed in 2010.

Source: JICA study team

In the Table A.2. 14, the time distance are estimated with the centered point of each region as follows:

- Region (1) California: La Paz
- Region (2) Noroeste: Mazatlan
- Region (3) Norte: Chihuahua
- Region (4) Noreste: Leon
- Region (5) Norte Centro: San Luis Potosi
- Region (6) Centro Pacifico:Guadalajara
- Region (7) Centro: C.D. Mexico
- Region (8) Centro Golfo: Veracruz
- Region (9) Pacifico Sur: Acapulco
- Region (10) Sureste: Cancun

Table A.2. 15 Tourism attractiveness used in this study

State	Attractiveness in 1992 by the FONATUR-IDB study				Attractiveness in 2010			
	Natural resources	Cultural resources	Tourism attractions	Tourism facilities	Natural resources	Cultural resources	Tourism attractions	Tourism facilities
B.California	23	9	18	16	25	10	19	17
B.C.Sur	9	2	11	17	18	4	22	34
Sonora	9	11	22	21	10	12	24	23
Sinaloa	7	4	4	15	12	7	7	25
Chihuahua	8	17	11	6	14	29	19	10
Coahuila	10	6	8	7	12	7	9	8
Durango	7	10	9	3	8	12	11	4
N.Leon	8	19	26	6	9	21	28	7
Tamaulipas	10	13	17	15	12	15	20	18
Zacatecas	10	8	6	4	14	11	8	5
Aguascalientes	3	7	0	6	4	9	0	8
S.Luis Potosi	6	5	3	10	9	7	4	14
Nayarit	8	6	3	8	14	11	5	14
Jalisco	15	11	12	32	24	17	19	50
Colima	6	8	1	14	8	11	1	19
Michoacan	9	14	3	10	12	18	4	13
Guanajuato	6	13	2	7	8	18	3	10
Queretaro	3	11	6	11	4	15	8	15
Hidalgo	9	12	5	2	11	14	6	2
Mexico	16	15	17	8	17	16	19	9
D.Federal	8	58	3	20	8	61	3	21
Morelos	11	14	16	7	12	15	18	8
Tlaxcala	5	7	1	3	7	9	1	4
Puebla	2	12	1	10	3	17	1	14
Veracrus	15	9	7	15	18	11	9	18
Guerrero	26	17	10	39	32	21	12	47
Oaxaca	14	34	14	11	20	48	20	16
Tabasco	9	9	0	4	13	13	0	6
Chiapas	29	31	27	5	38	41	36	7
Campeche	8	10	6	8	11	13	8	11
Yucatan	24	11	0	6	30	14	0	7
Q.Roo	13	7	37	37	16	8	45	45
Total	346	420	306	383	449	534	389	508

Note: - Natural resources: Beach, Marine and land fauna, Mountain and cave, Scenery, Park
- Cultural resources: Civil and religious architecture, Artisan, Folklore, Cave painting, Archeological and historical site,
- Tourist attractions: Bathing, Diving, Fishing, Navigation, Camping, Hunting
- Tourist faciliti es: Airport, Marina, Convention center, Golf course, Tourist hotel, Special hotel

Source: The FONATUR-IDB study, JICA Study Team

b. Results of distribution to the 10 tourism regions

The results of 1st. step analysis with Model-1; distribution to each tourism region are shown in Table A.2. 16.

Table A.2. 16 Data and Estimation Result(Domestic Visitors)

	Result of model	adjust ratio	Estimation result

California	912	0.995	907
Noroeste	1,569	1.416	2,223
Norte	2,909	1.066	3,101
Noreste	2,449	0.716	1,754
Norte Centro	1,496	1.050	1,571
Centro Pacifico	3,459	1.589	5,496
Centro	11,212	0.743	8,333
Centro Golfo	527	6.117	3,223
Pacific Sur	2,816	0.992	2,795
Sureste	4,164	0.567	2,361
Total	31,514		31,764

Source : JICA Study Team

The improvement of attractiveness and transportation network increase the visitors to Centro, Sureste and Noreste.

(5) The result of distribution to states

Table A.2. 17 shows the results of the distribution to each state combining the results of the analyses of Model-D1 and Model-D2.

Column (1); the data of SECTUR but hotel arrivals in the main 47 destinations,

Column (2); the adjusted to the total hotel arrivals with proportion of the main destinations shown in the column (1),

Column (3); the results by Model-D1 analysis, but total of 2010, already adding the 1994 figures,

Column (4); the results by Model-D2 analysis, but total of 2010, already adding the 1994 figures,

Column (5); the redistribution results of the column (3) with proportion of the column (4).

Table A.2. 17 The Distribution Result of Domestic Visitors

State	1994		2010				
	Arranged (A)	Area	Direct Estimation (B)	Increasing rate(%) (B/A)	Area Estimation	Distribu-tion (C)	Increasing rate(%) (C/A)
B.California	1,474	1,728	2,553	3.5	2,771	2,038	2.0
B.C.Sur	253		1,172	10.0		733	6.9
Sonora	965	2,188	2,258	5.5	4,743	2,436	6.0
Sinaloa	1,223		2,176	3.7		2,307	4.0
Chihuahua	1,371	2,635	2,843	4.7	6,199	3,391	5.8
Coahuila	630		1,227	4.3		1,449	5.3
Durango	633		1,163	3.9		1,360	4.9
N.Leon	940	2,031	1,926	4.6	4,047	1,797	4.1
Tamaulipas	1,091		2,424	5.1		2,250	4.6
Zacatecas	498	1,376	1,129	5.2	3,181	1,103	5.1
Aguascalientes	307		827	6.4		806	6.2
S.Luis Potosi	570		1,302	5.3		1,272	5.1
Nayarit	353	5,839	1,316	8.6	12,156	1,466	9.3
Jalisco	3,247		5,611	3.5		5,979	3.9
Colima	447		1,430	7.5		1,583	8.2
Michoacan	1,792		2,948	3.2		3,128	3.5
Guanajuato	1,096	9,188	2,064	4.0	18,766	2,173	4.4
Queretaro	520		1,581	7.2		1,700	7.7

Hidalgo	747		1,231	3.2		1,285	3.4
Mexico	1,034		2,055	4.4		2,170	4.7
D.Federal	3,831		6,530	3.4		6,834	3.7
Morelos	874		1,790	4.6		1,894	5.0
Tlaxcala	218		659	7.1		708	7.6
Puebla	869		1,887	5.0		2,002	5.4
Veracrus	3,359	3,359	4,477	1.8	7,064	7,064	4.8
Guerrero	2,030	2,740	4,562	5.2	5,952	3,691	3.8
Oaxaca	710		3,073	9.6		2,261	7.5
Tabasco	433	2,406	1,023	5.5	5,120	731	3.3
Chiapas	553		2,144	8.8		1,356	5.8
Campeche	362		1,284	8.2		827	5.3
Yucatan	403		1,115	6.6		762	4.1
Q.Roo	656		2,219	7.9		1,445	5.1
Total	33,489	33,489	70,000	4.7	70,000	70,000	4.7

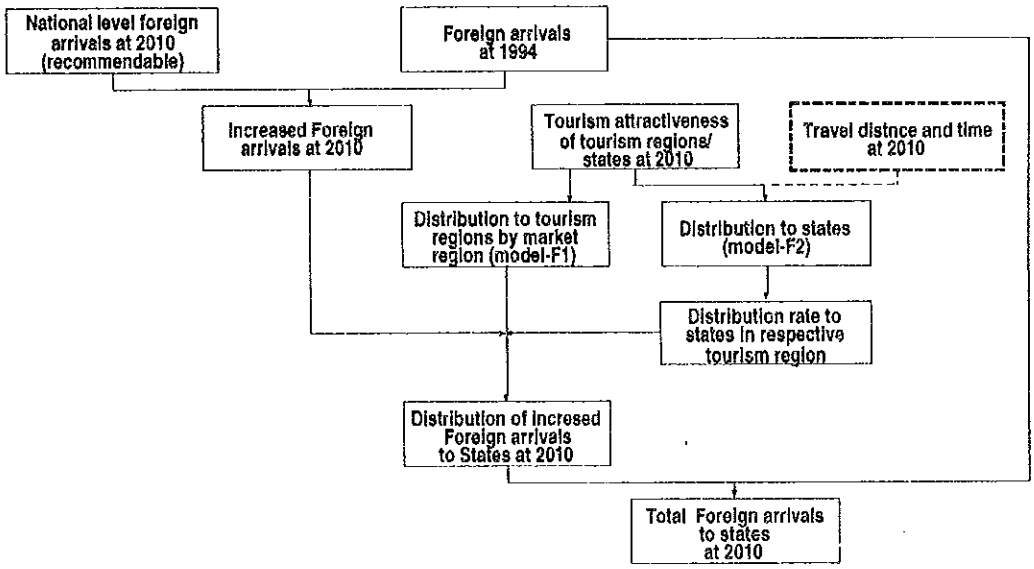
Source : JICA Study Team

A.2.2.2. Distribution model of international visitors

(1) Basic point of view

The work flow to estimate the demand and distribution is shown in Figure A.2. 2.

Figure A.2. 2 Work flow of distribution of international visitors



Source: JICA study team

The FONATUR-IDB study tried to explain the figures by a gravity model in the way that divide USA into four areas. The data of OD seems a little confused to be same from the above four areas, therefore in this study the method to estimate was changed only using the visitor attractiveness as follows:

$TD_{ij}=K^0\times An_j^{k1}\times Ac_j^{k2}\times Aa_j^{k3}\times AF_j^{k4}$

i: marketing region

j: Distribution areas

TDij: Visitors from i region to j area

ANj: Natural attractiveness in j area

ACj: Cultural attractiveness in j area

AAj: Attraction attractiveness in j area

AFj: Facilities attractiveness in j area

The regression coefficients are calculated for each market region. The value of visitor attractiveness are same as those of domestic analysis. Though it is necessary to classify the resources according to the level for international, domestic and local, no consistent data are available.

Concerning the criteria variable, the result of questionnaire survey conducted by SECTUR is adopted.

(2) Data and the result of the regression analysis

The basic data for regression analysis is shown in Table A.2. 18.

Table A.2. 18 Bed-nights of international visitors by market region and attractiveness of areas

	Region	South bound (1,000)	North bound (1,000)	West bound (1,000)	East bound (1,000)	Total bed-nights (1,000)	Attractive - ness (Total poits)
1	CALIFORNIA	1,919	23	29	5	1,976	176
2	NOROESTE	475	26	32	2	535	0
3	NORTE	517	17	53	5	592	105
4	NORESTE	371	120	25	10	526	450
5	N. CENTRO	254	78	26	18	376	83
6	C.PACIFICO	5,577	435	231	10	6,253	1485
7	CENTRO	8,550	1,715	1,126	169	11,560	8631
8	C.GOLFO	472	18	60	9	559	403
9	P. SUR	4,638	192	439	22	5,291	1342
10	SURESTE	2,246	2,246	2,246	2,246	8,984	2246
	Total	25,019	4,870	4,267	2,496	36,652	14,921

Source : JICA study team

The calculated regression coefficients are showing in Table A.2. 19.

Table A.2. 19 The result of regression analysis of distribution model F1 and F2

		Macro Zone (Model-F1)	State (Model-F2)
South Bound	Y(constant term)	0 (0.6496665)	0 (1.6444848)
	R^2(coefficient of determination)	0.829557159	0.389303563
	X(regression coeficient)		
	Natural Attractiveness	0.94106242 (0.7454921)	0.372677175 (0.4819247)
	Cultural Attractiveness	0.095485798 (0.4173871)	0.554702332 (0.4058389)
	Attraction Attractiveness	-0.40914511 (0.4205033)	-0.17186474 (0.1449595)
	Facility Attractiveness	1.413016479 (0.5878306)	1.582454023 (0.3324352)
North Bound	Y(constant term)	0 (1.1779646)	0 (0.3819175)
	R^2(coeffic 0.74549	0.724367448	0.389303563
	X(regression coeficient)		
	Natural Attractiveness	0.145158961 (1.3517141)	0.372677175 (0.4819247)
	Cultural Attractiveness	1.451228761 (0.7567994)	0.554702332 (0.4058389)
	Attraction Attractiveness	-0.50787161 (0.7624496)	-0.17186474 (0.1449595)
	Facility Attractiveness	0.305535157 (1.0658449)	1.582454023 (0.3819175)
West Bound	Y(constant term)	0 (1.0181425)	0 (1.270332)
	R^2(coefficient of determination)	0.755246425	0.491831466
	X(regression coeficient)		
	Natural Attractiveness	1.536929215 (1.1683183)	-0.8368718 (0.3775345)
	Cultural Attractiveness	0.906842009 (0.6541196)	0.90458223 (0.3129520)
	Attraction Attractiveness	-0.76602712 (0.6590032)	-0.0495729 (0.1117326)
	Facility Attractiveness	-0.27958277 (0.9212348)	1.304893803 (0.3168614)
East Bound	Y(constant term)	0 (1.6682274)	0 (1.5291659)
	R^2(coefficient of determination)	0.555802776	0.310411697
	X(regression coeficient)		
	Natural Attractiveness	2.726029218 (1.914290)	0.015423082 (0.4498766)
	Cultural Attractiveness	0.876613123 (1.0717755)	0.702536824 (0.3701401)
	Attraction Attractiveness	-0.52059851 (1.0797773)	-0.0495154 (0.1348027)
	Facility Attractiveness	-2.13290868 (1.5094441)	0.802372694 (0.3588422)

Source ; JICA study team

(3) The result of forecast until 2010

The area of Sureste keeps the biggest attractive area in 2010 as shown in Table A.2. 20 because a large number of visitors come from USA and Canada.

Table A.2. 20 International visitor arrivals in 2010 by bound

Result (1) International visitors (Receptivo) unit: 1,000

	South B.	North B.	West Bound	East Bound	Sub-total	Pisano	Boarder	Total
CALIFORNIA	1,354	21	76	15	1,467	47	9,337	10,851
NOROESTE	403	19	25	2	449	0	666	1,115
NORTE	191	52	112	75	430	12	1,823	2,264
NORESTE	135	33	37	12	217	24	2,978	3,218
N. CENTRO	80	11	26	7	123	24	0	147
C.PACIFICO	674	35	57	4	770	236	0	1,006
CENTRO	1,007	183	233	35	1,458	1,348	0	2,806
C.GOLFO	118	10	34	11	174	83	0	257
P. SUR	526	53	96	14	689	213	0	902
SURESTE	1,919	114	346	114	2,493	130	3	2,626
Total	6,408	531	1,041	290	8,270	2,116	14,807	25,192

Conversion rate	1.14	1.67	2.94	2.71		0.48	0.05	

Result (2) International visitors (Hotel Arrival)

	South B.	North B.	West Bound	East Bound	Sub-total	Pisano	Boarder	Total
CALIFORNIA	1,543	36	225	41	1,845	23	467	2,334
NOROESTE	460	32	72	6	570	0	33	603
NORTE	217	87	329	204	837	6	91	934
NORESTE	154	54	108	33	350	11	149	510
N. CENTRO	91	18	77	18	204	11	0	215
C.PACIFICO	769	58	167	11	1,005	113	0	1,118
CENTRO	1,148	306	684	95	2,233	647	0	2,880
C.GOLFO	135	17	101	31	283	40	0	323
P. SUR	600	88	282	39	1,009	102	0	1,111
SURESTE	2,188	190	1,018	309	3,705	62	0	3,768
Total	7,305	886	3,061	786	12,039	1,016	740	13,795

Source : JICA Study Team

The result of regression analysis of Model-F2 is not so good, therefore in order to distribute the domestic visitors to states, the tourism attractiveness is used for explanatory variables.

$TD_j=K^0\times An_j^{k1}\times Ac_j^{k2}\times Aa_j^{k3}\times AF_j^{k4}$

j: Distribution area

TDj: Visitors to j area

ANj: Natural attractiveness in j area

ACj: Cultural attractiveness in j area

AAj: Attraction attractiveness in j area

AFj: Facilities attractiveness in j area

(4) The result of distribution to states

The result of distribution of visitors in area to states are summarized in Table A.2. 21.

Table A.2. 21 The distribution result of international visitors

	1994 Arranged	Area	Direct Estimation	Increasing rate(%)	2010 Area Estimation		Increasing rate(%)
	(A)		(B)	(B/A)	Distribution (C)		(C/A)
B.California	755	1,157	1,849	6	6,163	2,726	8.4
B.C.Sur	402		2,086	11		3,437	14.3
Sonora	148	410	882	12	1,942	852	11.6
Sinaloa	262		1,125	10		1,090	9.3
Chihuahua	197	278	634	8	1,745	1,141	11.6
Coahuila	66		257	9		477	13.1
Durango	15		67	10		127	14.4
N.Leon	158	237	301	4	977	288	3.8
Tamaulipas	79		752	15		690	14.5
Zacatecas	27	95	170	12	516	138	10.9
Aguascalientes	14		97	13		79	11.4
S.Luis Potosi	55		366	13		299	11.2
Nayarit	108	881	672	12	3,509	329	7.2
Jalisco	630		5,822	15		2,664	9.4
Colima	52		552	16		248	10.2

Michoacan	91		545	12		269	7.0
Guanajuato	85	1,547	310	8	6,523	593	12.9
Queretaro	13		211	19		460	25.2
Hidalgo	14		54	9		105	13.6
Mexico	77		447	12		911	16.7
D.Federal	1,252		2,202	4		3,394	6.4
Morelos	47		273	12		557	16.7
Tlaxcala	2		51	22		111	28.4
Puebla	58		207	8		393	12.7
Veracrus	168	168	1,121	13	762	762	9.9
Guerrero	476	669	7,060	18	3,021	2,466	10.8
Oaxaca	193		1,390	13		555	6.8
Tabasco	33	2,331	207	12	10,841	388	16.7
Chiapas	175		823	10		1,498	14.4
Campeche	61		354	12		658	16.0
Yucatan	271		777	7		1,306	10.3
Q.Roo	1,792		4,338	6		6,991	8.9
Total	7,774	7,774	36,000	10	36,000	36,000	10.1

Source : JICA Study Team

Appendix -2:

A.3. General conditions of Mexican tourism

A.3. General conditions of the Mexican tourism

A.3.1. Past visitor inflow to each state and major tourism destinations

In this section characteristics of the visitor in-flow to the major tourist destinations is shown being analyzed from various aspects. The characteristics are described in 1994 in principle. The visitor in-flow is based on the number of guests visited to hotels in each destination.

(1) Classification of tourism destinations

Forty seven numbers of major tourism destinations are designated by SECTUR. And they are classified six categories in their types, and ten regions in their location. Each state has 1to 3 numbers of destinations. (See Table A.3. 1)

Table A.3. 1 Forty seven destinations, ten regions, and six categories

	States	Region	Coastal areas		Inland areas				Total
			(1) IPC*	(2) Tradisional centers	(3) Big cities	(4) Other tourist centers	(5) North border cities	(6) Others	
1	Baja California	I					Tijuana Mexicali		2
2	Baja California Sur	I	Loreto **Los Cabos**	La Paz					3
3	Sonora	II				Hermosillo		Guaymas	2
4	Sinaloa	II		**Mazatlan**					1
5	Chihuahua	III					Ciudad Juarez		1
6	Coahuila	III				Saltillo			1
7	Durango	III				Durango			1
8	Nuevo Léon	IV			Monterrey				1
9	Tamaulipas	IV					Nuevo Laredo Reynosa	Matamoros	3
10	Zacatecas	V				Zacatecas			1
11	Aguascalientes	V				Aguascalientes			1
12	San Luis Potosí	V				San Luis Potosi			1
13	Nayarit	VI				Tepic			1
14	Jalisco	VI		Puerto Vallarta	Guadarajara				2
15	Colima	VI		Manzanillo					1
16	Michoacán	VI				Morelia			1
17	Guanajuato	VII				Guanajuato			1
18	Querétaro	VII				Queretaro		San Juan del Rio Tequisquiapan	3
19	Hidalgo	VII						Pachuca	1
20	México	VII						Toluca	1
21	Distrito Federal	VII			Distrito Federal				1
22	Morelos	VII				Cuernavaca		Cuautla V.M. del Morelos	3
23	Tlaxcala	VII						Tlaxcala	1
24	Puebla	VII				Puebla			1
25	Veracruz	VIII		Veracruz					1
26	Guerrero	IX	Ixtapa	**Acapulco**		Taxco			3
27	Oaxaca	IX	**Huatulco**			Oaxaca			2
28	Tabasco	X				Villahermosa			1
29	Chiapas	X				Tuxtla Gutierrez			1
30	Campeche	X						Campeche	1
31	Yucatán	X				Merida			1
32	Quintana Roo	X	**Cancun**	Cozumel					2
	No. of destinations		5	7	3	17	5	10	47

Note: Bold indicates JICA study areas
IPC= Integrated Planned Centers
22 V,M.del Morelos is a group of tourism destinations, not a destination.

Source: SECTUR data, compiled by JICA study team

They are broadly divided into the coastal and inland destinations.

Coastal destinations

The former is classified as;

1) IPC; Integrated Planned Centers (Centros Integralmente Planeados; CIP) of 5 beach resorts areas represented by Cancun and
2) the Traditional Centers of 7 beach resorts like Acapulco.

Inland destinations

The latter is classified into 4 types;

1) three Big Cities of District Federal, Guadalajara and Monterrey,
2) seventeen tourism cities (most of which have selected as the colonial cities),
3) five cities in the northern border area such as Tijuana, Ciudad Juarez, and
4) others with 10 cities.

Profile of coastal tourism destinations

Table A.3. 2 summarizes the profile of the twelve main coastal tourism destinations in Mexico.

The coastal tourist destinations are composed of the 5 Integrated Planned Centers, such as Cancun, which were developed by FONATUR, since 1970, and the 7 traditional beach centers, represented by Acapulco.

In 1995, these coastal tourist centers, together, received a tourist inflow of 30.7 millions persons; 15.2 in the Integrated Planned Centers, and 15.5 millions in the traditional beach centers. The proportion between domestic and foreign tourists is 35 : 65, for Integrated Planned Centers, and of 62 : 38 for traditional beach centers.

Table A.3. 2 Profile of coastal destinations (12 beach centers)

Destinations	Location	No. of night-stay visitors***			% of visitors by planes*			Average stay-nights**			No.of hotel rooms*	Hotel room occupancy**	Catch phrase
		Total no. (1,000 persons)	Domes. (%)	Inter'nl (%)	Domes. (%)	Inter'nl. (%)	Charter (%)	Domes. (nights)	Inter'nl (nights)	Ave. (nights)	(rooms)	(%)	
(A) Integrated planned centers													
1 Loreto	Cortes Sea	69.8	30	70	23	77	0	1.7	2.8	2.5	232	26.6	
2 Los Cabos	Cortes Sea	1,673.3	11	89	13	65	22	3.6	3.9	3.8	3,663	49.5	Cabo san Lucas - San Jose del Cabo
3 Ixtapa	Pacific Ocean	1,466.4	52	48	71	4	25	3.7	6.1	4.4	4,136	45.7	
4 Huatulco	Pacific Ocean	703.0	64	36	63	16	21	3.6	5.6	4.0	1,766	53.4	
5 Cancun	Caribbean Sea	11,275.3	20	80	23	29	48	4.1	5.6	5.2	18,859	68.0	The Caribean Island of Legendary Pleasures
(B) Traditional beach centers													
1 La Paz	Cortes Sea	394.3	72	28	99.5	0.2	0.3	2.3	2.6	2.4	1,402	50.6	
2 Mazatlan	Cortes Sea	2,221.3	60	40	59	24	17	3.2	5.3	3.7	7,992	51.9	Get It All Together
3 Puerto Vallarta	Pacific Ocean	3,572.7	39	61	33	33	34	3.3	5.5	4.1	8,855	50.1	Where Mexico Comes to Life
4 Manzanillo	Pacific Ocean	1,016.9	81	19	67	0	33	3.4	5.7	3.7	2,912	49.7	
5 Acapulco	Pacific Ocean	5,215.6	69	31	75	16	9	3.4	5.8	3.9	17,647	45.6	The Difference Is Night and Day
6 Veracruz	Mexican Gulf	1,649.0	96	4	93	5	2	1.9	2.6	1.9	4,186	50.8	
7 Cozumel	Caribbean Sea	1,432.3	14	86	46	24	30	2.8	5.1	4.5	3,350	50.6	
Total/ave. (A)		15,207.8	35	65	29	30	41				28,656		
Total/ave. (B)		15,502.1	62	38	60	21	19				46,344		
Total/ave. (A)+(B)		30,709.9	51	49	48	19	33				75,000		

Note: Shadow marks indicates JICA study areas

Sources: *=1994p base, SECTUR data, **=1992, FONATUR-IBD report; p.VI-5/6, ***=1995, SECTUR data

(2) Visitor in-flow by major tourism destinations

Table A.3. 3 shows the visitor in-flow (visitor arrivals) to forty seven major tourism destinations from 1975 to 1995 by domestic and international visitors.

Table A.3. 3 Tourist in-flow to main tourist destinations

(unit: 1,000 persons)

				Domestic visitors					International visitors					Total visitors				
	Destinations	State	Type	1975	1980	1985	1990	1995	1975	1980	1985	1990	1995	1975	1980	1985	1990	1995
1	Tijuana	1	E	643.8	784.6	863.0	1,080.9	631.5	179.5	218.2	205.0	315.2	178.7	823.3	1,002.8	1,068.0	1,396.1	810.2
2	Mexicali	1	E			146.7	n.d.	n.d.			28.8	38.3	n.d			175.5	38.3	n.d.
3	Loreto	2	A		281.0	16.6	12.0	12.4		10.6	28.4	26.1	23.5		21.4	45.0	38.1	35.9
4	La Paz	2	B		202.9	206.0	179.0	147.8		47.6	38.9	45.9	50.3		250.5	244.9	224.9	198.1
5	Los Cabos	2	A		31.1	29.5	27.7	56.4		39.2	105.6	228.0	390.5		70.3	135.1	255.7	446.9
6	Hermosillo	3	D		191.1	243.7	218.2	172.0		8.5	14.1	41.7	31.6		199.6	257.8	259.9	203.6
7	Guaymas	3	F		69.7	89.0	n.d.	n.d.		47.3	42.9	n.d.	n.d.		117.0	131.9	n.d	n.d.
8	Mazatlán	4	B	312.8	404.8	620.8	632.2	543.6	154.9	200.8	198.5	243.9	159.3	467.7	605.6	819.3	876.1	702.9
9	Ciudad Juárez	5	E			640.6	793.1	511.3			66.9	72.4	69.5			707.5	865.5	580.8
10	Saltillo	6	D			160.1	212.7	170.3			14.7	25.2	28.3			174.8	237.9	198.6
11	Durango	7	D		240.8	237.3	244.4	307.3		6.2	3.7	3.7	4.6		247.0	241.0	248.1	311.9
12	Monterrey	8	C		679.2	704.3	733.6	720.3		64.4	63.8	97.0	142.5		743.6	768.1	830.6	862.8
13	Nuevo Laredo	9	E		202.4	176.3	171.8	n.d.		51.5	46.3	52.0	n.d.		253.9	222.6	223.8	n.d.
14	Reynosa	9	E		226.2	295.3	255.0	19.3		17.6	14.4	7.2	1.4		243.8	309.7	262.2	20.7
15	Matamoros	9	F		176.2	201.0	n.d.	n.d.		10.2	7.4	n.d	n.d.		186.4	208.4	n.d.	n.d.
16	Zacatecas	10	D		116.8	142.6	248.0	264.9		17.0	7.1	12.1	9.6		133.8	149.7	260.1	274.5
17	Aguascalientes	11	D		236.3	219.6	167.1	247.5		1.9	2.6	4.3	10.4		238.2	222.2	171.4	257.9
18	San Luis Potosí	12	D			401.6	398.1	251.1			9.9	15.9	27.8			411.5	414.0	278.9
19	Tepic	13	D			164.2	171.7	127.2			2.4	3.8	2.4			166.6	175.5	129.6
20	Puerto Vallarta	14	B	150.0	188.1	254.2	380.8	467.9	128.2	268.5	330.0	307.1	361.5	278.2	456.6	584.2	687.9	829.4
21	Guadalajara	14	C	1,989.1	2,308.4	2,137.3	2,113.8	1,230.9	140.2	174.5	146.4	157.3	134.8	2,129.3	2,482.9	2,283.7	2,271.1	1,365.7
22	Manzanillo	15	B		102.0	234.3	288.0	264.3		24.0	44.0	50.2	59.6		126.0	278.3	338.2	323.9
23	Morelia	16	D		344.8	593.9	629.8	525.2		35.4	18.7	17.3	26.2		380.2	602.6	647.1	551.4
24	Guanajuato	17	D	68.6	246.1	253.6	296.3	n.d.	47.3	26.1	23.8	27.3	n.d.	115.9	272.2	277.4	323.6	n.d.
25	Querétaro	18	D		268.4	283.6	463.3	326.8		14.9	6.0	11.1	10.9		283.3	289.6	474.4	337.7
26	San Juan del Río	18	F			32.7	34.6	96.5			1.1	1.8	4.1			33.8	36.4	100.6
27	Tequisquiapan	18	F		59.3	50.2	50.3	47.3		0.7	0.7	1.1	0.6		60.0	50.9	51.4	47.9
28	Pachuca	19	F			134.7	176.1	134.6			1.7	0.6	0.7			136.4	176.7	135.3
29	Toluca	20	F			176.0	199.5	7.6			3.5	6.7	1.0			179.5	206.2	8.6
30	D.F.(Mexico City)	21	C	1,516.2	1,910.4	1,492.0	1,630.3	4,361.5	827.9	1,109.0	662.0	793.8	1,246.4	2,344.1	3,019.4	2,154.0	2,424.1	5,607.9
31	Cuernavaca	22	D			279.8	250.3	280.3			15.2	20.5	26.5			295.0	270.8	306.8
32	Cuautla	22	F			111.8	65.3	159.4			0.3	0.3	1.1			112.1	85.6	160.5
33	V.M. del Morelos	22	F			214.5	271.3	n.d.			6.9	10.0	n.d.			221.4	281.3	n.d.
34	Tlaxcala	23	F		13.1	21.3	109.8	167.8		0.6	0.6	1.5	3.6		13.7	21.9	111.3	171.4
35	Puebla	24	D		438.8	515.7	594.4	518.6		14.5	12.7	24.1	65.5		453.3	528.4	618.5	584.1
36	Veracruz	25	B	450.5	495.1	648.4	809.7	1,120.7	39.2	46.9	19.3	19.8	32.4	489.7	542.0	667.7	829.5	1,153.1
37	Taxco	26	D		92.3	91.5	99.7	92.9		153.8	63.4	77.0	61.6		246.1	154.9	176.7	154.5
38	Ixtapa	26	A	21.0	155.5	196.7	191.5	230.4	12.5	51.8	114.7	109.3	121.7	33.5	207.3	311.4	300.8	352.1
39	Acapulco	26	B	807.8	754.3	1,094.6	1,049.2	1,406.4	667.7	629.8	522.2	417.1	375.4	1,475.5	1,384.1	1,616.8	1,466.3	1,781.8
40	Oaxaca	27	D	126.9	196.5	288.4	342.8	328.9	52.0	96.7	69.4	110.5	133.4	178.9	293.2	357.8	453.3	462.3
41	Huatulco	27	A				77.3	115.9				41.7	37.5				119.0	153.4
42	Villahermosa	28	D		330.9	318.3	329.1	250.7		24.8	25.3	36.3	29.8		355.7	343.6	365.4	280.5
43	Tuxtla Gutiérrez	29	D		219.4	270.8	216.7	248.3		9.1	6.5	19.0	20.5		228.5	277.3	235.7	268.8
44	Campeche	30	F		99.9	111.4	102.4	79.5		8.6	8.3	26.7	45.9		108.5	119.7	129.1	125.4
45	Mérida	31	D	231.2	383.2	349.4	305.7	277.1	149.1	134.3	97.2	164.0	220.0	380.3	517.5	446.6	469.7	497.1
46	Cancún	32	A	72.2	218.4	227.0	395.2	488.8	27.3	241.6	503.0	1,160.5	1,665.9	99.5	460.0	730.0	1,575.7	2,154.7
47	Cozumel	32	B	55.2	46.0	56.7	48.0	66.8	56.8	123.6	128.6	170.3	243.5	112.0	169.6	185.3	218.3	310.3
Total				6,445.3	12,443.8	15,987.0	17,086.7	17,478.0	2,482.8	3,930.2	3,732.9	5,035.6	6,060.5	8,927.9	16,374.0	19,719.9	22,122.3	23,538.5

Note: 33. M. de Morelos includes; Oaxtepec, Cocoyoc, San José Vistahermosa, Tepoztlán and Tequesquitengo.
Source: SECTUR

(3) Geographic distribution of tourist arrivals

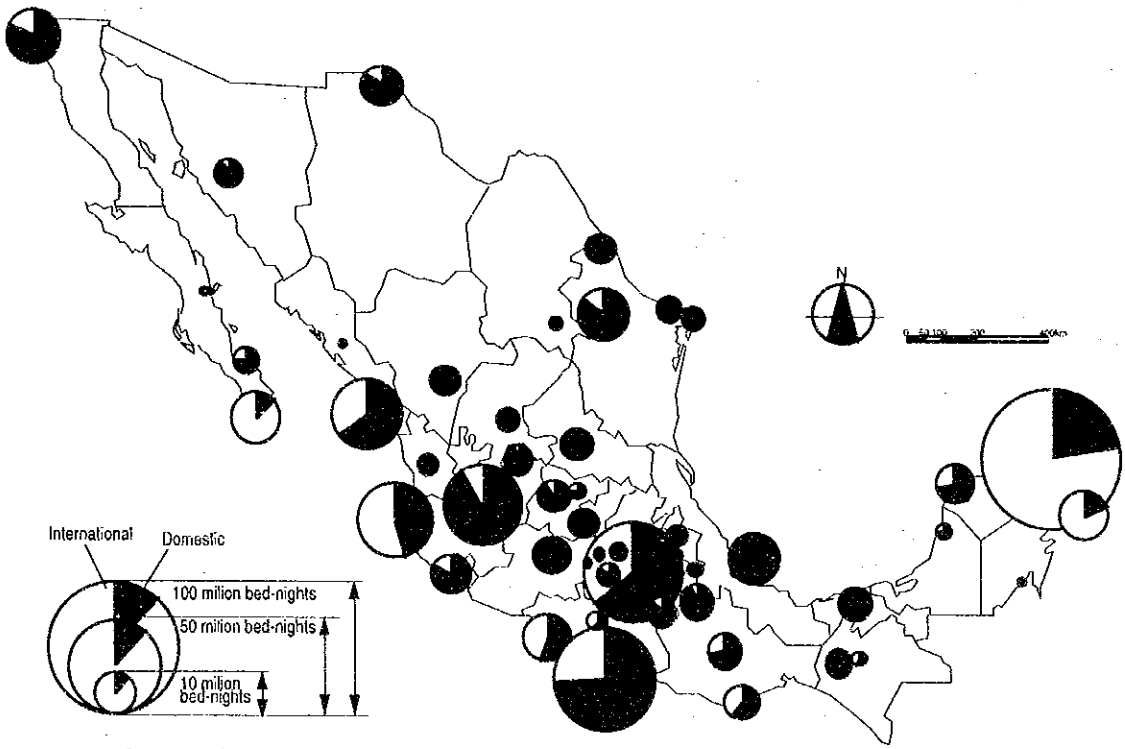
Figure A.3. 1 shows geographical distribution of bed-nights generated by both domestic and international visitors to major tourism destinations.

The destinations in which bed-nights generated by international visitors surpass those by domestic visitors are all beach destinations. They are;

- Cancun, Cozmel, Los Cabos, and Puerto Vallarta.

Among the beach destinations, Veracruz is patronized mainly by domestic visitors, and makes a contrast with other beach destinations where shares of the international are higher than inland cities.

Figure A.3. 1 Geographic distribution of bed-nights in Mexico

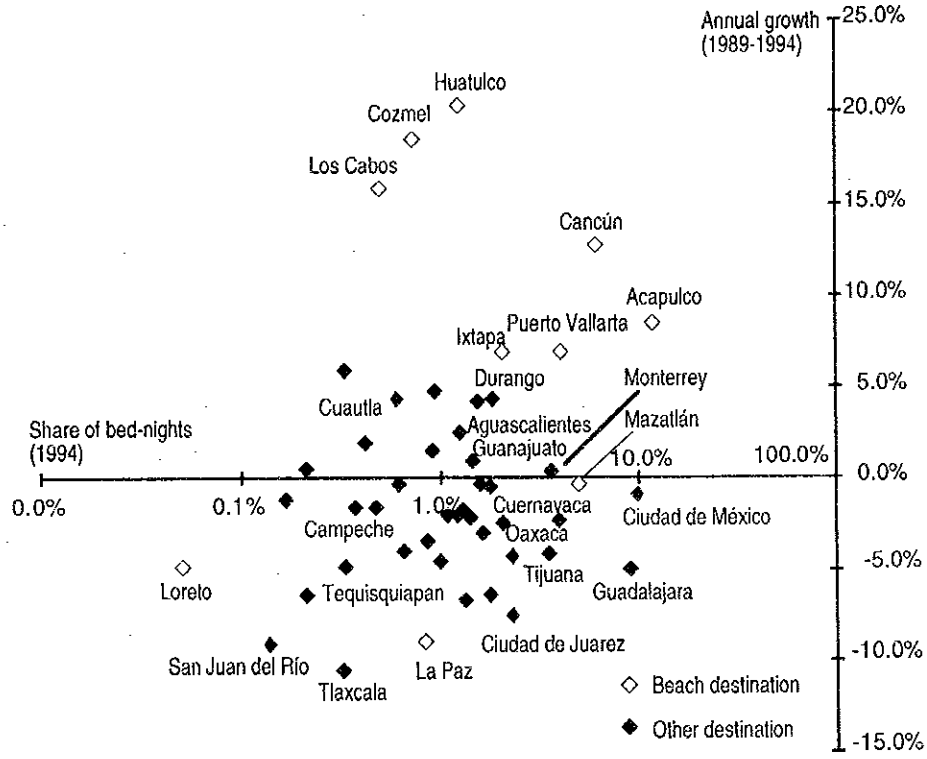


Source: JICA study team, SECTUR

Shares of bed-nights generated by international visitors at inland cities are generally low compared with beach destinations. A few exceptions include Mexico city that is the international gateway to Mexico, Oaxaca that is the accommodation base for exploring archaeological sites in its vicinity, and the historical cities of Taxco and Guanajuato. In terms of volume of bed-nights, Guadalajara comes second to Mexico city among inland cities but the share of bed-nights generated by the international is as low as other inland cities.

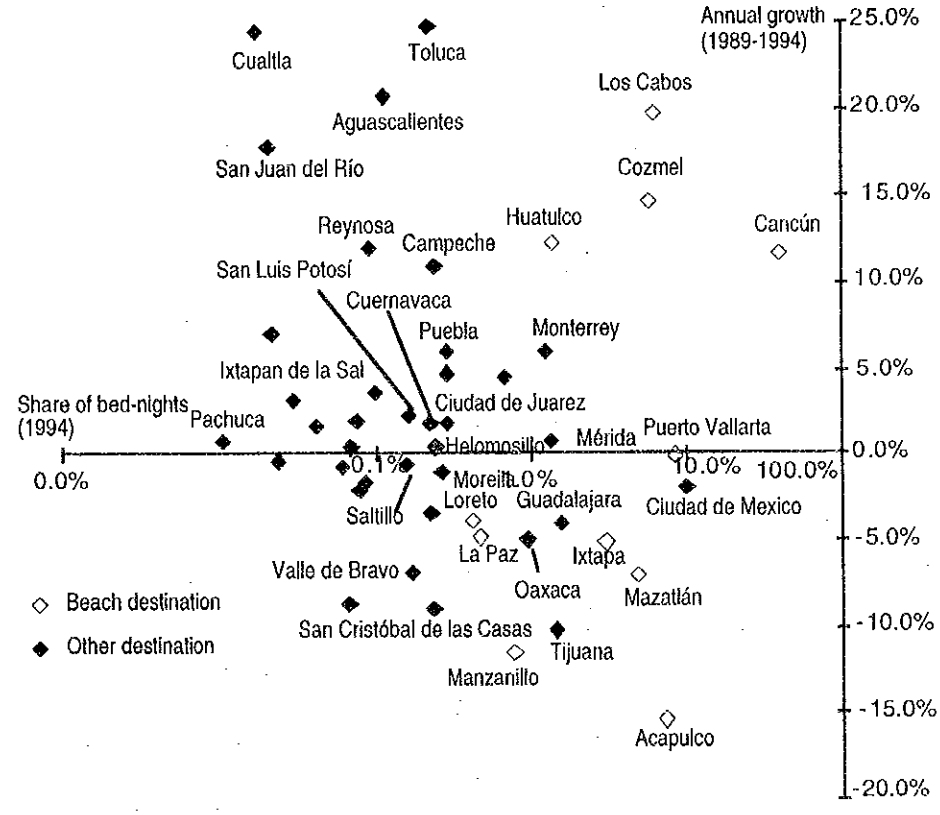
Figure A.3. 2 and Figure A.3. 3 are the result of growth rate and share analysis of beach destinations in the past 5 years. The figures show relative importance of beach destinations for the international market. However, growth rates of beach destinations are higher in the domestic market than the international, which shows an increasing preference of the domestic market for beach resort. Acapulco is the most extreme example of the trend, where domestic visitors increases in spite of international visitors.

Figure A.3. 2 Rate and share analysis of tourism destinations (Domestic arrivals)



Source: JICA study team, SECTUR

Figure A.3. 3 Rate and share analysis of tourism destinations (International arrivals)



Source: JICA study team, SECTUR

A.3.2. Tourism resources and existing projects

A.3.2.1. Number of tourism resources in the country

Tourism resources are divided into: natural resources, cultural resources, tourist attractions, and tourism facilities.

1) Natural resources are: beaches, sea fauna, land fauna, mountains and caves, landscape, and parks.
2) Cultural resources are: civil architectures, religious architectures, handicrafts, folklore, cave paintings, archeological sites, and historical sites.
3) Tourist attractions are: bathing resort, scuba diving, fishing, sailing, and hunting.
4) Tourism facilities are: airports, marinas, convention centers, golf courses, tourist hotels (5-stars and over), and specific hotels.

The characteristics of the accumulation of these tourism resources, accordingly to states, are as follows:

1) Natural resources -- In first place are Guerrero for beaches, Campeche for land fauna, Coahuila for landscape, and Mexico State for parks.
2) Cultural resources -- In first place are Mexico City for civil and religious architectures, Chiapas for handicrafts and folklore, Guerrero for cave paintings, Oaxaca for archeological sites, and Mexico City for historical sites.
3) Tourist attractions -- In first place are Morelos and Chiapas for bathing resort, Quintana Roo for fishing and sailing, Mexico State for camping, and Nuevo Leon for hunting
4) Tourism facilities -- In first place are Quintana Roo for marinas, Jalisco for convention centers, Mexico State for golf courses, Quintana Roo for tourist hotels, and Guerrero for specific hotels.

A.3.2.2. Main tourism resources

Table A.3. 4 shows the characteristics of the main tourism resources in the country.

Mexico's tourism resources are divided into two groups: natural resources and cultural-historical resources. Natural resources can be divided into two types, according to their geographic characteristics: coastal resources and inland resources.

a. Coastal resources

Of the thirty one states and one Federal District that make up the country, seventeen are coastal states (eleven states in the Pacific Coast, six states in the Atlantic Coast). Mexican sea waters are divided into four areas: "Sea of Cortes"(Mar de Cortes), with the Baja California Peninsula; Pacific Coast, at south of Tropic of Cancer; Gulf of Mexico, and Caribbean Sea. Beach and coast resources are very diversified, due to the differences in climate in each region which include moderate, tropical and desert zones.

b. Inland resources

In Mexico, there are fourteen states and one Federal District that are not by the sea. Except for the Peninsula of Yucatan, the mountain ranges of the east, west and south Sierra Madres, are near the ocean, even in coast states, for which there climate conditions are very different, depending on altitude, hence life-styles, flora and fauna, and landscape resources are highly varied.

On the other hand, cultural-historical resources can be divided three characteristic types, according to the history of the country:

c. Pre-hispanic

Ruins of pre-Hispanic civilizations, developed in the coasts of the Gulf of Mexico and central plateau, ranging from pre-classic and classic stages to post-classic stage, according to the different stages of evolution. In general, according to the predominant cultures and the regions in which they developed, these ruins are classified as follows: Olmec / Toltec in the areas of the Gulf of Mexico, Zapotec / Mixtec in the States of Oaxaca and Guerrero, and Purepecha in the Pacific Coast areas.

d. Maya

Ruins of the Maya civilization, which developed around Tical, in Guatemala. There are numerous ruins of the Maya civilization in Mexican territory, mainly in the State of Chiapas and in the Peninsula of Yucatan.

e. Colonial cities

Urban, architectural and cultural styles of modern-medieval type, which dates from the epoch of the Spanish colony, since 16 century.

A.3.2.3. Evaluation of tourism resources

In the report of the study by FONATUR-IDB, tourism attractions in each one of the states are analyzed. The evaluation is done qualitatively, with degrees of attraction from zero to ten points, assigned to each one of the twenty five items under tourism resources that exist in a state, grouped into the four large categories.(See Table A.3. 5, Table A.3. 6, Table A.3. 7)

A summary of the outcome of the analysis is given below:

1) The States that were evaluated as highly attractive with regard to natural resources are: Chiapas (29 points), Guerrero (26), Yucatan (24) and Baja California (23).
2) The States that were evaluated as highly attractive with regard to cultural resources are: Mexico City (58 points), Oaxaca (34) and Chiapas (31).
3) The States that were evaluated as highly attractive with in tourist attractions are: Quintana Roo (37 points), Chiapas (27) and Nuevo Leon (26).
4) The States that were evaluated as highly attractive with regard to tourism facilities are: Guerrero (39 points), Quintana Roo (37) and Jalisco (32).

The States evaluated as highly attractive, in general are: Quintana Roo where Cancun is located (94 points), Chiapas (92), Mexico City (89), Oaxaca, where Huatulco is located (73) and Jalisco where Puerto Vallarta is located (70). Other States include in the JICA study are Baja California Sur (Los Cabos) and Sinaloa (Mazatlan), which received only 39 and 30 points, respectively, due to the deficiencies observed in 1992 in cultural resources and in the accumulation of tourism facilities.

If the territory of Mexico is divided into ten regions, the South-east region is more attractive in natural resources and tourist attractions, and the Central region (321 points), the South-Pacific region (165), and the Central-Pacific region (160) are the regions with higher points.

If the territory is divided into three large block from north to south, the South Block has a comparative advantage with regard to natural resources, the Central Block widely predominates in cultural resources, whilst the North Block is predominant with regard to tourist attractions, and the Central Block with regard to tourism facilities. In general, the Central Block is the most favored, followed by the North, and then the South.

If the country is divided into three zones, from east to west, the States located in the Pacific Coast zone predominate with regard to natural resources, whilst the Inland

zone is the most attractive in cultural attractions. With regard to tourism facilities and attractions, the States in the Pacific Coast zone are considered to be more attractive. In general, the most attractive states are those in the Pacific Coast zone (615 points), followed by the Inland zone (550), and the states in the coasts of the Gulf and in the Caribbean (290).

A.3.2.4. Other basic tourism items (National parks)

Table A.3. 8 presents the data about national parks in Mexico.

Table A.3. 4 Main tourism destinations and historical-cultural sites

	States	Region	Main tourist destinations: Coastal areas	Main tourist destinations: Inland areas	Historical and cultural sites: Mesoamerican cultures		Historical and cultural sites: Colonial cities	
1	Baja California	I		Tijuana Mexicali				
2	Baja California Sur	I	Loreto La Paz **Los Cabos**				**(Cape Missions)** Loreto La Paz	Ensenada de Palmas Santiago
3	Sonora	II		Hermosillo Guaymas				
4	Sinaloa	II	**Mazatlan**				Alamos	
5	Chihuahua	III		Ciudad Juarez	**(???)** Paquime			
6	Coahuila	III		Saltillo			Saltillo	
7	Durango	III		Durango				
8	Nuevo Leon	IV		Monterrey				
9	Tamaulipas	IV		Nuevo Laredo Reynosa Matamoros				
10	Zacatecas	V		Zacatecas			Zacatecas	
11	Aguascalientes	V		Aguascalientes			Aguascalientes	
12	San Luis Potosi	V		San Luis Potosi	**(Totonac)** Tamuin Tantoc		San Luis Potosi	
13	Nayarit	VI		Tepic	**(???)** Isla del Rio			
14	Jalisco	VI	**Puerto Vallarta**	Guadalajara			Guadalajara Lagos de Moreno Tlaquepaque	Tonala Chapala
15	Colima	VI	Manzanillo					
16	Michoacan	VI		Morelia	**(Purepecha)** Tzintzuntzan Tingambato		Morelia Patzcuaro Uruapan	
17	Guanajuato	VII		Guanajuato			Dolores Hidalgo Guanajuato	Tequisquapan
18	Queretaro	VII		Queretaro San Juan del Rio Tequisquapan			Queretaro San Juan del Rio San Miguel de Allende	
19	Hidalgo	VII		Pachuca	**(Totonac)** Tula			
20	Mexico	VII		Toluca	**(Teotihuacan-Aztec)** Teotihuacan Malinalco Ixtapantongo		El Oro Malinalco Toluca Ixtapan de La Sal	Temoiongo Valle de Bravo
21	Distrito Federal	VII		Distrito Federal (Mexico City)	**(Aztec)** Tlatelolco Templo Mayor	Cuicuilco Tenochtitlan	Ciudad de Mexico	
22	Morelos	VII		Cuernavaca Cuautla V.M. del Morelos			Cuernavaca Tepoztlan	
23	Tlaxcala	VII		Tlaxcala	**(Aztec)** Cacaxtla Ocotelulco Tizatlan		Huamantla Tlaxcala Tlaxco Santa Ana Chiautempan	Atlihuetzia Tepeyanco
24	Puebla	VII		Puebla	**(Aztec?)** Cholula		Cholula San Pedro Cholula San Andres Cholula	Puebla Huejotzingo Tehuacan
25	Veracruz	VIII	Veracruz		**(Olmec)** Tres Zapotes San Lorenzo	**(Totonac)** El Tajin Cempoala Las Higueras Zapotal Zempoala	Antigua Coatepec Tlacotalpan Veracruz	Xalapa Cordoba
26	Guerrero	IX	Ixtapa **Acapulco**	Taxco	**(Aztec)** Juxtlahuaca Oxtotitlan		Taxco	
27	Oaxaca	IX	**Huatulco**	Oaxaca	**(Zapotec-Mixtec)** Monte Alban Mitla Yagul Huijzo Suchilquitongo	Zaachila Dainz Lambi Tieaz	Oaxaca	
28	Tabasco	X		Villahermosa	**(Maya)** Malpacito* Pomona* Reforma*	**(Olmec)** La Venta* Comalcalco*		
29	Chiapas	X		Tuxtla Gutierrez	**(Maya)** Tenam Puente* Chinkultic* Jonchavin*	Palenque Toniná Yaxchilan Bonampak	Comitan Chiapa de Corzo San Cristobal de Las Casas Tuxtla Gutierrez	
30	Campeche	X		Campeche	**(Maya)** Becan* Xpuhil* Hormiguero* Chicanna* Xkalakmul*	Balamku* Nadzacaan* Rio Bec* Edzna Dzibilnocac	Campeche	
31	Yucatan	X		Merida	**(Maya)** Uxmal* Labnah* Dzibilchaltun* Izamal* Chichen Itza Kabah	Ruinas de Ake Chacmultun Dzula Mulchic Sodzil	Izamal Merida Valladolid	
32	Quintana Roo	X	**Cancun** Cozumel		**(Maya)** La Laguna* Chichan-Ha* Chacchoben* Coba El Rey Yuturn	San Gervasio Tancah Xcaret Xelha Playa del Carmen Rancho Ha		
	Total		12	35	Maya=23	Others=35	58	

* Designated Mundo Maya Program

Table A.3.5 Inventory of tourism resources by states

(unit: No. of resources)

	States	Rn	Natural resources						Cultural resources							Tourist attractions						Tourist facilities						Total				
			N1	N2	N3	N4	N5	N6	C1	C2	C3	C4	C5	C6	C7	A1	A2	A3	A4	A5	A6	F1	F2	F3	F4	F5	F6	N	C	A	F	Total
1	Baja California	I	1	4	0	1	11	2	0	10	1	0	1	1	0	0	1	6	3	1	1	2	6	2	6	0	9	19	13	12	25	69
2	Baja California Sur	I	4	1	0	0	1	0	0	1	1	0	0	0	0	0	1	1	1	2	0	3	0	1	2	8	10	6	2	5	24	37
3	Sonora	II	3	1	0	0	0	1	1	14	0	8	0	0	0	0	1	1	4	4	4	4	13	2	3	1	0	5	23	14	23	65
4	Sinaloa	II	6	0	0	0	0	0	1	7	0	0	0	0	0	0	0	2	0	1	0	3	0	5	4	8	0	6	8	3	20	37
5	Chihuahua	III	0	0	0	3	5	1	2	8	0	2	3	2	7	4	0	1	2	0	3	2	0	3	3	3	0	9	24	10	11	54
6	Coahuila	III	0	0	0	0	24	0	2	9	1	2	0	2	0	2	0	3	0	0	2	2	0	4	4	4	0	24	16	7	14	61
7	Durango	III	0	0	0	0	12	1	1	5	3	6	0	3	0	3	0	1	0	1	2	1	0	1	2	0	0	13	18	7	4	42
8	Nuevo Leon	IV	0	0	0	0	15	1	0	14	4	6	0	9	0	9	0	6	2	0	7	1	0	4	6	8	0	16	33	24	19	92
9	Tamaulipas	IV	2	0	0	2	10	0	0	7	3	5	2	1	1	0	0	8	3	1	3	5	0	2	8	1	0	14	19	15	16	64
10	Zacatecas	V	0	0	0	3	3	2	7	9	2	2	3	3	1	2	0	0	0	0	3	1	0	2	3	1	0	8	27	5	7	47
11	Aguascalientes	V	0	0	0	0	1	1	8	4	1	1	0	0	3	0	0	0	0	0	0	1	0	1	2	3	0	2	17	0	7	26
12	San Luis Potosi	V	0	0	0	2	2	1	1	6	4	0	2	0	1	2	0	1	0	0	0	2	0	5	2	0	0	5	14	3	9	31
13	Nayarit	VI	2	0	0	2	4	0	0	5	0	4	2	3	0	0	0	0	0	0	2	1	9	0	0	0	0	8	14	2	10	34
14	Jalisco	VI	5	1	0	1	8	0	4	22	4	6	1	2	0	2	1	3	2	0	0	2	2	16	11	34	1	15	39	8	66	128
15	Colima	VI	3	0	0	1	0	0	0	3	3	0	1	4	1	0	0	1	0	0	0	2	2	0	2	2	6	4	12	1	14	31
16	Michoacan	VI	1	0	0	1	1	2	16	26	12	0	1	2	2	3	0	0	0	0	0	3	0	4	2	2	1	5	59	3	12	79
17	Guanajuato	VII	0	0	0	3	5	0	2	22	2	2	3	2	5	2	0	0	0	0	0	1	0	6	9	2	0	8	38	2	18	66
18	Queretaro	VII	0	0	0	1	2	0	0	12	7	8	1	1	2	0	0	0	0	0	4	1	0	2	5	1	7	3	31	4	16	54
19	Hidalgo	VII	0	0	0	3	13	0	1	17	4	4	3	6	0	3	0	0	0	1	0	1	0	1	1	0	0	16	35	4	3	58
20	Mexico	VII	0	0	0	3	4	5	3	23	4	2	3	5	4	5	0	2	0	6	0	1	0	4	14	4	0	12	44	13	23	92
21	Distrito Federal	VII	0	0	0	0	5	3	103	77	23	27	0	10	10	0	0	1	2	0	0	1	0	12	4	38	7	8	250	3	62	323
22	Morelos	VII	0	0	0	1	1	4	2	7	0	0	1	3	4	11	1	0	1	0	0	0	0	2	6	2	0	6	17	13	10	46
23	Tlaxcala	VII	0	0	0	1	6	0	0	13	3	1	1	2	0	0	0	0	1	0	0	1	0	1	0	1	0	7	20	1	3	31
24	Puebla	VII	0	0	0	0	5	0	2	10	2	3	0	4	2	1	0	0	0	0	0	2	0	4	4	5	0	5	23	1	15	44
25	Veracruz	VIII	5	1	0	0	3	2	4	13	2	1	0	2	2	0	1	0	2	0	0	3	1	2	7	4	0	11	24	3	17	55
26	Guerrero	IX	8	1	0	8	1	1	6	5	1	2	8	1	2	2	1	1	2	0	0	2	4	12	8	35	34	19	25	6	95	145
27	Oaxaca	IX	3	0	0	3	5	2	2	16	3	15	3	12	2	2	1	1	0	0	4	3	0	1	3	3	2	13	53	8	12	86
28	Tabasco	X	1	0	0	1	2	2	1	3	1	4	1	5	0	0	0	0	0	0	0	1	0	2	1	1	0	6	15	0	5	26
29	Chiapas	X	6	0	0	3	0	4	22	22	36	86	3	7	0	11	0	8	9	1	0	2	0	1	1	1	0	13	176	29	5	223
30	Campeche	X	2	0	13	1	1	1	2	3	1	0	1	8	0	0	0	4	2	0	0	2	0	1	1	0	0	18	15	6	4	43
31	Yucatan	X	4	3	1	1	0	0	4	17	0	0	1	8	1	0	0	0	0	0	0	1	3	3	2	2	0	9	31	0	11	51
32	Quintana Roo	X	7	1	0	0	0	1	0	4	0	0	0	7	0	5	2	10	13	0	1	4	14	7	2	53	0	9	11	31	80	131
	Total		63	13	14	45	150	37	197	414	128	197	45	115	50	69	10	61	49	18	36	61	54	113	128	227	77	322	1146	243	660	2371

Note:

N1: Beach
N2: Marine fauna
N3: Land fauna
A4: Mountain and cave
N5: Scenery
N6: Park

C1: Civil architecture
C2: Religious architecture
C3: Artisan
C4: Folklore
C5: Cave painting
C6: Archeological site
C7: Historical site

A1: Bathing
A2: Diving
A3: Fishing
A4: Navigation
A5: Camping
A6: Hunting

F1: Airport
F2: Marina (1point: 50 boats)
F3: Convention center (1point: 2000 seats)
F4: Golf course
F5: Tourist hotel (1point: 200 rooms)
F6: Special hotel (1point: 50 rooms)

Source: FONATUR-IDB report; p.A3-8/14 (Analisis de atractividad turistica)

Table A.3.6 Evaluation of tourist attractiveness by states

(unit: Evaluation points)

	States	Rn	Natural resources						Cultural resources							Tourist attractions						Tourist facilities						Total				
			N1	N2	N3	N4	N5	N6	C1	C2	C3	C4	C5	C6	C7	A1	A2	A3	A4	A5	A6	F1	F2	F3	F4	F5	F6	N	C	A	F	Total
1	Baja California	I	2	10	0	2	5	4	0	2	1	0	5	1	0	0	5	6	3	2	2	3	4	2	3	1	3	23	9	18	16	66
2	Baja California Sur	I	5	3	0	0	1	0	0	1	1	0	0	0	0	0	5	1	1	4	0	6	0	1	5	2	3	9	2	11	17	39
3	Sonora	II	4	3	0	0	0	2	1	2	0	3	5	0	0	0	5	1	3	7	6	7	9	1	3	1	0	9	11	22	21	63
4	Sinaloa	II	7	0	0	0	0	0	1	3	0	0	0	0	0	0	0	2	0	2	0	5	0	3	5	2	0	7	4	4	15	30
5	Chihuahua	III	0	0	0	4	2	2	1	1	0	1	5	2	7	4	0	1	2	0	4	3	0	2	0	1	0	8	17	11	6	42
6	Coahuila	III	0	0	0	0	10	0	1	1	1	1	0	2	0	2	0	3	0	0	3	3	0	3	0	1	0	10	6	8	7	31
7	Durango	III	0	0	0	0	5	2	1	1	2	3	0	3	0	3	0	1	0	2	3	1	0	1	0	1	0	7	10	9	3	29
8	Nuevo Leon	IV	0	0	0	0	6	2	0	2	2	3	5	7	0	8	0	6	2	0	10	1	0	3	0	2	0	8	19	26	6	59
9	Tamaulipas	IV	3	0	0	3	4	0	0	3	3	4	0	1	2	0	0	8	3	2	4	10	0	1	3	1	0	10	13	17	15	55
10	Zacatecas	V	0	0	0	4	2	4	1	1	1	1	0	3	1	2	0	0	0	0	4	1	0	2	0	1	0	10	8	6	4	28
11	Aguascalientes	V	0	0	0	0	1	2	1	1	1	1	0	0	3	0	0	0	0	0	0	1	0	1	3	1	0	3	7	0	6	16
12	San Luis Potosi	V	0	0	0	3	1	2	1	1	2	0	0	0	1	2	0	1	0	0	0	3	0	3	3	1	0	6	5	3	10	24
13	Nayarit	VI	3	0	0	3	2	0	0	1	0	2	0	3	0	0	0	0	0	0	3	1	7	0	0	0	0	8	6	3	8	25
14	Jalisco	VI	6	3	0	2	4	0	1	3	2	3	0	2	0	2	5	3	2	0	0	3	2	10	10	6	1	15	11	12	32	70
15	Colima	VI	4	0	0	2	0	0	0	1	2	0	0	4	1	0	0	1	0	0	0	3	2	1	5	1	2	6	8	1	14	29
16	Michoacan	VI	2	0	0	2	1	4	2	3	5	0	0	2	2	3	0	0	0	0	0	5	0	3	0	1	1	9	14	3	10	36
17	Guanajuato	VII	0	0	0	4	2	0	1	3	1	1	0	2	5	2	0	0	0	0	0	1	0	4	0	1	1	6	13	2	7	28
18	Queretaro	VII	0	0	0	2	1	0	0	2	3	3	0	1	2	0	0	0	0	0	6	1	0	2	5	1	2	3	11	6	11	31
19	Hidalgo	VII	0	0	0	4	5	0	1	2	2	2	0	5	0	3	0	0	0	2	0	1	0	1	0	0	0	9	12	5	2	28
20	Mexico	VII	0	0	0	4	2	10	1	3	2	1	0	4	4	5	0	2	0	10	0	1	0	3	3	1	0	16	15	17	8	56
21	Distrito Federal	VII	0	0	0	0	2	6	10	10	10	10	0	8	10	0	0	1	2	0	0	1	0	7	3	7	2	8	58	3	20	89
22	Morelos	VII	0	0	0	2	1	8	1	1	0	0	5	3	4	10	5	0	1	0	0	0	0	2	3	1	1	11	14	16	7	48
23	Tlaxcala	VII	0	0	0	2	3	0	0	2	2	1	0	2	0	0	0	0	1	0	0	1	0	1	0	1	0	5	7	1	3	16
24	Puebla	VII	0	0	0	0	2	0	1	2	1	2	0	4	2	1	0	0	0	0	0	3	0	3	3	1	0	2	12	1	10	25
25	Veracruz	VIII	6	3	0	0	2	4	1	2	1	1	0	2	2	0	5	0	2	0	0	5	1	2	5	1	1	15	9	7	15	46
26	Guerrero	IX	10	3	0	10	1	2	1	1	1	1	10	1	2	2	5	1	2	0	0	3	3	7	10	6	10	26	17	10	39	92
27	Oaxaca	IX	4	0	0	4	2	4	2	6	3	10	0	10	3	2	0	1	0	0	6	5	0	1	3	1	1	14	34	14	11	73
28	Tabasco	X	2	0	0	2	1	4	1	1	1	2	0	4	0	0	0	0	0	0	0	1	0	2	0	1	0	9	9	0	4	22
29	Chiapas	X	7	0	10	4	0	8	2	3	10	10	0	6	0	10	0	3	7	2	0	3	0	1	0	1	0	29	31	27	5	92
30	Campeche	X	3	0	0	2	1	2	1	1	1	0	0	7	0	0	0	4	2	0	0	3	0	1	3	1	0	8	10	6	8	32
31	Yucatan	X	5	7	10	2	0	0	1	2	0	0	0	7	1	0	0	0	0	0	0	1	2	2	0	1	0	24	11	0	6	41
32	Quintana Roo	X	8	3	0	0	0	2	0	1	0	0	0	6	0	5	10	10	10	0	2	7	10	5	5	10	0	13	7	37	37	94
	Total		81	35	20	67	69	74	35	69	61	66	35	102	52	66	50	61	43	33	53	93	40	81	83	58	28	346	420	306	383	1,455

Source: FONATUR-IDB report; p.A3-8/14 (Analisis de atractividad turistica)

Table A.3.7 Evaluation of tourist attractiveness by regions and blocks

(unit: Evaluation points)

Areas	Natural resources						Cultural resources							Tourist attractions						Tourist facilities						Total				
	N1	N2	N3	N4	N5	N6	C1	C2	C3	C4	C5	C6	C7	A1	A2	A3	A4	A5	A6	F1	F2	F3	F4	F5	F6	N	C	A	F	Total
(A) Regions																														
I California	7	13	0	2	6	4	0	3	2	0	5	1	0	0	10	7	4	6	2	9	3	3	8	3	6	32	11	29	33	105
II North-west	11	3	0	0	0	2	2	5	0	3	5	0	0	0	5	3	3	9	6	12	9	4	8	3	0	16	15	26	36	93
III North	0	0	0	4	17	4	3	3	3	5	5	7	7	9	0	5	2	2	10	7	0	6	0	3	0	25	33	28	16	102
IV North-east	3	0	0	3	10	2	0	5	5	7	5	8	2	8	0	14	5	2	14	11	0	4	3	3	0	18	32	43	21	114
V North-central	0	0	0	7	4	8	3	3	4	2	0	3	5	4	0	1	0	0	4	5	0	6	6	3	0	19	20	9	20	68
VI Pacific Central	15	3	0	9	7	4	3	8	9	5	0	11	3	5	5	4	2	0	3	12	11	14	15	8	4	38	39	19	64	160
VII Central	0	0	0	18	18	24	15	25	21	20	5	29	27	21	5	3	4	12	6	9	0	23	17	13	6	60	142	51	68	321
VIII Central Gulf	6	3	0	0	2	4	1	2	1	1	0	2	2	0	5	0	2	0	0	5	1	2	5	1	1	15	9	7	15	46
IX Pacific South	14	3	0	14	3	6	3	7	4	11	10	11	5	4	10	2	2	0	6	8	3	8	13	7	11	40	51	24	50	165
V South-east	25	10	20	10	2	16	5	8	12	12	0	0	1	15	10	22	19	2	2	15	12	11	8	14	0	83	68	70	60	281
Total	81	35	20	67	69	74	35	69	61	66	35	30	52	66	50	61	43	33	53	93	40	81	83	58	28	346	420	306	383	1455
(B) North-south blocks																														
Northern block	21	16	0	16	37	20	8	19	14	17	20	19	14	21	15	30	14	19	36	44	13	23	25	15	6	110	111	135	126	482
Central block	21	6	0	27	27	32	19	35	31	26	5	42	32	26	15	7	8	12	9	26	12	39	37	22	11	113	190	77	147	527
Southern block	39	13	20	24	5	22	8	15	16	23	10	41	6	19	20	24	21	2	8	23	15	19	21	21	11	123	119	94	110	446
(C) West-east blocks																														
Pacific-side block	54	22	10	29	16	24	10	26	25	29	20	29	8	19	30	24	18	17	17	44	27	30	44	22	21	155	147	125	188	615
Inland block	0	0	0	29	45	38	21	33	30	30	15	46	39	42	5	15	8	14	30	22	0	38	23	21	6	112	214	114	110	550
Gulf/Carib-side block	27	13	10	9	6	12	4	10	6	7	0	27	5	5	15	22	17	2	6	27	13	13	16	15	1	79	59	67	85	290

Source : FONATUR - IDB report

Table A.3. 8 List of national park in Mexico

	States	National park	Special biosphere reserve	Biosphere reserve	Others
1	Baja California	Constitucion de 1857	Islas del Golfo (+BCS) Isla de Guadalupe Isla Lasa	Alto Golfo de California y Della del Rio	
2	Baja California Sur			El Vizcaino Sierra de la Laguna	Cabo Pulmo (NMP)
3	Sonora		Cajon del Diablo Isla Tiburon	Sierra del Pinacate y Gran Desierto de Altar	
4	Sinaloa				
5	Chihuahua	Cascada de Bassaseachic Cumbres de Majalca			Cañon de Santa Elena (F/F)
6	Coahuila	Balneario Los Novillos			Cuatrocienegas (F/F) Maderal del Carmen (F/F)
7	Durango			Mapimi La Michilia	
8	Nuevo Leon	Cumbres de Monterrey El Sabinal			Cerro de La Silla (NM)
9	Tamaulipas				
10	Zacatecas				
11	Aguascalientes				
12	San Luis Potosi	El Gogorron El Potosi		Sierra del Abra Tanchipa	
13	Nayarit	Isla Isabel			
14	Jalisco			Sierra de Manantlan Chamela-Cuixmala	
15	Colima	Nevado de Colima		Archipielago de Revillagigedo	
16	Michoacan	Cerro de Garnica Insurgente Jose Maria Morelos y Pavon Lago de Campecuaro Pico de Tancitaro Rayon	Mariposa Monarca		
17	Guanajuato				
18	Queretaro	El Cimatario			
19	Hidalgo	El Chico Los Marmoles Tula			
20	Mexico	Bosencheve Desierto del Calmen o Nixcongo Insurgente Miguel Hidalgo y Costilla Iztaccihuatl-Popocatepetl Molino de Flores Netzahualcoyotl Nevado de Toluca Los Remedios Sacromonte Zoquiapan y Anexas			
21	Federal District	Cerro de La Estrella Cumbres del Ajusco El Tepeyac			
22	Morelos	Lagunas de Zempala El Tepozteco			Corredor Biologico Ajusco-Chichinautzin (F/F)
23	Tlaxcala	La Malinche-Matlalcueyatl			
24	Puebla				
25	Veracruz	Canon del Rio Blanco Pico de Orizaba	Sierra de Santa Martha Volcan de San Martin		Sistema Arrecifal Veracruzano (NMP)
26	Guerrero	El Veladero			
27	Oaxaca	Benito Juarez Lagunas de Chacahua			
28	Tabasco			Pantanos de Centla	
29	Chiapas	Canon del Sumidero Lagunas de Montebello Palenque	Cascadas de Agua Azul Selva del Ocote	Lacantun Montes Azules El Triunfo La Encrucijada La Sepultura	Chan-Kin (F/F) Bonampak (NM) Yaxchilan (NM)
30	Campeche			Calakmul	Laguna de Terminos (F/F)
31	Yucatan	Dzibilchaltun	Ria Celestun Ria Lagartos		Arrecife Alacranes (NMP)
32	Quintana Roo	Tulum	Isla Contoy	Sian Ka'an	Yum Balam (F/F) Uaymil (F/F)
	Total 89	44	13	18	F/F-8, NM-3, NMP-3

Note: F/F=Protection area of fauna and flora, NM=Natural monument, NMP=National marine park
Source: SECTUR (INE data issued in 1995)

A.3.2.5. Travel routes

Figure A.3. 4 shows major tour routes of group tour packages. Touring packages are more popular for long-haul markets such as Europe, Latin America and East Asia than the short-haul Southbound market that prefer single-destination itineraries to beaches.

Mexico city and Cancun are the two main gateways for touring packages. Touring of Mexico City and its vicinity that includes Teotihuacan, and touring of Merida - Cancun corridor that includes Uxmal and Chitchen Itza, are the most essential parts of touring of Mexico. Some tour wholesalers provide tours primary for the Westbound market that make surface trip from Mexico City to Cancun via Puebla, Oaxaca, Chiapas, Campeche, and Yucatan states.

A tour circuit that start from, and end at, Mexico City and covers major colonial cities such as Queretaro, Guanajuato, Guadalajara, Patzcuaro, and Morelia are popular among Southbound market from Latin America at present. The market also prefer to combine the circuit and Acapulco with a stop-over at the historical city of Taxco.

There are two examples of multi-country circuits with USA. Combination of Cancun and Florida is very popular among the Brazilian market, while combination of Los Cabos and Los Angeles is increasing popularity in the Japanese market.

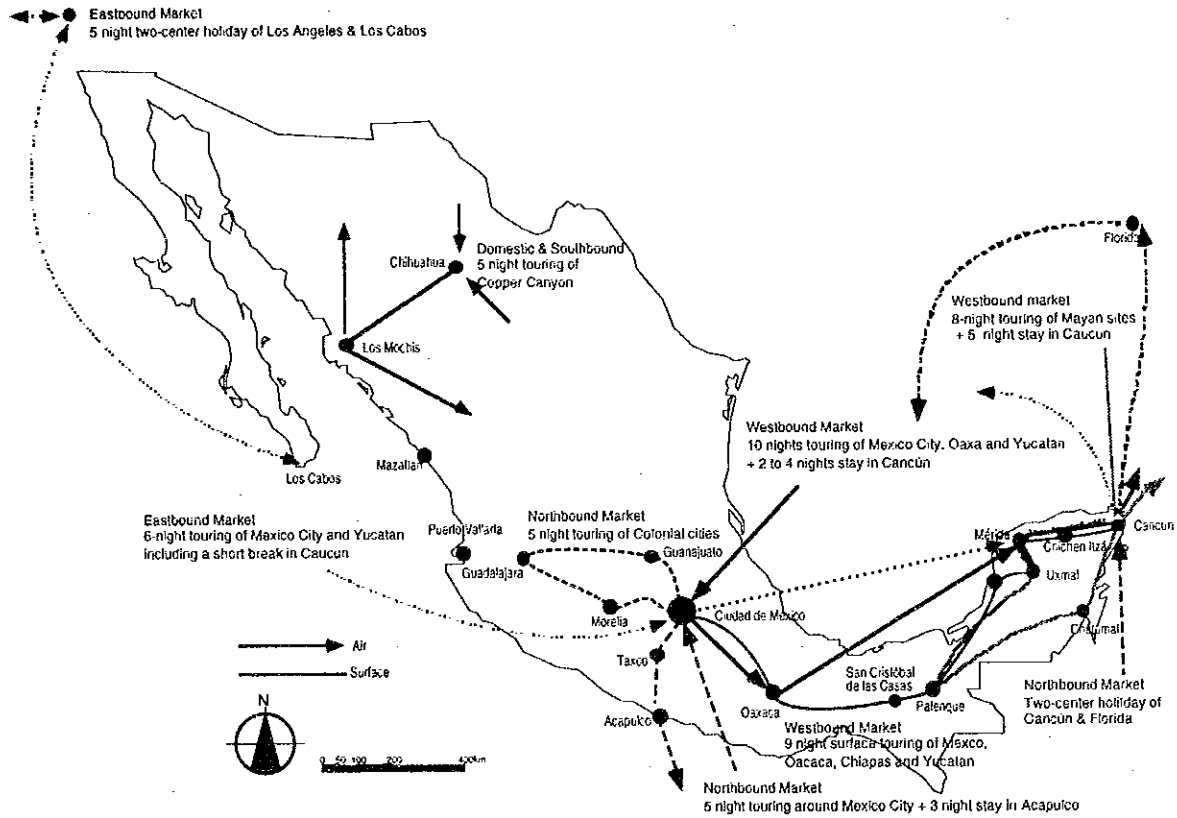
Beach destinations on the Pacific Coast such as Mazatlan, Puerto Vallarata, Mansanillo, Ixtapa, and Huatulco are independent destinations which not connected to any touring networks at present.

Copper canyon is becoming popular among the Mexican market and the Southbound market. The tour route, however, has little connection with beach resorts, which probably hinders the development of long-haul markets.

It seems apparent from the past success of Cancun in the long-haul markets that development of tour routes connected to beach destinations is important if Mexico wants to diversify her tourism market. Low growth rate of the Southbound market also suggest a necessity for that direction.

It is also noted that the on-going highway development in Mexico could open up possibility for new tour routes. A tour wholesaler reported that newly completed highways are encouraging domestic tourism to some inland historical cities such as Guadalajara and Oaxaca because of less expensive transportation cost of buses than airlines.

Figure A.3. 4 Major tour itineraries in Mexico



Source: JICA study team

A.3.2.6. Tourism development projects

In order to understand the development of tourism in Mexico, ongoing tourism projects and planned projects have been collected from the various agencies and private sectors. The classification of project categories used are:

1) Large scale coastal resorts projects:

Such as mega-projects in Cancun, developed by FONATUR, and private sector, which are integrated tourism development projects with more than 800 hotel rooms, towards beach areas.

2) Large scale inland resort projects:

Such as mega-projects in Acapulco, developed by PROTUR and private sector; which are integrated tourism projects, with more than 800 hotel rooms, towards inland areas.

3) Medium / small scale coast resort projects:

Such as Pueblo Bonit, Cabo San Lucas, developed by private sector groups Sabolo and Cabo; which are hotel accommodation developments of less than 799 rooms, towards the beach areas.

4) Medium/ small scale inland resort projects:

Such as housing development of villas Oceano, in Acapulco, developed by private sector group Infiniti, which are hotel accommodation developments of less than 799 rooms, towards the inland areas.

5) Island tourism development projects:

Such as Isla de Navidad, in Jalisco, developed by Private sector; which are tourism projects development in island.

6) Historical/cultural projects:

Such as the Maya zone tourism development, Costa Maya in Quintana Roo, development by the State and Private sector; which are archaeological, historical cultural oriented tourism development projects.

7) Natural/Environment projects:

Such as ecological tourism developments in Oaxaca, developed by private sector; which are tourism development projects focused on ecologically-oriented tourism, in rich natural environments.

8) Transport projects:

Such as Cancun-Tulm highway, Acapulco airport improvement, developed by the public sector; which are projects to provide land, air or sea transportation facilities, related to tourism activities.

9) Infrastructure projects:

Such as Saneamiento Integral Cancun, developed by the state and private sector; which are development projects to provide infrastructure, related to tourism.

10) Other projects:

Such as the Water park development in Cancun, developed by private sectors; which are development projects concerned with tourist amenity facilities, other than hotels.

Figure A.3. 5 Tourism development in Mexico

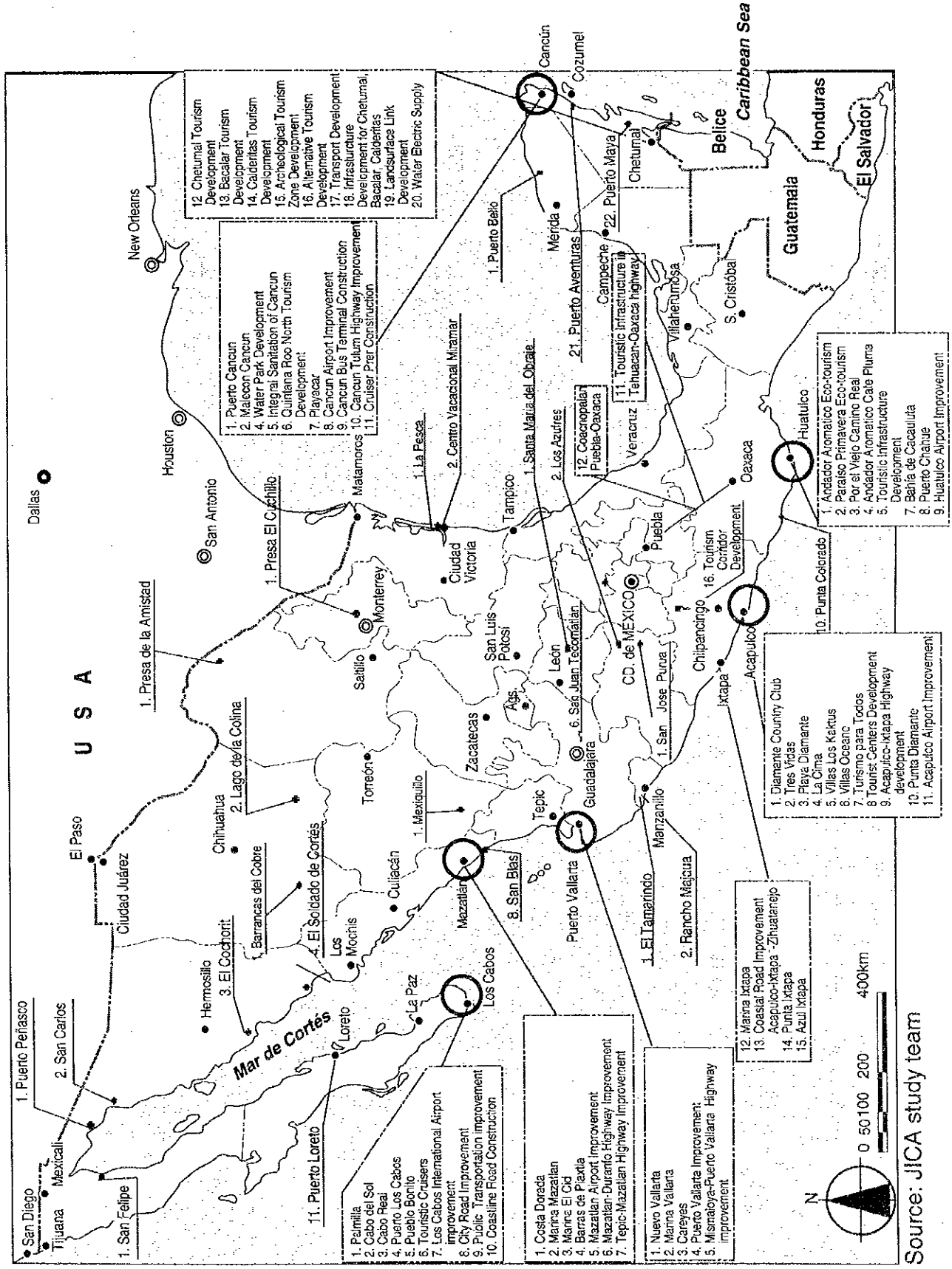


Table A.3.9 Summary of existing projects

State	Large scale coastal resort projects	Large scale inland resort projects	Medium/small coastal resort projects	Medium/small inland resort projects	Island tourism projects	Historical cultural projects	Natural environmental projects	Transportation projects	Infrastructure projects	Other projects
1 Baja California	1) Baja Mar 2) Real de Mar 3) San Felipe									
2 Baja California Sur	1) Puerto Loreto 2) Puerto Los Cabos 3) Cabo Real 4) Cabo del Sol 5) Palmilla		1) Puerto Bonit 2) Cruse					1) Airport improvement 2) Coastal road improvement 3) City road improvement 4) Public transportation development		
3 Sonora	1) El Cochorit 2) El Soldad de Cortés									
4 Sinaloa	1) Costa Dorada 2) Marina Mazatlán 3) Barra de Piaxtla 4) San Blas	1) EL CD resort				1) Mejora de urbano		1) Airport improvement 2) Highway improvement(1) 3) Highway improvement (2)		
5 Chihuahua		1) Lago de Colina 2) Barrancas del Cobre								
6 Coahuil		1) Presa La Amistad								
7 Durango										
8 Nuevo Leó										
9 Tamaulipas		1) La Pesca								
10 Zacatecas										
11 Aguascalientes										
12 San Luis Potosí										
13 Nayarit	1) Nuevo Vallarta		1) Fromingo							
14 Jalisco			1) Bahia de Chamera 2) El Tamarindo 3) Peninsula de las Estellas	1) San Juan Tecomatlán	1) Isla de Navidad	1) Urban tourism development 2) Lagos de Moreno sign project				
15 Colima	1) Puerto Careyes 2) Rancho Majagual									
16 Michoacá										
17 Guanajuat		1) St. Maria del Obraje								
18 Queretaro										
19 Hidalgo										
20 Méx										
21 Distrito Federal										
22 Morelos										
23 Tlaxcala										
24 Puebla								1) Road improvement; Puebla-Oaxaca 85 km		
25 Veracruz	1) Mandinga 2) Marina Veracruz									
26 Guerrero	1) Marina Ixtapa 2) Punta Ixtapa 3) Azul Ixtapa 4) Punta Diamante 5) Diamante golf cource	1) Acapulco Papagaya		1) Tres Vidas Acapulco 2) Villas Oceano 3) Tourism for all people 4) Visitor center 5) Villas Los Kaktus 6) La Cima		1) Urban tourism development		1) Road improvement; Acapulco-Ixtapa 2) Coastal road improvement 3) Tourism corridor improvement 4) Airport improvement 5) Highway improvement		
27 Oaxaca	1) Puerto Chahue 2) Bahia de Cacaluta		1) Punta Colorado 2) Zacatela beach			1) Urban improvement	1) Andador Aromatico 2) Paraiso Primavera 3) Por El Viejo Camino Real	1) Road improvement; Oaxaca-Puebla 2) Road improvement; Puebla-Oaxaca 158 km 3) Airport improvement		
28 Tabasco										
29 Chiapas	1) Palenque		1) La Lacandona							
30 Campech										
31 Yucatán	1) Puerto Bello				1) Isla Dorado	1) Ruinas del Rey				
32 Quintana Roo	1) Puerto Cancún 2) Puerto Aventuras	1) Malecon Cancú n	1) Puerto Bello 2) Maya zona tourism development		1) Banco Chinchorro 2) Plancar	1) Chetumal tourism development 2) Arqueological tourism development		1) Transporte en sur de Quintana Roo transportation 2) Highway; Cancún-Chetumal 3) Cancuna/port improvement 4) Highway improvement	1) Saneamiento integral de Cancú n	1) Waterpark development

Source: JICA study team

A.3.3. Tourism facilities

(1) Accommodation

a. Introduction

Some kinds of lodging statistics are available for the tourism facility study, as shown in Table A.3. 10. These statistics, however, are not necessarily compatible because frameworks of statistics and/or definitions of such key concepts as classification of hotels are different from one another. In the study, two kinds of statistics, the National System of Tourism Information (S.N.I.T.) and Tourism Statistics of 48 Major Tourism Destinations, are mainly analyzed. The reasons are briefly presented below.

The S.N.I.T. is a computerized database system. It has been developed recently and has been practically used since the beginning of 1995. The S.N.I.T., of which data are collected through each State Tourism Office and updated monthly by SECTUR, includes tourism services, general services, attractiveness, and so on, and is useful for an inventory of lodgings including hotels, although the time-series data is not available and the validity of data is deemed to be limited to some extent at present. Figures of lodgings at present (as of October 1995) are mostly quoted from the S.N.I.T.

On the other hand, Tourism Statistics of 48 Major Tourism Destinations, of which data is collected in cooperation with FONATUR, Ministry of Interior, Banco de Mexico and so on, is the only global statistics which deals with both hotel facilities and hotel guests although it does not cover the entire country and does not contain lodging facilities other than hotels. Therefore, time-series analysis of hotels is mainly conducted based on this statistics.

As for timesharing units, of which importance in tourism has been increasing in recent years, there is no available exact statistics at present. Therefore, the data of the S.N.I.T. and the information from Resort Condominium International (RCI) are compared to each other later.

La clasificación aplicada en esta sección a hotel se muestra en Table A.3. 11. Esta clasificación fue elaborada conjuntamente por la SECTUR y el sector privado, aunque está sujeta a un proceso de modificación por el sector privado con la cooperación de la SECTUR.

Table A.3. 10 Outline of statistics of lodgings in Mexico

Name of Statistics	- Tourism Statistics of 48 Major Tourism Destinations	- Nationwide Tourism Statistics by States	- Mexico's Official Lodging guide	- National System of Tourism information (S.N.I.T.)
Publishing Agency	- SECTUR	- SECTUR	- SECTUR	- SECTUR
Data Source (General)	- SECTUR (42 destinations) - FONATUR (6 destinations) - Ministry of Interior - Banco de Mexico	- SECTUR	- State Tourism Office	- State Tourism Office
Data Source (Hotels)	- Hotel Registration (SECTUR) - Survey (FONATUR)	- Hotel Registration (SECTUR)	- State Tourism Office	- State Tourism Office
Established Year	- 1975('86) (depending on destinations)	- 1984	- 1993.9	- 1995
Year of Available Latest Data	- 1994	- 1993 (1994 version under preparation)	- 1993	- 1995
Objective Area	- 48 Tourism Destinations	- The Whole Nexico	- The Whole Nexico	- The Whole Nexico
Objective Lodgings	- Hotels of 1 star and over	- Hotels	- Hotels and other lodgings 1/	- Hotels and other lodgings 1/
Classification Criteria of Hotels	- Official Classification 2/	- Official Classification 2/	- Official Classification 2/	- Tentative Classification 3/
Objective Hotels (Parentheses indicate hotel guest rooms of the whole study area in the latest statistics)	- Grand Tourism (22,031) * - 5 Stars (30,115) - 4 Stars (37,138) - 3 Stars (28,639) - 2 Stars (22,292) - 1 Star (22,304) * : Includes Special Class	- Special Class (3,887) - Grand Tourism (15,884) - 5 Stars (35,804) - 4 Stars (50,071) - 3 Stars (49,941) - 2 Stars (48,280) - 1 Star (36,058) - Economy Class (44,588) - Without Classification (81,990) - Protected Hotel (not shown)	- Special Class (-)* - Grand Tourism (-)* - 5 Stars (-)* - 4 Stars (-)* - 3 Stars (-)* - 2 Stars (-)* - 1 Star (-)* - Without Classification (-)* *: Summed up figures are not shown	- 5 Stars (63,115) - 4 Stars (59,879) - 3 Stars (57,667) - 2 Stars (47,759) - 1 Star (43,984) - Without Classification (74,303)
Total Rooms (Year)	- 162,519 (1994)	- 366,423 (1993)	- n.a.	- 346,707 (1995)
Remarks	- Includes dynamic statistics, such as hotel arrivals, occupancy rate, average stay and so on	- Statistics of existing tourism facilities, guides, marinas and so on, excluding use of facilities	- Inventory published as "Mexico's lodging official guide" in December 1994 by SECTUR.	- Computerized database system, including many kinds of existing tourism related facilities and other items

1/ Comprised 10 kinds of lodgings, including trailer park, timeshare unit and so on
2/ In the official classification established in 1984, hotels are classified into several categories (refer to next page)
3/ In the tentative classification examined since 1992, hotels are classified into 6 categories (refer to next page)
Source : JICA study team

Table A.3. 11 Characteristics of hotel services by class of hotel

Hotel Class	Services
One Star	This type of establishment provides lodging only, its services are: linen change and room cleaning everyday, private bathroom with a shower, lavatory and toilet; the furniture is simple, they only have staff to clean the rooms.
Two Stars	This type of establishment provides lodging and cafeteria; room cleaning, towels change everyday; the furniture is simple; they have staff to clean the rooms and receptionists.
Three Stars	This type of establishment provides lodging and restaurant-cafeteria usually open from 7 a.m. to 11 p.m.; the furniture and decorations are of a commercial style; The staff sometimes bilingual.
Four Stars	This establishment has a restaurant-cafeteria and bar with room service during 16 hours as minimum; banquet facilities, bilingual managers and controllers staff (English Spanish), uniformed staff, linen change and bathroom supplies daily; the furniture and decorations are of a commercial quality.
Five Stars	This establishment provides one or more restaurants, cafeterias, bar with entertainment and music, food service to the room service during 16 hours, stores, recreational areas, banquet and convention facilities. Bilingual (English-Spanish), service staff and attention to the public 24 hours, the furniture, decorations and installations are selected.
Grand Tourism (G.T.)	This establishment provides several restaurants, cafeterias, gourmet restaurants, one or more bars with entertainment and music, casino or similar, one or more banquet and convention facilities; food service to the rooms 24 hours; the furniture, decorations, installations and supplies are selected and exclusively designed.
Special Category (C.E.)	This establishment cannot be classified under the above categories, because they have special features like: location, architecture, type and number of services, or historical value. However, these special features are an attraction for the tourist. Some of these establishments are protected by the Anthropology and History National Institute, since they are considered colonial monuments that offer more services than the other categories.
Without Classification (S.C.)	These establishment were not classified by the Tourism Department, therefore, the quality and type of services they have are unknown.

Source: Mexico's lodgings official guidebook, SECTUR

b. Hotel chains

Hotel chains play an important role in worldwide lodging market including Mexico because they hold a large share of guest rooms in higher class hotels. Present condition of hotel chains in Mexico is shown in Table A.3. 12 and Table A.3. 13, and summarized below.

In the entire country, 76 hotel chains have 381 hotels with 75,570 rooms, which account for 5.1% of the number of hotels and 21.8% of guest rooms. Out of these hotel chains, 26 hotel chains having more than 1,000 rooms, manage a total of 54,344 rooms in 243 hotels.

Chain hotels which classified into 5 stars and over, have 58,458 guest rooms, which are 77.4 % of hotel chains' total guest rooms, and more than 90% of 5 stars and over guest rooms belong to chain hotels.

Table A.3. 12 Major hotel chains

Name of Hotel Chain	(a) Hotels	(b) Rooms	(c) = (b)/(a)
Fiesta Americana	19	7,259	382
Best Western	34	3,250	96
Sheraton	6	2,942	490
Camino Real	11	2,797	254
Calinda	14	2,650	189
Westin-Regina	7	2,350	336
Plaza Las Glorias	12	2,340	195
Club Mediterrane	11	2,247	204
Fiesta Inn	14	2,186	156
Melia	7	2,026	289
Presidente/Intercontinental	7	2,018	288
Howard Johnson	17	2,010	118
Continental Plaza	5	1,993	399
Hyatt	6	1,869	312
Oasis	4	1,801	450
Vista	7	1,759	251
Mision	12	1,733	144
Paraiso Radison	7	1,685	241
Vidafel	4	1,575	394
Sierra Radison	6	1,562	260
Total	210	48,052	229

Note: * hotel chains with more than 1500 rooms
Source: Chain hotel association

Table A.3. 13 Share of chain hotels in guest rooms by hotel class

	Total	G.T.	5 stars	4 stars	3 stars
(a) Chain Hotels	75,570	22,881	35,577	16,127	985
(b) Total	117,546	-	63,115*	59,879	57,667
(c) = (a)/(b) (%)	64.3	-	92.6*	26.9	1.7

Note: * Includes grand tourism (G.T.)
Source: (a) Chain hotel association, (b) S.N.I.T.

c. Timesharing

According to the S.N.I.T., about 13,000 timesharing units exist in the entire country. But Resort Condominium International (RCI), which holds as much share as over 75% of Mexican timesharing market, estimates that total supply as of December 1994 amounted to 19,500. This estimate is based on sample survey of 192 timeshare programs with 15,759 units. The data of the S.N.I.T., therefore, is deemed to be on the way of collection and the information from RCI is quoted for the Study.

The number of timeshare units increased rapidly from 3,700 in 1980 to around 20,000 in 1994. The percentage of timeshare units equivalent to hotel units in 1994 is 12%. Because timeshare units have been developed mostly in major coastal tourism destinations, the percentage in these destinations is much higher than an average of the entire country. RCI estimates that timeshare units represent over one third of the total lodging capacity in these destinations.

As shown in Table A.3. 14 , 20- 30 sales programs have been developed annually in recent years and in 1994, the number of accumulated sales programs increased to 359 (but the number of active timeshare programs at present is estimated at less than 300, because some of these programs are supposed to be interrupted or abolished).

Sales of timeshare intervals in Mexico are summarized in Table A.3. 14 and Table A.3. 15 . Total weeks sold are around 100,000 annually. Among purchasers, nationals account for 50-60% of the total weeks sold, but in the Mar de Cortes region, those from USA (mainly from California) account for more than 80% of the total.

Table A.3. 14 Timeshare sales programs and interval sales

Year	Sales Programs		Sales (Weeks Sold)				
	Accumulated*	New	Total	Nationals		Foreigners	
1980	62	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
1985	126	25	29,300	14,100	48.1%	15,200	51.9%
1986	154	18	31,500	16,400	52.1%	15,100	47.9%
1987	177	23	47,500	22,800	48.0%	24,700	52.0%
1988	195	18	64,000	32,700	51.1%	31,300	48.9%
1989	223	28	79,000	45,389	57.5%	33,611	42.5%
1990	252	29	89,200	51,866	58.1%	37,334	41.9%
1991	285	33	103,400	64,987	62.9%	38,413	37.1%
1992	316	31	107,363	65,877	61.4%	41,486	38.6%
1993	338	22	91,833	53,624	58.4%	38,209	41.6%
1994	359	21	104,137	53,737	51.6%	50,400	48.4%

Source: Latin American timeshare factbook (1994, PRC)

Table A.3. 15 Percentage of owners from main markets by region of ownership, 1994

	Pacific Coast	Mexican Caribbean	Mar de Cortes	Other	Total
Federal District	19.3	11.1	1.9	33.5	16.8
State of Mexico	9.1	4.7	0.6	18.9	7.9
Jalisco	8.0	2.3	0.5	2.9	5.9
Guanajuato	4.0	0.9	0.1	3.4	3.0
Nuevo Leon	2.3	2.4	0.3	10.0	2.5
Other Mexico	18.0	12.0	9.7	30.1	18.2
Subtotal Mexico	60.7	33.4	13.0	98.8	54.3
California	10.0	8.0	43.1	0.2	11.3
New York	7.0	6.7	0.7	0.1	2.8
Texas	1.7	4.0	2.1	0.4	2.3
Illinois	1.4	3.3	8.4	0.1	1.8
New Jersey	0.7	3.7	0.4	0.0	1.4
Other U.S.A	13.5	29.4	26.8	0.2	19.0
Subtotal U.S.A	34.3	55.2	81.4	0.9	38.6
Canada	5.0	5.0	5.3	0.1	5.1
Others	0.7	6.3	0.6	0.1	2.0
Total	100.0	100.0	100.0	100.0	100.0

Source: Latin American timeshare factbook (1994, RCI)

d. Hotel services

Services are as important as facilities. The quality of services required in hotels differs, not only depending on tourists because of their various sense of values, but also depending on classes of hotels because the supply of services are costs for hotels. Main features of hotel services in Mexico are generally summarized below.

- Regular services, which are provided by hotel staff through certain standard procedure, could be acceptable to most tourists.
- Sometimes services are slow and tourists waste their time while waiting. One example is a long line for check out in the morning, which is rather usual. It is deemed to be mostly due not to shortage in the number of staff, but to the lack of a collaboration system within staff.
- Hotel employees tend to dedicate themselves to a certain fixed job and to pay little attention to other related jobs, which might be rather usual in Mexico. These conditions may prevent some rare requirements of guest from being complied with, and moreover, contribute to answer a question of guest without reliable information and basis. The following are a few examples: An employee

of hotels whose guests are mainly ones of package tours, may take much time for check out of an independent traveler; a guest in a resort hotel may ask an employee to send/receive a fax in vain.

- As mentioned above, services required have wide variety depending on guests. From this point of view, the present situation seems not to be satisfactory. Roughly speaking, tourists from USA have some similar sense of values to Mexicans, and, moreover, hotel staff have learned American way of thinking through a great deal of experience. On the other hand, hotel staff is lacking in the knowledge on sense of values of minorities in Mexican tourism market, such as European and Asian. They, therefore, could hardly expect delicate services, which often impress the destination on tourists.
- Another issue in services related to minorities is of communication. In higher class hotels, some employees, by no means all of them, can speak English. Furthermore, French and German are spoken in some places of certain destinations. These conditions are constraints on communications and decrease services provided to guests.

(2) Other tourism related facilities

The number of some tourism related facilities other than lodgings is shown in Table A.3. 16, Table A.3. 17 and Table A.3. 18. There are 128 golf courses, 36 marinas, and 25 zoo and botanical gardens in the entire country. Museums including art museum, aquarium and so on, amount to 555. Moreover, hotels (especially, higher class hotels) generally provide some kinds of tourism facilities, such as swimming pool, restaurant, bar and travel agencies.

Based on these data and the site survey carried out in the Study, implications are summarized below.

- Tourism related facilities are provided to some extent and are acceptable. Among them, particularly, many kinds of restaurants exist and tourists can take a meal generally on their preference.
- Variety of amusement facilities is not wide.
- Variety of facilities for a family with children is not wide and the number of those facilities is rather small.
- Several large marinas are under planning or under construction mainly as a component of a huge scale resort complex.
- Nearly half of golf courses are 9 holes and small.

Table A.3. 16 Major sports and amusement facilities by state

	Golf Course (1994)				Marina (1994)						Zoo and Botanical Garden (1995)
	Holes				Marina	Capacity			Dry Marina		
	9	18	27	Total	Units	Project	Construction	In operation	Units	Capacity	
Aguascalientes	3	-	-	3	-	-	-	-	-	-	-
Baja California	1	4	1	6	1	170	-	50	1	25	1
Baja California Sur	1	4	-	5	5	613	-	613	1	15	-
Campeche	1	-	-	1	-	-	-	-	-	-	1
Chiapas	1	-	-	1	-	-	-	-	-	-	1
Chihuahua	3	3	-	6	-	-	-	-	-	-	1
Coahuila	6	2	-	8	-	-	-	-	-	-	1
Colima	2	1	1	4	2	572	-	272	1	35	-
Distrito Federal	-	2	-	2	-	-	-	-	-	-	2
Durango	-	2	-	2	-	-	-	-	-	-	-
Guanajuato	4	3	-	7	-	-	-	-	-	-	2
Guerrero	3	2	-	5	4	1,324	-	876	2	300	1
Hidalgo	2	-	-	2	-	-	-	-	-	-	-
Jalisco	2	4	-	6	2	675	-	501	1	152	1
Mexico	6	8	-	14	-	-	-	-	-	-	3
Michoacan	3	-	-	3	-	-	-	-	-	-	1
Morelos	2	4	-	6	-	-	-	-	-	-	1
Nayarit	1	1	-	2	1	1,000	-	324	-	-	-
Nuevo Leon	-	3	-	3	-	-	-	-	-	-	-
Oaxaca	-	1	-	1	1	195	-	-	-	-	-
Puebla	1	2	-	3	-	-	-	-	-	-	1
Queretaro	1	5	-	6	-	-	-	-	-	-	-
Quintana Roo	2	1	-	3	9	2,525	-	618	-	-	-
San Luis Potosi	1	2	-	3	-	-	-	-	-	-	-
Sinaloa	2	1	-	3	3	1,338	400	108	1	46	1
Sonora	1	4	-	5	3	2,978	200	775	2	400	2
Tabasco	1	0	-	1	-	-	-	-	-	-	3
Tamaulipas	1	6	-	7	-	-	-	-	-	-	-
Tlaxcala	-	-	-	0	-	-	-	-	-	-	1
Veracruz	7	-	-	7	1	30	-	30	-	-	-
Yucatan	-	1	-	1	4	365	-	365	-	-	1
Zacatecas	2	-	-	2	-	-	-	-	-	-	-
Total	60	66	2	128	36	11,785	600	4,532	9	973	25

Source: Golf course and marina, SECTUR, Zoo and botanical garden, S.N.I.T.

Table A.3. 17 Number of museums by state, 1995

	Anthropology and History	Art	Science and Technology	Others	Total
Aguascalientes	-	-	-	7	7
Baja California	1	1	2	16	20
Baja California Sur	1	5	1	2	9
Campeche	1	4	1	2	8
Coahuila	2	-	1	10	13
Colima	-	-	-	3	3
Chiapas	1	3	1	13	18
Chihuaua	1	6	1	2	10
Distrito Federal	24	30	13	29	96
Durango	-	1	1	3	5
Guanajuato	1	2	2	40	45
Guerrero	2	6	1	1	10
Hidalgo	-	2	1	9	12
Jalisco	5	7	1	3	16
Mexico	3	5	2	26	36
Michoacan	5	12	-	16	33
Morelos	1	7	-	2	10
Nayarit	3	1	-	7	11
Nuevo Leon	1	1	3	21	26
Oaxaca	-	1	-	5	6
Puebla	2	7	-	12	21
Queretaro	-	-	1	17	18
Quintana Roo	1	-	-	-	1
San Luis Potosi	-	-	1	13	14
Sinaloa	1	3	1	13	18
Sonora	3	2	2	3	10
Tabasco	1	6	1	3	11
Tamaulipas	2	3	1	3	9
Tlaxcala	-	1	-	5	6
Veracruz	7	2	1	16	26
Yucatan	1	3	1	8	13
Zacatecas	1	12	1	-	14
Total	71	133	41	310	555

Source: S.N.I.T.

Table A.3. 18 Number of restaurant, bar and discotheque by state, 1955

	Restaurant		Bar	Discotheque
	Total	Hotel*		
Aguascalientes	163	23	21	5
Baja California	434	86	95	30
Baja California Sur	232	3	41	9
Campeche	215	57	16	7
Coahuila	189	36	34	14
Colima	179	38	27	13
Chiapas	420	117	52	41
Chihuaua	297	79	105	62
Distrito Federal	821	68	154	38
Durango	62	10	17	5
Guanajuato	386	41	60	33
Guerrero	604	144	105	38
Hidalgo	224	33	53	14
Jalisco	401	144	58	20
Mexico	655	282	15	55
Michoacan	546	88	78	24
Morelos	397	68	76	21
Nayarit	273	88	38	37
Nuevo Leon	179	41	30	12
Oaxaca	888	95	78	24
Puebla	276	36	32	17
Queretaro	331	84	40	15
Quintana Roo	415	136	100	13
San Luis Potosi	171	66	30	15
Sinaloa	367	131	75	33
Sonora	623	50	90	48
Tabasco	364	46	63	18
Tamaulipas	518	112	129	43
Tlaxcala	170	23	20	12
Veracruz	1,552	254	219	47
Yucatan	342	68	41	9
Zacatecas	260	85	41	22
Total	12,954	2,632	2,033	794

Source: S.N.I.T.

A.3.4. Tourism transport

This section focuses mainly to transport network be early transport measure as tourism access.

A.3.4.1. Existing condition

(1) Airservices

Air service fill the most important role as tourism access measure because of geographical characteristics of Mexico.

Mexico has 1,749 airports in 1994, of which national ones are 33, international are 50 and airdromes are 1,666. Among them, main commercial use airports are controlled by ASA (Aeropuertos y Servicios Auxiliares). ASA administrates 62 airports, of which national ones are 16, international are 42 and fuel stations (Estación de Combustible) are 4.

Figure A.3. 6 shows locations of 58 commercial use airports administrated by ASA.This airport network almost covers the whole country and most of tourism destinations.

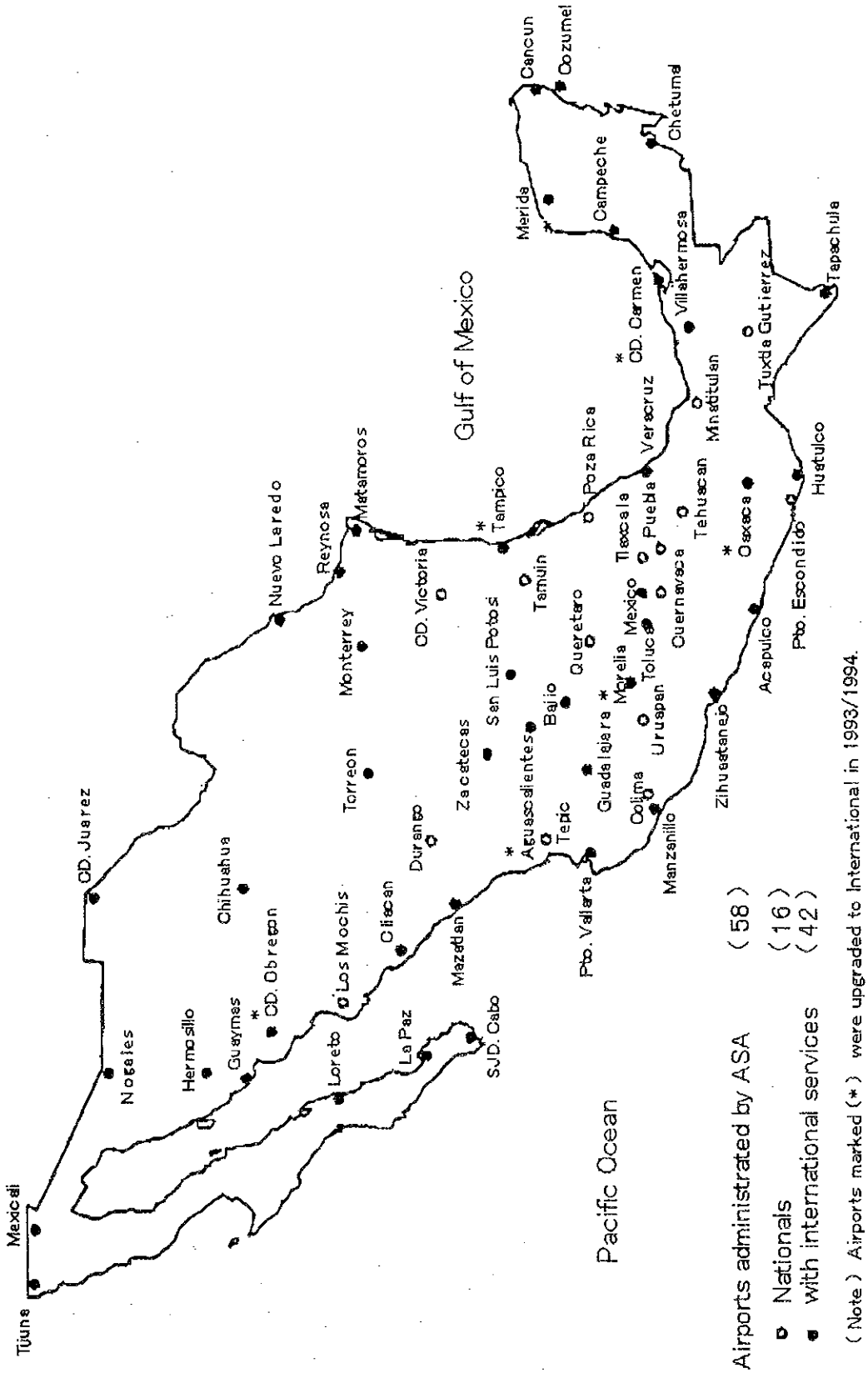
shows the above airport facilities and operating capacity including future demand forecast. As shown in the table, most of the airports have enough operating capacity until 2010. Some of them, however, in metropolitan areas such as Mexico D.F. and Guadalajara, and major tourism destinations such as Cancun and Mazatlan will face to shortage of capacity after 2000.

Table A.3. 20 and Table A.3. 21 show annual passengers and operations in 1989 and 1993, and future demand forecast until 2010.

Table A.3. 22 and Table A.3. 23 show capacity of platform and terminal building, and their forecast until 2010 correspond to the demand forecast. As shown in the tables, many airports face to shortage of capacity of platform and terminal building. Some of them have been in short of capacity and some improvement are required.

Figure A.3. 7 to Figure A.3. 10 show "Air service flow in 1992" as to "International trunk and regional lines in 1992". and "Domestic trunk and regional lines in 1993". As shown in these figures, air service flow concentrates on Mexico City airport except the international regional line on which there are many charter flights to the tourism destinations such as Los Cabos and Cancun.

Figure A.3. 6 Airport location



Source: ASA and SCTdata, compiled by JICA study team

Table A.3. 19 Airport facilities and operating capacity

Abbreviation	Location	Classification	Type	No. of Runway	Dimension of Runway 1	Dimension of Runway 2.	Acceptable Maximum Fleet	Operated Maximum Fleet	Operating Hour	Operating Capacity / hr.	Demand (Peak time)			
											1993	1995	2000	2010
1 ACA	Acapulco Gro.	International	Tourism	2	3300 X 45m	1700 X 35m	B-747	B-747	24 hours	38	15	17	20	24
2 AGU	Aguascalientes. Ags.	International	Regional	2	3000 X 45m	1000 X 30m	B-727	MD-80	07:00 -19:00 hrs.	18	8	9	12	15
3 BJX	Silao-Guanajuato	International	Regional	1	3500 X 45m		B-727	B-727	07:00 -19:00 hrs	18	13	14	17	21
4 CEN	Cd.Obregon .Son.	InterDomestic	Regional	1	2300 X 45m		MD-80	MD-80	07:00 -19:00 hrs	18	7	8	9	11
5 CJS	Ciudad Juárez. Chi	International	Frontier	2	2700 X 45m	1750 X 30m	B-757	B-757	07:00 -20.00 hrs	20	9	10	13	15
6 CME	Cd. del Carmen,Cam	International	Regional	1	2190 X 45m		B-727	B-727	07:00 -19::00 hrs	30	16	17	22	26
7 COL	Colima ,Col	Domestic	Regional	1	2300 X 45m		B-727	B-727	07:00 -19::00 hrs	16	5	6	8	10
8 CAM	Campeche, Cam	International	Regional	1	2500 X 45m		B-727	DC-932	07:00 - 19:00 hrs	18	3	4	4	5
9 CTM	Chetumal, Qroo.	International	Frontier	1	2208 X 46m		B-727	B-727	07:00 - 19:00 hrs	16	6	8	11	14
10 CUL	Culiacán , Sin.	International	Regional	1	2300 X 45m		MD-80	MD-80	07:00 - 19:00 hrs	20	15	18	23	29
11 CUN	Cancún, Qroo.	International	Tourism	1	3500 X 60m		B-747	B-747	24 hrs	38	25	31	41	53
12 CUU	Chihuahua, Chih.	International	Regional	3	2600 X 45m	2420 X 45m	B-727	MD-80	07:00 - 21:00 hrs	40	16	17	20	24
13 CVA	Cuernavaca, Mor.	Domestic	Regional	1	2772 X 45m		B-737	C-210	07:00 - 19:00 hrs	10	0	8	9	10
14 CVM	Cd. Victoria, Tams.	Domestic	Regional	2	2200 X 45m	1420 X 30 m	B-727	B-727	07:00 - 19:00 hrs	18	5	6	7	9
15 CZM	Cozumel, Qroo.	International	Tourism	2	2700 X 45m	2500 X 45 m	DC-10	B727	07:00 - 21:00 hrs	22	13	14	16	19
16 DGO	Durango, Dgo.	Domestic	Regional	1	2900 X 45m		B-727	MD-80	07:00 - 19:00 hrs	40	10	12	15	19
17 GDL	Guadalajara, Jal.	International	Metropolitan	2	4000 X 60 m	1770 X 35 m	DC-10	DC-10	24 hrs	45	38	44	54	67
18 GYM	Guaymas, Son.	International	Tourism	1	2350 X 45m		B-727	DC-932	0800 - 20:00 hrs	16	5	6	7	8
19 HMO	Hermosillo, Son.	International	Regional	2	2300 X 45m	1100 X 30 m	DC-10	B-727	07:00 - 21:00 hrs	35	16	18	21	26
20 HUX	Bahias de Huatulco, Oax.	International	Tourism	1	2700 X 45m		DC-10	DC-10	07:00 - 18:00 hrs	18	5	7	10	14
21 LAP	La Pzaz B.C.S.	International	Tourism	1	2500 X 45m		DC-10	B-727	0800 - 22:00 hrs	20	11	12	15	19
22 LMM	Los Mochis, Sin.	Domestic	Regional	1	2000 X 45m		B-727	MD-80	0800 - 22:00 hrs	20	9	11	14	18
23 LTO	Loreto B.C.S.	International	Tourism	1	2200 X 45m		B-727	B-727	0800 - 20:00 hrs	15	5	6	6	7
24 MAM	Matamoros, Tams	International	Frontier	1	2300 X 46m		B-727	MD-80	0800 - 20:00 hrs	22	4	5	5	6
25 MEX	México, D.F.	International	Metropolitan	2	3946 X 45m	3900 X 45m	B-747	B-747	24 hrs	55	54	49	60	72
26 MID	Mérida, Yuc.	International	Tourism	2	2700 X 46m	2300 X 46m	DC-10	DC-10	24 hrs	30	18	21	25	31
27 MLM	Morelia, Mich.	International	Regional	1	2400 X 45m		B-757	B-757	0700 - 19:00 hrs	15	10	11	12	14
28 MTT	Minatitlán, Ver.	Domestic	Regional	1	2100 X 45m		B-727	B-727	0700 - 19:00 hrs	20	7	7	9	10
29 MTY	Monterrey, N.L.	International	Metropolitan	2	3000 X 45m	1800 X 45m	B-747	DC-10	24 hrs	33	21	24	29	36
30 MXL	Mexicali, B.C.	International	Frontier	1	2600 X 44m		B-727	B-727	0800 - 20:00 hrs	18	9	10	11	13
31 MZT	Mazatlán, Sin.	International	Tourism	1	2700 X 60m		B-747	B-747	24 hrs	22	18	20	23	28
32 NLD	Nuevo Laredo, Tams.	International	Frontier	1	2000 X 45m		B-727	F-10	08:00 - 20:00 hrs	22	2	4	4	5
33 NOG	Nogales, Son.	International	Frontier	1	1800 X 30m		B-737	L/135	07:00 - 19:00 hrs	14	3	4	6	9
34 OAX	Oaxaca, Oax.	International	Regional	1	2450 X 45m		B-727	B-727	06:00 - 18:00 hrs	22	10	11	13	16
35 PAZ	Poza Rica, Ver.	Domestic	Regional	1	1800 X 45m		B-727	B-727	07:00 - 19:00 hrs	18	4	5	6	7
36 PBC	Puebla, Pue.	Domestic	Regional	1	3600 X 45m		B-727	B-727	07:00 - 19:00 hrs	18	7	7	9	11
37 PVR	Puerto Vallarta, Jal.	International	Tourism	1	3100 X 45m		B-747	B-747	24 hrs	35	15	17	21	26
38 PXM	Puerto Escondido, Oax.	Domestic	Tourism	1	2300 X 45m		B-727	B-727	06:00 - 18:00 hrs	16	3	4	5	7
39 QET	Querétaro, Qro.	Domestic	Regional	1	1900 X 30m		B-737	ATR-42	07:00 - 18:00 hrs	15	0	4	5	7
40 REX	Reynosa, Tams.	International	Frontier	1	1980 X 45m		B-727	MD-80	07:00 - 19:00 hrs	13	5	7	9	11
41 SJD	Sn. José del Cabo, B.C.S.	International	Tourism	1	2200 X 45m		B-727	B-727	08:00 - 19:00 hrs	22	8	10	13	17
42 SLP	San Luis Potosí, S.L.P.	International	Regional	2	3000 X 45m	1000 X 30m	B-727	B-727	07:00 - 19:00 hrs	20	10	12	15	19
43 TAM	Tampico, Tams	International	Regional	31	2550 X 45m	1525 X 45m	DC-10	B-727	06:30 - 21:00 hrs	22	14	16	19	23
44 TAP	Tapachula, Chis.	International	Frontier	1	2000 X 45m		B-727	MD-80	06:30 - 21:00 hrs	18	5	6	7	9
45 TCN	Tehuacán , Pue	Domestic	Regional	1	1700 X 34m		ATR-42	ATR-42	07:00 - 19:00 hrs	15	1	1	2	2
46 TGZ	Tuxtla Gutierrez, Chis.	Domestic	Regional	2	2500 X 45m	1500 X 30m	B-727	DC-910	07:00 - 19:00 hrs	22	3	5	6	8
47 TIJ	Tijuana, B.C.	International	Frontier	1	3000 X 44m		DC-10	DC-10	08:00 - 22:00 hrs	38	17	20	5	30
48 TLC	Toluca, Edo. de Mex.	International	Metropolitan	1	4200 X 45m		B-747	B-727	24 hrs	30	11	27	30	35
49 TMN	Tamuin, S.L.P.	Domestic	Regional	1	1400 X 30m		F-27	F- 27	07:00 - 18:00 hrs	14	1	1	1	2
50 TNY	Tepic, Nay.	Domestic	Regional	1	2300 X 45m		B-72	MD-80	07:00 - 19:00 hrs	15	10	12	15	19
51 TRC	Torreón, Coah.	International	Regional	2	2750 X 45m	1740 X 30m	MD-80	MD-80	07:00 - 21:00 hrs	18	14	15	18	21
52 TXA	Tlaxcala, Tlax	Domestic	Regional	1	2500 X 30m		B-737	F-27	07:00 - 19:00 hrs	15	0	2	2	3
53 UPN	Uruapan, Mich.	Domestic	Regional	1	2400 X 45m		B-727	ATR-42	07:00 - 19:00 hrs	16	10	10	12	13
54 VER	Veracruz, Ver.	International	Tourism	2	2400 X 45m	1523 X 45m	DC-10	B-727	07:00 - 19:00 hrs	20	12	14	17	21
55 VSA	Villahermosa, Tab.	International	Regional	1	2200 X 45m		B-727	B-727	07:00 - 19:00 hrs	20	11	12	14	18
56 ZCL	Zacatecas, Zac.	International	Regional	2	3000 X 45m	1000 X 30m	B-757	B-757	07:00 - 19:00 hrs	20	7	8	10	13
57 ZIH	Zihuatanejo, Gro.	International	Tourism	1	2500 X 60m		B-747	B-727	07:00 - 19:00 hrs	20	9	11	13	17
58 ZLO	Manzanillo, Col.	International	Tourism	1	2200 X 45m		DC-10	B-727	08:00 - 20:00 hrs	20	6	7	8	10

Source: ASA, Sistema estadistico aeroportuario, 1994.

Table A.3. 20 Annual passengers forecast (1988 - 2010)

No.	Acronym	Type	Classification	Total Passengers (Thousand)				
				Stastitics		Forecast (High Estimate)		
				1988	1993	1995	2000	2010
1	MEX	International	Metropolit	10,051	16,470	20,448	29,016	41,793
2	GDL	International	Metropolit	3,216	6,041	7,306	9,966	13,933
3	CUN	International	Tourist	1,868	4,604	6,638	10,910	17,281
4	TIJ	International	Frontier	1,392	2,784	3,460	4,880	6,997
5	MTY	International	Metopolit	1,156	2,216	2,777	3,954	5,711
6	PVR	Domestic	Tourist	1,617	1,635	2,024	2,836	4,048
7	ACA	International	Tourist	1,675	1,386	1,629	2,142	2,904
8	MID	International	Tourist	617	1,094	1,343	1,847	2,596
9	MZT	International	Tourist	1,093	1,012	1,162	1,475	1,943
10	ZIH	International	Tourist	640	775	963	1,360	1,953
11	CZM	International	Tourist	508	693	832	1,124	1,557
12	SJD	International	Tourist	378	688	1,007	1,671	2,665
13	HMO	International	Regional	388	637	810	1,171	1,710
14	CUU	International	Regional	312	626	746	998	1,373
15	BJX	International	Regional	134	626	788	1,123	1,624
16	CUL	International	Regional	308	594	801	1,234	1,883
17	OAX	Domestic	Regional	412	548	672	927	1,311
18	VSA	International	Regional	340	477	558	726	977
19	TRC	Domestic	Regional	178	443	522	685	931
20	VER	International	Tourist	212	442	567	826	1,215
21	CJS	International	Frontier	178	412	498	695	988
22	LAP	International	Tourist	502	389	510	763	1,138
23	TAM	International	Regional	266	377	498	751	1,127
24	ZCL	International	Regional	207	359	487	757	1,159
25	AGU	International	Regional	154	346	484	770	1,200
26	HUX	International	Tourist	56	310	615	1254	2,209
27	LMM	Domestic	Regional	224	289	430	722	1,159
28	MLM	International	Regional	61	285	337	447	614
29	MTT	Domestic	Regional	168	279	331	442	605
30	MXL	International	Frontier	189	271	316	409	545
31	CME	International	Regional	236	264	297	386	518
32	DGO	Domestic	Regional	145	262	334	483	705
33	ZLO	International	Tourist	310	217	283	422	632
34	SLP	International	Regional	88	207	292	468	734
35	TAP	Domestic	Frontier	80	195	242	335	473
36	TNY	International	Regional	80	189	244	359	531
37	CEN	International	Regional	143	183	227	320	459
38	TGZ	International	Regional	137	139	180	267	397
39	GYM	International	Tourist	94	115	143	201	287
40	PBC	International	Regional	16	102	154	266	434
41	PXM	Domestic	Tourist	75	87	117	180	277
42	COL	Domestic	Regional	33	87	116	180	272
43	CTM	International	Frontier	34	85	128	215	347
44	NLD	International	Frontier	102	78	97	139	202
45	MAM	International	Frontier	77	77	96	137	199
46	REX	International	Frontier	90	75	91	125	176
47	UPN	International	Regional	30	67	72	88	111
48	CPE	International	Regional	61	67	80	113	162
49	LTO	International	Tourist	50	55	66	90	125
50	TLC	Domestic	Metropolit	48	44	165	205	263
51	PAZ	Domestic	Regional	7	44	54	77	111
52	CVM	Domestic	Regional	29	42	54	77	111
53	NOG	International	Frontier	16	9	12	20	31
54	TCN	Domestic	Regional	4	3	4	6	9
55	TMN	Domestic	Regional	1	1	1	2	2
56	TXA	Domestic	Regional			4	5	7
57	QET	Domestic	Regional			11	15	21
58	CVA	Domestic	Regional			27	31	36
TOTAL				30,486	49,802	63,150	91,093	132,781

Note: Location ofairport is shown in followed each acronym

Source: Sistema Estadistica Aeroportuario, 1994, ASA

Table A.3. 21 Annual operations forecast (1988 - 2010)

No.	Acronym	Type	Classification	Total Operations				
				Stastitics		Forecast (High Estimate)		
				1988	1993	1995	2000	2010
1	MEX	International	Metropolit	174,916	310,891	294,548	397,365	536,170
2	GDL	International	Metropolit	67,614	164,220	193,991	253,145	333,730
3	CUN	International	Tourist	29,273	63,623	87,468	133,247	192,442
4	TIJ	International	Frontier	22,417	50,386	60,683	81,015	108,464
5	MTY	International	Metopolit	31,880	42,440	52,531	72,238	98,413
6	PVR	Domestic	Tourist	19,381	40,250	49,169	65,663	87,911
7	ACA	International	Tourist	24,269	40,010	46,066	58,185	74,878
8	MID	International	Tourist	27,291	37,741	46,446	63,586	86,458
9	MZT	International	Tourist	32,614	33,697	39,646	51,432	67,421
10	ZIH	International	Tourist	29,198	32,950	37,884	47,755	61,355
11	CZM	International	Tourist	30,533	32,714	37,458	48,311	62,920
12	SJD	International	Tourist	32,700	32,492	37,395	47,202	60,708
13	HMO	International	Regional	25,519	31,557	38,339	51,682	69,580
14	CUU	International	Regional	14,329	27,388	31,329	39,230	50,150
15	BJX	International	Regional	24,083	27,223	32,598	43,198	57,477
16	CUL	International	Regional	20423	24,883	27,871	33,851	42,108
17	OAX	Domestic	Regional	8931	24,154	28,898	38,293	51,023
18	VSA	International	Regional	17021	21,861	26,706	36,645	50,012
19	TRC	Domestic	Regional	16586	20,215	24,894	34,112	46,504
20	VER	International	Tourist	17074	19,534	23,750	31,961	42,811
21	CJS	International	Frontier	15221	18,959	22,498	29,519	39,069
22	LAP	International	Tourist	10337	18,954	62087	70,975	81,872
23	TAM	International	Regional	10610	17,845	22554	31076	42,476
24	ZCL	International	Regional	14006	17,355	20402	26471	34,773
25	AGU	International	Regional	9356	17,310	19580	23624	29,199
26	HUX	International	Tourist	10632	17201	18613	21483	25,542
27	LMM	Domestic	Regional	9788	16641	21721	31532	44,330
28	MLM	International	Regional	23878	15781	17451	20780	25,365
29	MTT	Domestic	Regional	10939	15694	18544	24432	32,420
30	MXL	International	Frontier	15741	14385	18944	26612	36,760
31	CME	International	Regional	10611	14160	19387	29,195	41,796
32	DGO	Domestic	Regional	9269	13444	17655	25755	36,268
33	ZLO	International	Tourist	7345	12583	16044	22463	30,870
34	SLP	International	Regional	7828	11078	11416	15513	20,933
35	TAP	Domestic	Frontier	9230	10738	12486	15946	20,629
36	TNY	International	Regional	5802	10208	11616	14438	18,343
37	CEN	International	Regional	4392	9809	12526	17822	24,822
38	TGZ	International	Regional	9575	8827	12458	19075	27,574
39	GYM	International	Tourist	7891	7947	9678	13037	17,448
40	PBC	International	Regional	11320	7638	8495	10206	12,545
41	PXM	Domestic	Tourist	11639	7555	9565	14017	19,876
42	COL	Domestic	Regional	9397	7089	7735	9163	11,097
43	CTM	International	Frontier	5941	6926	8291	10965	14,538
44	NLD	International	Frontier	1905	6146	10273	17810	26,894
45	MAM	International	Frontier	6427	5946	7765	10947	15,168
46	REX	International	Frontier	2622	5875	7838	11645	16,637
47	UPN	International	Regional	9914	5606	7413	10920	15,531
48	CPE	International	Regional	2837	5247	6087	7746	9,984
49	LTO	International	Tourist	7825	5073	5798	7253	9,259
50	TLC	Domestic	Metropolit	5220	4380	5951	9014	12,992
51	PAZ	Domestic	Regional	2917	3801	5061	7501	10,689
52	CVM	Domestic	Regional	8174	3550	4033	5125	6,626
53	NOG	International	Frontier	6961	3364	4153	5721	7,767
54	TCN	Domestic	Regional	2224	2028	2187	3020	4,138
55	TMN	Domestic	Regional	560	535	617	802	1,055
56	TXA	Domestic	Regional			2801	3556	4,600
57	QET	Domestic	Regional			6981	9383	12,631
58	CVA	Domestic	Regional			14285	15885	18,186
TOTAL				964,386	1,427,487	1,708,659	2,278,543	3,041,237

Note: Location of airport is shown in followed each acronym

Source: Sistema Estadistica Aeroportuario, 1994, ASA

Table A.3. 22 Capacity and demand of platform

No.	Acronym	Type	Platform area (m^2)	Capacity (Position)	Rendimient (m^2/position)	Demand (High estimate) 1993	1995	2000	2005	2010
1	GDL	Int	89,600	16	5,600	18	21	26	28	31
2	MEX	Int	459,500	65	7,069	42	46	54	59	63
3	MTY	Int	77,300	9	8,589	9	11	15	18	19
4	TLC	Int	50,500	4	12,625	2	2	3	3	3
Average of Metropolitan Airport			169,225	24	7,201	18	20	25	27	29
1	ACA	Int	116,300	15	7,753	8	8	10	11	12
2	CUN	Int	154,800	23	6,730	17	21	29	33	37
3	CZM	Int	18,900	4	4,725	5	5	7	8	8
4	GYM	Int	6,450	2	3,225	2	2	2	3	3
5	HUX	Int	30,371	3	10,124	3	5	7	8	9
6	LAP	Int	41,059	7	5,866	5	7	8	10	11
7	LTO	Int	16,200	3	5,400	1	2	2	2	2
8	MID	Int	54,252	10	5,425	6	8	11	12	15
9	MZT	Int	68,098	10	6,810	10	12	14	16	17
10	PVR	Int	109,925	11	9,993	9	10	13	14	16
11	PXM	Dom	16,200	2	8,100	2	2	2	3	3
12	SJD	Int	20,700	4	5,175	4	5	7	9	10
13	VER	Int	22,500	3	7,500	4	6	7	8	9
14	ZIH	Int	16,800	4	4,200	5	5	6	8	8
15	ZLO	Int	13,500	3	4,500	3	4	5	5	6
Average of Tourism Airport			47,070	7	6,789	6	7	9	10	11
1	AGU	Int	16,200	3	5,400	2	3	5	6	6
2	BJX	Int	16,200	3	5,400	5	6	8	8	10
3	CEN	Int	18,000	2	9,000	2	2	3	3	4
4	CME	Int	11,981	2	5,991	3	3	3	3	4
5	COL	Dom	16,200	3	5,400	2	3	3	4	4
6	CPE	Int	16,200	3	5,400	2	1	1	1	2
7	CUL	Int	20,142	4	5,036	3	5	8	9	10
8	CUU	Int	16,200	3	5,400	3	4	6	7	8
9	CVA	Dom	12,000	25	480	0	17	18	20	21
10	CVM	Dom	16,200	3	5,400	1	1	2	2	2
11	DGO	Dom	16,200	3	5,400	3	3	5	6	7
12	HMO	Int	19,800	4	4,950	4	6	8	9	10
13	LMM	Dom	16,200	3	5,400	2	4	6	6	8
14	MLM	Int	22,860	4	5,715	3	4	5	6	6
15	MTT	Dom	16,200	3	5,400	2	2	2	3	4
16	OAX	Int	33,950	5	6,790	4	4	5	6	7
17	PAZ	Dom	15,750	3	5,250	1	2	3	3	3
18	PBC	Dom	16,200	3	5,400	2	2	4	4	5
19	QET	Dom	17,000	35	486	0	8	11	13	15
20	SLP	Int	16,200	3	5,400	3	5	7	9	9
21	TAM	Int	35,770	4	8,693	3	5	6	8	8
22	TCN	Dom	5,400	19	284	2	2	4	4	5
23	TGZ	Dom	16,200	3	5,400	1	2	3	3	3
24	TMN	Dom	4,600	10	460	1	1	1	2	2
25	TNY	Dom	16,200	3	5,400	2	4	3	4	5
26	TRC	Int	24,600	4	6,150	3	5	5	6	6
27	TXA	Dom	7,000	10	700	0	3	4	5	5
28	UPN	Dom	6,875	2	3,438	2	2	3	3	3
29	VSA	Int	16,200	3	5,400	4	5	6	7	7
30	ZCL	Int	16,915	3	5,638	3	3	5	6	6
Average of Regional Airport			16,615	6	2,800	2	4	5	6	7
1	CJS	Int	13,376	2	6,688	2	2	4	5	5
2	CTM	Int	10,584	2	5,292	2	3	5	5	5
3	MAM	Int	16,200	3	5,400	2	1	1	1	2
4	MXL	Int	13,140	3	4,380	2	2	3	3	4
5	NLD	Int	13,500	2	6,750	1	2	2	2	2
6	NOG	Int	4,000	10	400	6	9	13	15	18
7	REX	Int	14,400	3	4,800	1	1	1	1	1
8	TAP	Int	16,200	3	5,400	2	3	3	4	4
9	TIJ	Int	73,080	10	7,308	9	10	12	14	15
Average of Frontier Airport			19,387	4	4,592	3	4	5	6	6
Total Average			63,074	10	6,216	7	9	11	12	13

Note: Lacation of airport is shown in followed each acronym

Source: Sistema Estadística Aeropuertuario, 1994, ASA

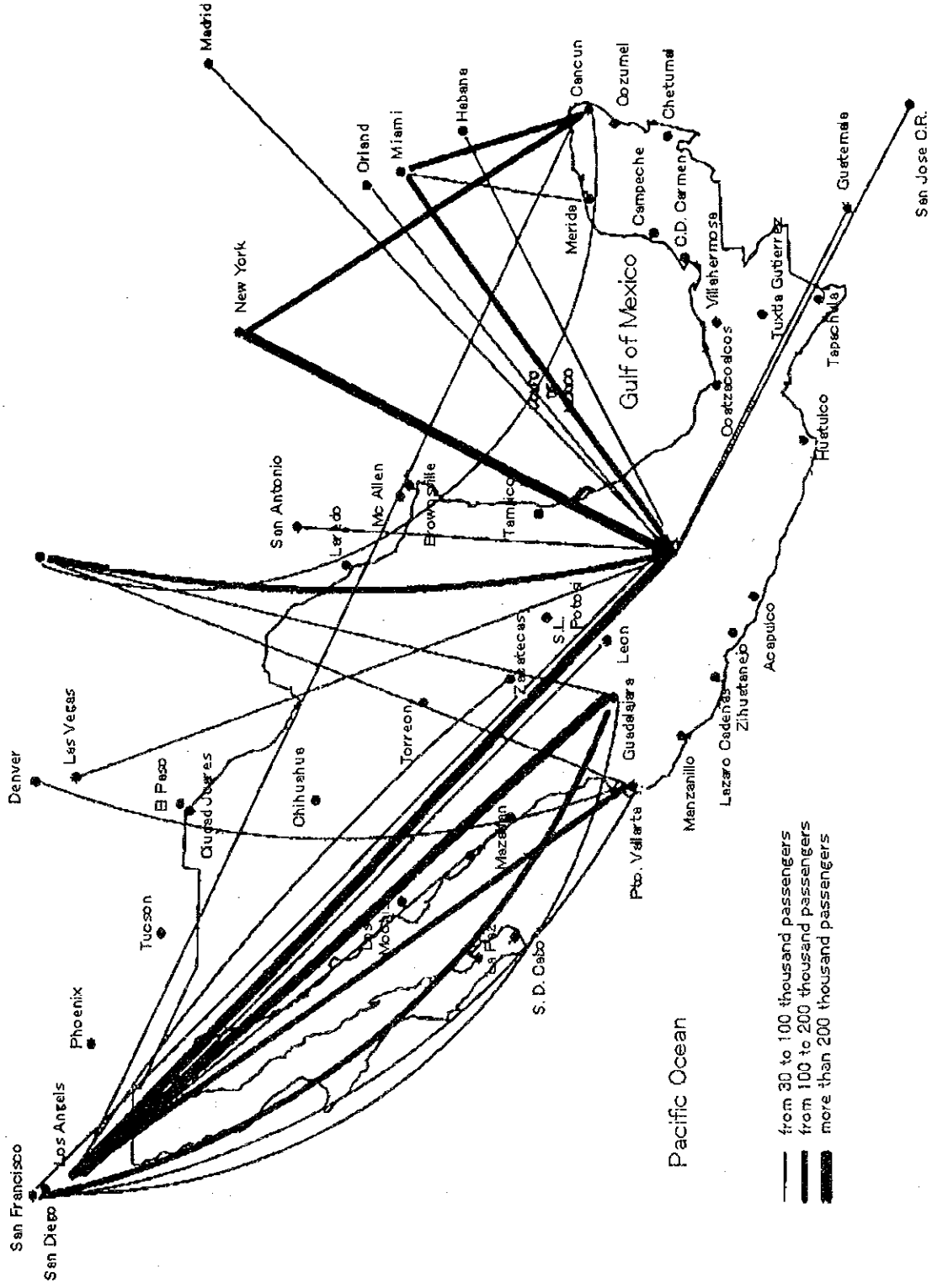
Table A.3. 23 Capacity of terminal building

No.	Abbre.	Type	Capacity of Terminal building 1993			Demand Peak)							
						1993		1995		2000		2010	
			(m2)	Pass/hr.	m2/pass/hr.	Pass./hr.	m2/pass./hr.	Pass/hr.	m2/pass/hr.	Pass/hr.	m2/pass/hr.	Pass/hr.	m2/pass/hr.
1	GDL	Int	19,600	1,885	10.4	1,837	10.7	2,064	9.5	2,538	7.7	3,130	6.3
2	MEX	Int	107,800	5,450	19.8	3,859	27.9	4,438	24.3	5,515	19.5	6,940	15.5
3	MTY	Int	18,420	1,500	12.3	1,143	16.1	1,333	13.8	1,684	10.9	2,148	8.6
4	TLC	Int	1,191	100	11.9	21	56.7	25	47.6	32	37.2	40	29.8
Average of Metropolitan Airport			36,753	2,234	13.6	1,715	27.9	1,965	23.8	2,442	18.8	3,065	15.1
1	ACA	Int	19,560	1,630	12.0	1,084	18.0	1,177	16.6	1,364	14.3	1,641	11.9
2	CUN	Int	26,710	2,350	11.4	1,966	13.6	2,473	10.8	3,464	7.7	4,726	5.7
3	CZM	Int	5,040	550	9.2	524	9.6	595	8.5	734	6.9	909	5.5
4	GYM	Int	755	102	7.4	152	5.0	193	3.9	219	3.4	282	2.7
5	HUX	Int	3,260	430	7.6	420	7.8	638	5.1	955	3.4	1,343	2.4
6	LAP	Int	3,680	400	9.2	310	11.8	376	9.7	544	6.7	713	5.1
7	LTO	Int	1,160	105	11.0	87	13.3	106	10.9	122	9.5	156	7.4
8	MID	Int	11,890	990	12.0	697	17.1	785	15.1	962	12.4	1,203	9.9
9	MZT	Int	13,120	1,100	11.9	944	13.9	1,007	13.0	1,118	11.7	1,276	10.3
10	PVR	Int	15,350	1,275	12.0	999	15.4	1,112	13.8	1,415	10.8	1,787	8.6
11	PXM	Dom	1,380	130	10.6	238	5.8	281	4.9	336	4.1	401	3.4
12	SJD	Int	8,580	720	11.9	501	17.1	674	12.7	972	8.8	1,337	6.4
13	VER	Int	2,690	350	8.3	347	8.3	450	6.4	569	5.1	730	4.0
14	ZIH	Int	5,255	570	9.2	543	9.7	620	8.5	772	6.8	1,066	4.9
15	ZLO	Int	4,080	450	9.1	331	12.3	374	10.9	438	9.3	514	7.9
Average of Tourism Airport			8,179	743	10.2	610	11.9	724	10.1	932	8.1	1,206	6.4
1	AGU	Int	2,220	275	8.1	401	5.5	461	4.8	682	3.3	867	2.6
2	BJX	Int	4,717	497	9.5	491	9.6	563	8.4	721	6.5	918	5.1
3	CEN	Int	940	90	10.4	209	4.5	224	4.2	292	3.2	354	2.7
4	CME	Int	1,304	160	8.2	154	8.5	169	7.7	186	7.0	226	5.8
5	COL	Dom	1,605	180	8.9	132	12.2	162	9.9	190	8.4	242	6.6
6	CPE	Int	1,392	160	8.7	135	10.3	141	9.9	160	8.7	188	7.4
7	CUL	Int	2,076	228	9.1	415	5.0	508	4.1	690	3.0	895	2.3
8	CUU	Int	4,395	490	9.0	478	9.2	534	8.2	668	6.6	790	5.6
9	CVA**	Dom	264	20	13.2	0	0.0	15	17.6	17	15.5	20	13.2
10	CVM	Dom	2,005	240	8.4	78	25.7	86	23.3	115	17.4	152	13.2
11	DGO	Dom	2,443	315	7.8	239	10.2	263	9.3	331	7.4	418	5.8
12	HMO	Int	5,920	620	9.5	479	12.4	574	10.3	739	8.0	943	6.3
13	LMM	Dom	2,601	300	8.7	293	8.9	372	7.0	560	4.6	723	3.6
14	MLM	Int	2,450	305	8.0	248	9.9	280	8.8	347	7.1	466	5.3
15	MTT	Dom	2,755	340	8.1	275	10.0	292	9.4	348	7.9	415	6.6
16	OAX	Int	2,930	275	10.7	466	6.3	537	5.5	648	4.5	822	3.6
17	PAZ	Dom	1,495	125	12.0	76	19.7	94	15.9	118	12.7	139	10.8
18	PBC	Dom	3,660	290	12.6	152	24.1	179	20.4	270	13.6	352	10.4
19	QET**	Dom	325	50	6.5	0	0.0	6	54.2	8	40.6	12	27.1
20	SLP	Int	2,440	300	8.1	204	12.0	252	9.7	334	7.3	420	5.8
21	TAM	Int	5,650	615	9.2	298	19.0	357	15.8	516	10.9	657	8.6
22	TCN**	Dom	260	35	7.4	2	130.0	2	130.0	4	65.0	4	65.0
23	TGZ	Dom	2,550	265	9.6	180	14.2	232	11.0	301	8.5	345	7.4
24	TMN**	Dom	285	45	6.3	2	142.5	2	142.5	2	142.5	5	57.0
25	TNY	Dom	814	100	8.1	173	4.7	206	4.0	256	3.2	333	2.4
26	TRC	Int	2,104	300	7.0	306	6.9	352	6.0	453	4.6	552	3.8
27	TXA**	Dom	325	50	6.5	0	0.0	3	108.3	3	108.3	5	65.0
28	UPN	Dom	490	75	6.5	64	7.7	68	7.2	78	6.3	91	5.4
29	VSA	Int	4,880	490	10.0	358	13.6	449	10.9	538	9.1	619	7.9
30	ZCL	Int	2,625	265	9.9	360	7.3	420	6.3	610	4.3	786	3.3
Average of Regional Airport			2,264	250	8.9	222	18.3	260	23.0	340	18.5	425	12.5
1	CJS	Int	4,275	450	9.5	348	12.3	379	11.3	537	8.0	646	6.6
2	CTM	Int	1,150	140	8.2	115	10.0	147	7.8	202	5.7	257	4.5
3	MAM	Int	2,020	220	9.2	151	13.4	163	12.4	185	10.9	216	9.4
4	MXL	Int	1,790	200	9.0	271	6.6	324	5.5	356	5.0	486	3.7
5	NLD	Int	2,265	260	8.7	130	17.4	189	12.0	212	10.7	242	9.4
6	NOG**	Int	395	65	6.1	5	79.0	7	56.4	11	35.9	18	21.9
7	REX	Int	1,174	150	7.8	110	10.7	150	7.8	163	7.2	181	6.5
8	TAP	Int	2,345	250	9.4	235	10.0	286	8.2	318	7.4	397	5.9
9	TIJ	Int	16,220	1,500	10.8	1,128	14.4	1,468	11.0	1,796	9.0	2,208	7.3
Average of Frontier Airport			3,515	359	8.7	277	19.3	346	14.7	420	11.1	517	8.4
Total Average			12,678	897	10.3	706	19.3	824	17.9	1,034	14.1	1,303	10.6

Note: **Los datos reportados para estos aeropuertos, corresponden a la aviación general

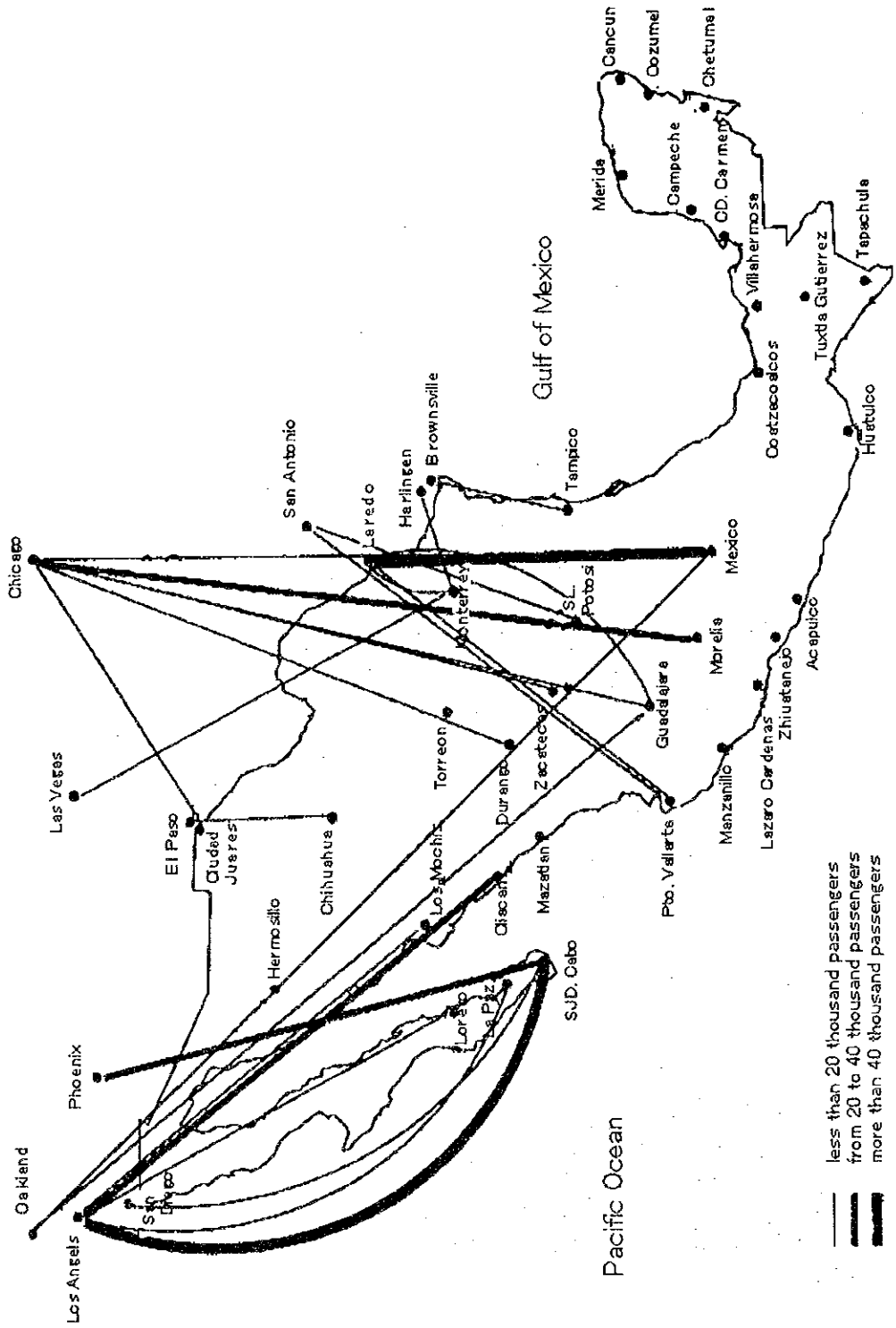
Source: Sistema estadístico aeropuertario, 1994, ASA

Figure A.3. 7 Air service flow (1) - International trunk line



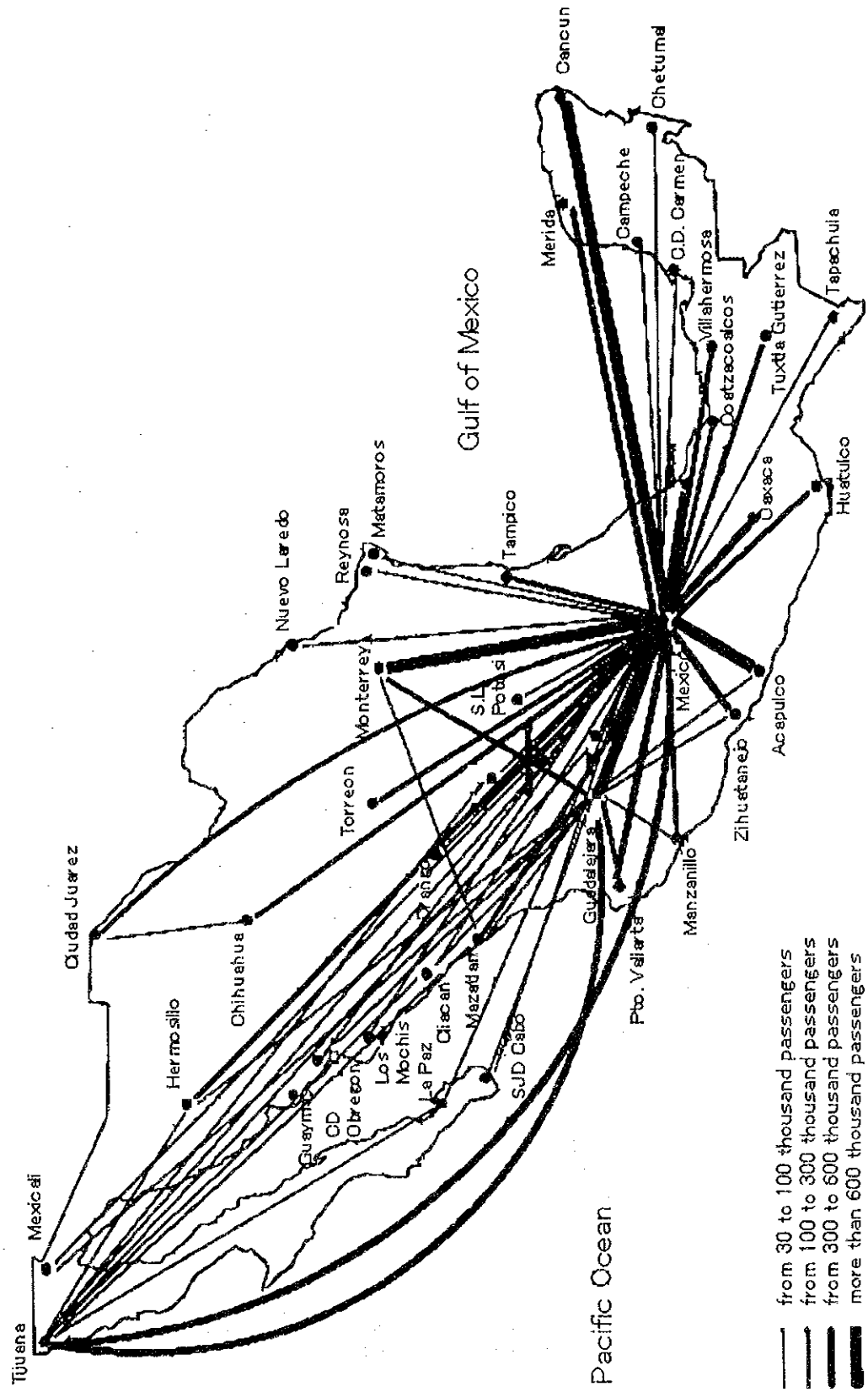
Source: ASA and SCTdata, compiled by JICA study team

Figure A.3. 8 Air service flow (2) - International regional line



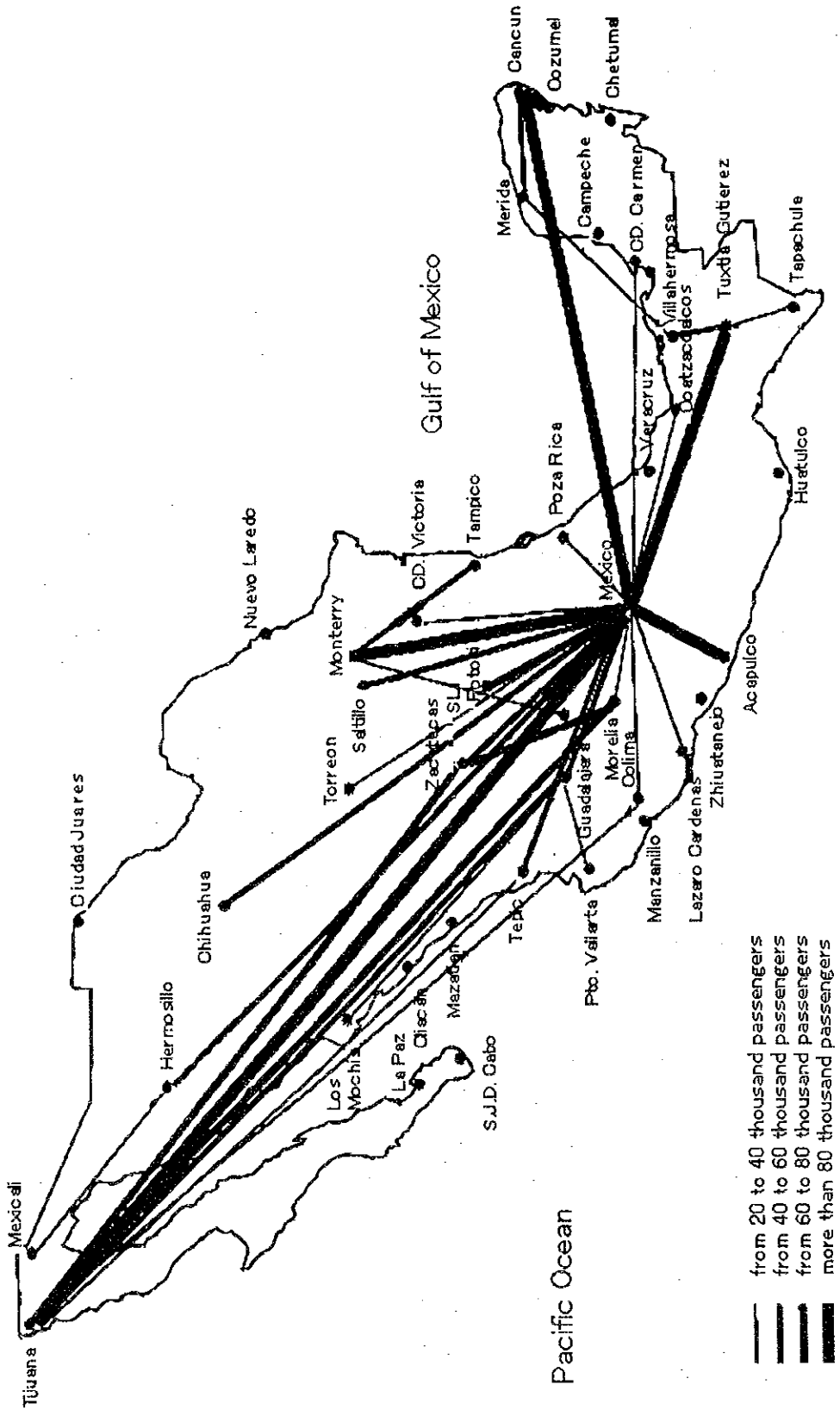
Source: ASA and SCTdata, compiled by JICA study team

Figure A.3. 9 Air service flow (3) - Domestic trunk line



Source: ASA and SCTdata, compiled by JICA study team

Figure A.3. 10 Air service flow (4) - Domestic regional line



Source: ASA and SCTdata, compiled by JICA study team

(2) Road transport

Road transport has also important role as the tourism access measure same as air service. It is very effective for the tourism development of domestic and round-trip tourists. Especially, completion of highway network is very attractive for tourists.

Mexico has 303.261 km roads in 1994. These roads are classified as follows:

(By type of road)

Federal	(Federal)	49,120 km
Toll road	(Cuota)	6,288 km
Free way	(Libre)	42,832 km
State Road	(Estatal)	56,149 km
Rural Road	(Rural)	149,458 km
Low quality Road	(Brechas mejoradas)	50,536 km
Total		303,261 km.

(By road surface)

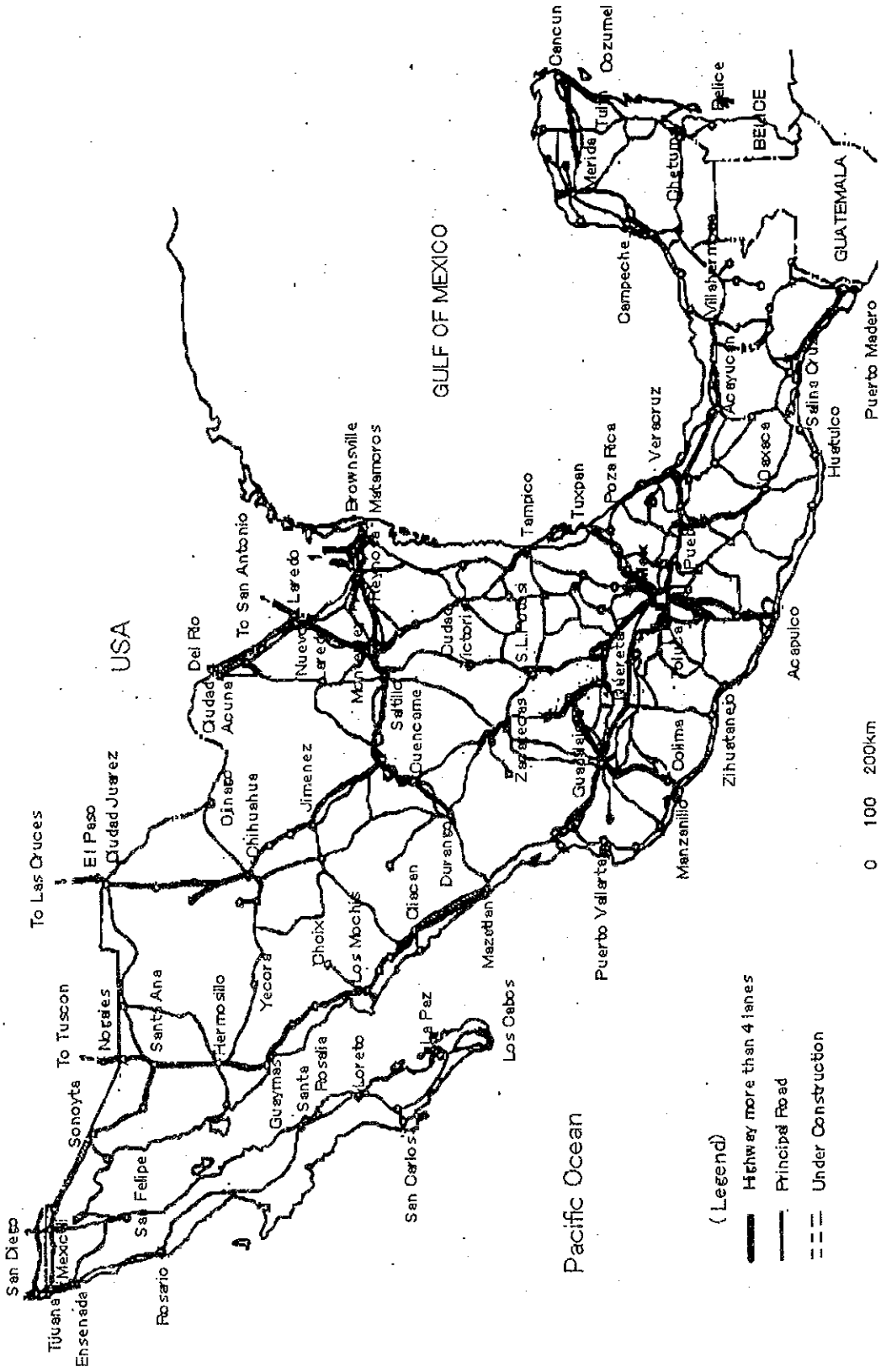
Pavement	(Pavimento)	94,527 km
Coated	(Revestimento)	144,893 km
Others	(Otros)	63,261 km
Total		303,261 km

(By lanes:as for only federal trunk lines and state paved roads)

Two lanes	81,995 km
Four or more lanes	9,005 km
Total	91,000 km.

Among the above mentioned roads, highway and principal road are important for tourism access. Figure A.3. 11 shows existing highway and principal road network. (Note: In this report, highway means the road with four or more lanes, partially including high grade two lanes.) Many highway lines in the figure have been rapidly increased by the National Program of Highways 1989-1994 (Programa Nacional de Autopistas 1989-1994.) as shown in Figure A.3. 11. The program has been almost completed at the moment in September 1995 shown in the Table A.3. 24.

Figure A.3. 11 Road network in 1995



Source: ASA and SCTdata, compiled by JICA study team

Table A.3. 24 National programs of highway 1989-1994 (Actual in September 1995)

Classification	Length (Km)			
	In Operation	Under Construction	Total	Difference from March 1994
WITH CONCESSIONS				
To particulars	3,263	222	3,485	- 64
To BANOBRAS	237	0	237	0
To States Goverment	1,157	469	1,626	+ 149
TOTAL : WITH CONCESSIONS	4,657	691	5,348	+ 85
WITHOUT CONCESSIONS				
Federal Freeway	731	0	731	- 1
State Toll Road	316	0	316	0
State Freeway	112	0	112	+ 44
CAPUFE	113	9	112	0
SCT	294	46	340	+ 24
TOTAL : WITHOUT CONCESSIONS	1,566	55	1,621	+ 67
GRAND TOTAL	6,223	746	6,969	+ 152

Note: The 940 kilometers of Toll Highway in Operation since 1988, add to the 6,223 kilometers put in service between 1989 and 1994, integrate a National System of Highways of 7,163 kilometers.

Source: SCT

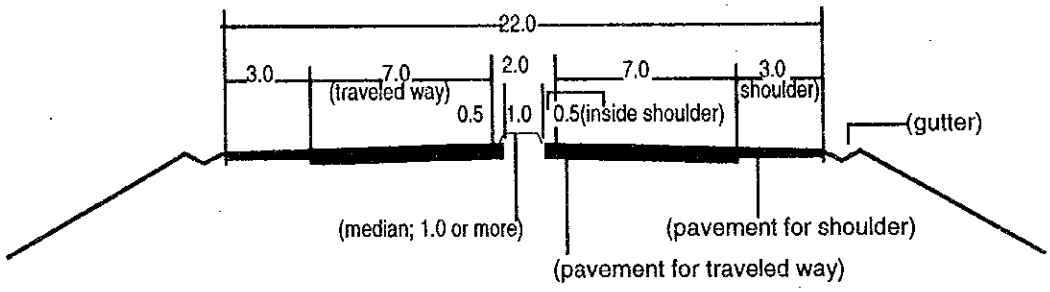
Table A.3. 25 Summary of road standard

Concept	Unit	Type of Road						
		A			B	C	D	E
Transport Volume	car/day	more than 3000			1500 to 3000	500 to 1500	100 to 500	less than 100
Design Speed	km/h							
- Mountainous		60 - 80			50 - 70	40 - 60	30 - 40	30 - 40
- Hilly		70 - 100			60 - 90	50 - 80	40 - 60	40 - 60
- Plane		90 - 110			80 - 110	70 - 100	50 - 70	50 - 70
Maximum Gradient	%	4 - 6			4 - 7	5 - 8	6 - 12	7 - 13
Width of Roadway (Calzada)	m	A4S	A4	A2	7.0	6.0	6.0	4.0
		2x7.0 (4 lanes)	2x7.0 (4 lanes)	7.0 (2 lanes)				
Width of Road (Corona)	m	2x11.0	> 22.0	12.0	9.0	7.0	6.0	4.0
Width of Shoulder (Acostamientos)	m	3.0 (out) 1.0 (in)	3.0 (out) 0.5 (in)	2.5	1.0	0.5	-	-
Width of Center Separator	m	> 8.0	> 1.0	-	-	-	-	-

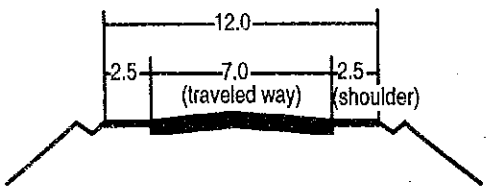
Source: SCT

Figure A.3. 12 Classification and standards of road in Mexico

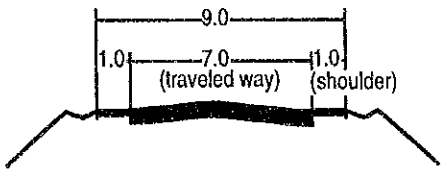
A4 (2 lanes x 2 = 4 lanes)



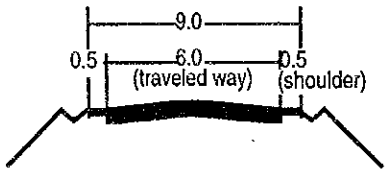
A2 (1 lane x 2 = 2 lanes)



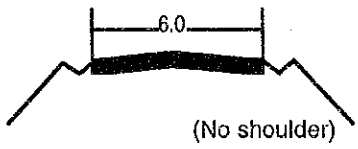
B (1 lane x 2 = 2 lanes)



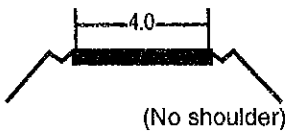
C (1 lane x 2 = 2 lanes)



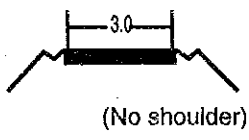
D (1 lane x 2 = 2 lanes)



E (1 lane)



Rural (F type, 1 lane)



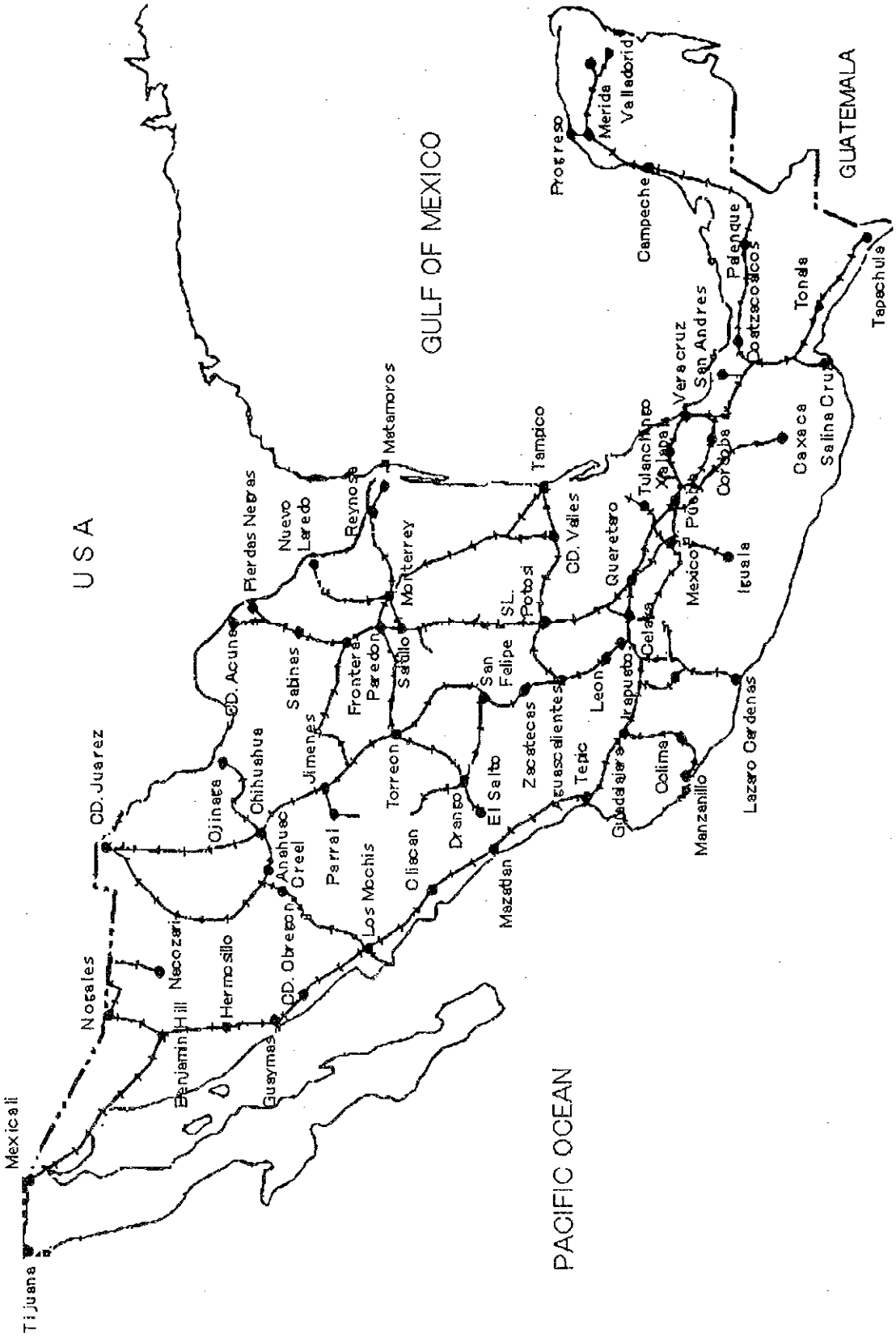
Source: SCT data, compiled by JICA study team

(3) Railway

Mexico has a railway network of 26,477km in 1994, of which principal line is 20,477km. Figure A.3. 13 shows the railway network in 1995.

Principal role of Mexican railway is freight transport, and passenger transport services are very few because of shortage of passenger transport facilities and low demand as shown in Table A.3. 26 and Table A.3. 27. Therefore, usage of railway for tourism is very difficult in existing situation except a part of lines such as Chihuahua-Los Mochis Canyon railway line.

Figure A.3. 13 Railway network in 1994



Source: SCT data,

Table A.3. 26 Number of trains in principal sections (Monthly average in 1993)

Section	Length (km)	Freight (Train)	Passenger (Train)
Mexico - Queretaro	245	425 - 531	300 - 360
Queretaro - Guadalajara	364	344 - 522	60 - 240
Guadalajara - Mexicali	2,135	48 - 195	120
Ahorcado - Nuevo Laredo	987	271 - 559	60 - 180
San Luis Potosi - Tampico	445	133 - 139	60
Tampico - Monterrey	522	36 - 130	60
Monterrey - Matamoros	336	70	60
Gomez Placio - Monterrey	376	135 - 221	60
Irapuato - Cd. Juarez	1,619	90 - 255	120 - 180
Los Mochis - Chihuahua	652	86 - 117	120
Manzanillo - Guadalajara	355	97 - 307	60
Lazaro Cardenas - Acambaro	503	145	90
Mexico - Ahorcado (via Teocalco)	246	352	60
Veracruz - Mexico (via Oriental)	472	136 - 360	60 - 222
Coatzacoalcos - Veracruz	405	109 - 274	60 - 120
Salina Cruz - Coatzacoalcos	301	38 - 186	60
Coatzacoalcos - Merida	894	62 - 84	60

Source: SCT

Table A.3. 27 Number of passengers at station (Daily average in 1993)

Rank	Station Name	No. of Passengers (passengers / day)	Rank	Station Name	No. of Passengers (passengers / day)
1	BUENA VISTA	2,670	26	TEHUACAN	211
2	TORREON	784	27	LOS MOCHIS	210
3	DURANGO	775	28	NUEVO LAREDO	200
4	MONTERREY	740	29	CARDENAS	200
5	VERACRUZ	643	30	COATZACOALCOS	200
6	SAN LUIS POTOSI	621	31	HERMOSILLO	186
7	CIUDAD JUAREZ	519	32	ORIZABA	173
8	MERIDA	472	33	CREEL	168
9	OAXACA	468	34	FELIPE PESCADOR	162
10	CHIHUAHUA	458	35	VENTOQUIPA	158
11	GUADALAJARA	439	36	PATZUCUARO	157
12	GUADALAJARA	418	37	QUERETARO	152
13	CORDOBA	375	38	EMPALME	152
14	TAMPICO	336	39	PIEDRAS NEGRAS	151
15	URAPAN	301	40	CAMPECHE	149
16	LAZARO CARDENAS	288	41	BAHUICHIVO	147
17	TENOSIQUE	275	42	BENJAMIN HILL	145
18	SALTILLO	275	43	GUAMUCHIL	142
19	CIUDAD FRONTERA	264	44	MATAMOROS	138
20	TAPACHULA	247	45	PUERTO PENASCO	137
21	PUEBLA	242	46	CUAUTEMOC	136
22	RIO GRANDE	239	47	SURFAGIO	136
23	AGUASCALIENTES	236	48	MORELIA	134
24	NOGALES	217	49	EL CASTILLO	134
25	LECHERIA	213	50	XALOSTOC	132

Source: FNM

(4) Sea transport

There are two transport measures of shipping for tourism access. They are ferry and cruisers.

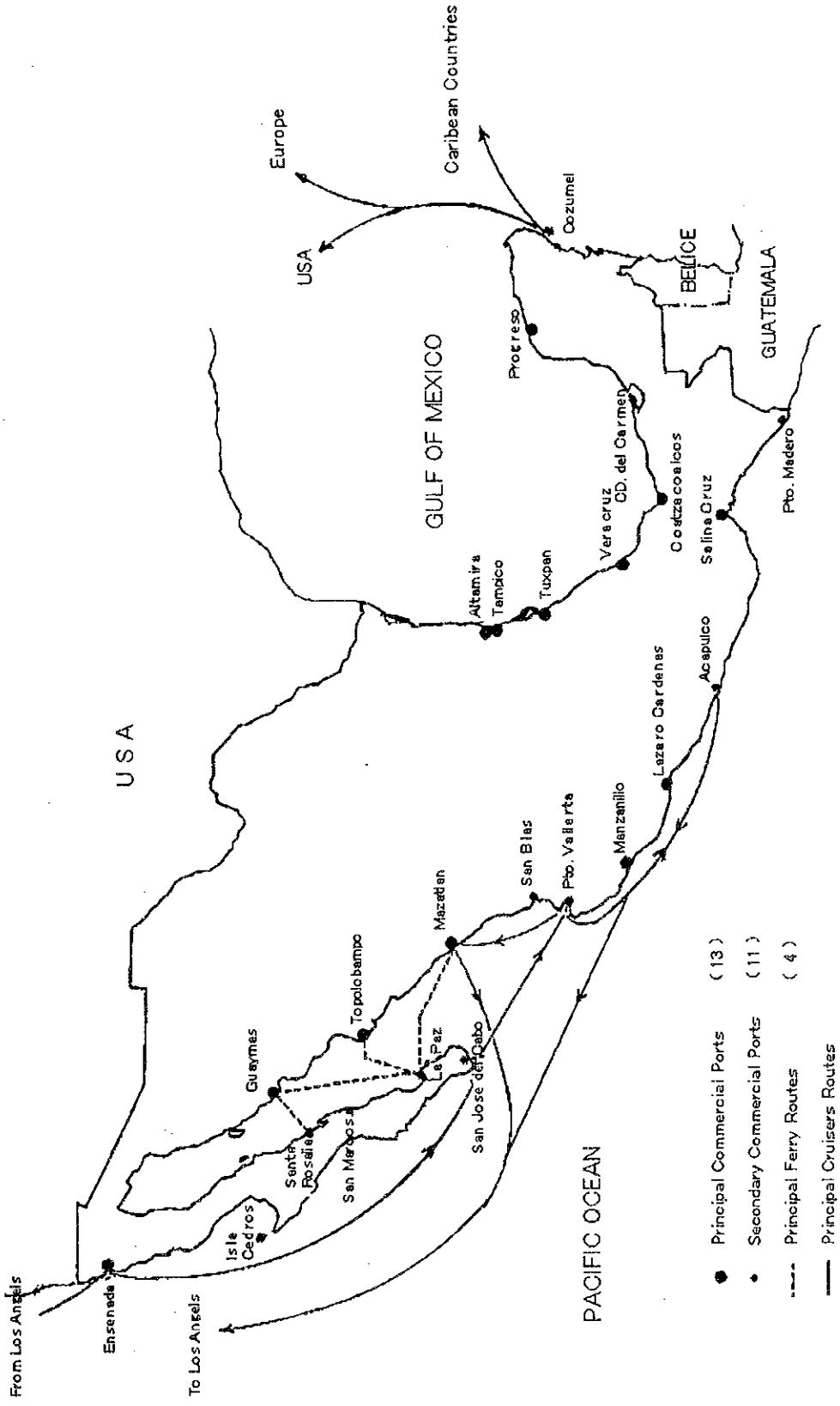
Figure A.3. 14 shows main ports locations and ferry and cruisers routes.

Cruisers routes are separated in Pacific Ocean side and Caribbean Ocean side. As shown in the figure, main route of cruiser is "Los Angeles - Los Cabos - Puerto Vallarta - Mazatlan or Acapulco - Los Angeles".

There are four routes of ferry in Bay of California and some routes in Cancun and Cozumel area. The latters are useful for tourists, however the former are mainly used for freight transport because of long travel time.

The statistical data of thr cruiser and ferry transportare shown in Table A.3. 28 to Table A.3. 30.

Figure A.3. 14 Port location and cruisers and ferry routes



Source: SECTUR data, compiled by JICA study team

Table A.3. 28 Number of cruisers' Arrivals and passengers

Port Name	1986		1990		1992	
	Arrivals	Passengers (Thousand)	Arrivals	Passengers (Thousand)	Arrivals	Passengers (Thousand)
COZUMEL	420	329	418	430	485	610
ENSENADA	106	77	321	172	601	382
PUERTO VALLARTA	180	163	181	178	263	269
CABO SAN LUCAS	173	162	200	164	284	261
MAZATLAN	146	131	156	159	243	236
ACAPULCO	143	161	110	103	109	115
ZIHUATANEJO	74	56	57	40	58	43
MANZANILLO	8	1	11	3	8	5
PROGRESO	-	-	-	-	1	0.3
TOTAL	1,251	1,082	1,454	1,248	2,052	1,920

Port Name	1993		1994	
	Arrivals	Passengers (Thousand)	Arrivals	Passengers (Thousand)
COZUMEL	630	764	763	925
ENSENADA	653	362	561	334
PUERTO VALLARTA	197	213	144	165
CABO SAN LUCAS	231	224	174	174
MAZATLAN	185	200	124	151
ACAPULCO	112	132	132	162
ZIHUATANEJO	42	37	34	34
MANZANILLO	4	1	5	2
PROGRESO	4	1	-	-
TOTAL	2,658	1,934	1,937	1,947

Source: SCT

Table A.3. 29 Number of ferrys's Arrivals and Passengers (in CaribbearnSea coast)

Port Name	1986		1990		1991	
	Arrivals	Passengers (Thousand)	Arrivals	Passengers (Thousand)	Arrivals	Passengers (Thousand)
LA PAZ	576	358	749	317	831	327
MAZATLAN	409	363	418	300	356	218
TOPOLOBAMPO	178	97	315	169	499	123
GUAYMAS	172	110	159	62	131	50
SANTA ROSARIA	172	110	159	62	131	50
PUERTO VALLARTA	85	55	84	52	-	-
CABO SAN LUCAS	69	50	-	-	-	-
TOTAL	1,662	1,143	1,884	962	1,948	768

Port Name	1992		1993	
	Arrivals	Passengers (Thousand)	Arrivals	Passengers (Thousand)
LA PAZ	706	275	699	278
MAZATLAN	383	202	352	169
TOPOLOBAMPO	377	91	347	110
GUAYMAS	117	47	104	46
SANTA ROSARIA	117	47	104	46
PUERTO VALLARTA	-	-	-	-
CABO SAN LUCAS	-	-	-	-
TOTAL	1,700	662	1,606	648

Source: SCT

Table A.3. 30 Number of ferrys operatons and passengers and passengers (In Caribean Sea coast)

Ferry Route	1994	
	Operations	Passengers (Thousand)
Isla Mujeres - Puerto Juarez	10,793	1,621
Coszumel - Playa del Carmen	16,155	1,415
Holbox - Chiquila	962	10
Total	27,910	3,046

Source: Transport department of Quintana Roo state

A.3.4.2. National development program of transport sector

According to the National Transportation Development Program for the period of 1995-2000, development strategies and major projects of transportation infrastructures are as follows.

(1) Development strategies

Development strategies by each transport mode are summarized as bellow.

a. Airport systems

To prevent congestion in the most important airports in the network

- To take necessary actions for the 7 most important airports (Mexico-city, Guadalajara, Cancun, Tijuana, Monterrey, Puerto Vallarta and Acapulco)

To modernize and streamline existing infrastructure

- Investment in airport facilities will be needed throughout the country, and especially in tourism destinations, so as to improve user service. The ongoing conservation projects are primarily carried out by ASA (Aeropuertos y Servicios Auxiliares, or Airports and Auxiliary Services). The most important activities include re-paving runways and maintaining taxiing roads and platform.

b. Highway systems

Growth and modernization of the federal network

- To improve transport quality by continuing to build 5000 km world class high specification four lane toll roads by the year 2000. This program includes the world's largest private sector participation.
- To improve key segments of existing network like Mexico City to Queretaro, Cuernavaca and Puebla.
- Strengthening of federal highway systems. Growth and technology improvement along the priority axes of the system (the busiest roads are called "priority axes")

Upgrade and maintenance

- To improve the system in order to reduce the cost of travel and to increase safety. Due to lags in the system, the highway network needs to set up the level of maintenance and upgrading over the next 15 years. The majority of these projects will be awarded to private companies through a public bid.

Modernization of rural and feeder routes

- To expand, rebuild, and maintain rural and feeder routes, which will improve the living conditions of rural areas.

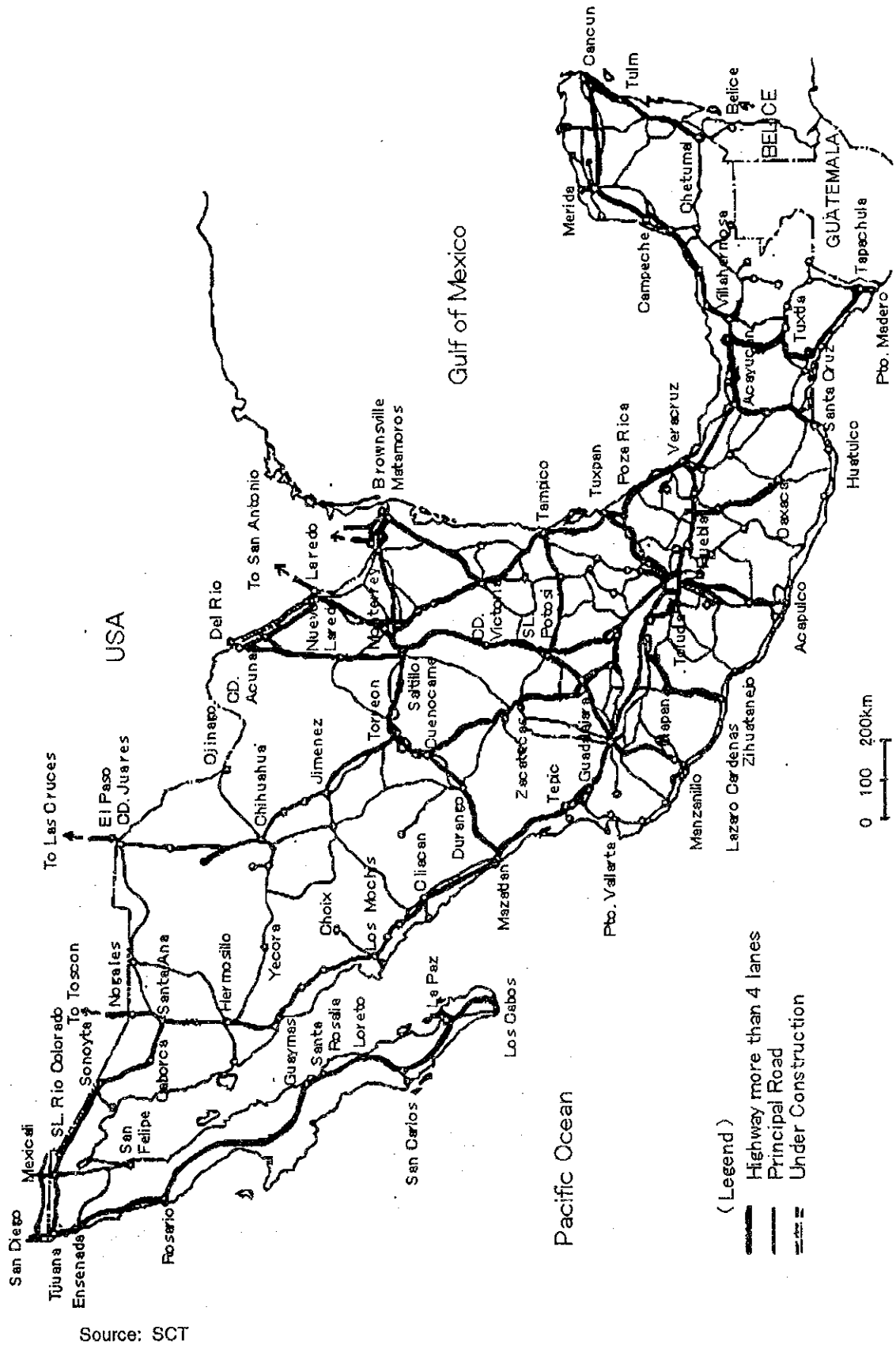
Launching technological modernization

- To modernize technology in areas such as material usage, automated highway design, new construction techniques and computer applications for the maintenance, operation and control of the highway and road system.

Figure A.3. 15 shows highway and principal network targeted in 2000 by the National Program of Highways 1995-2000. As shown in the figure principal highway network in Mexico will be almost completed and highway passes from north end to south and east end of the country. In addition, Pacific Ocean coast and Caribbean Ocean coast will be connected by several highway lines.

The completion of the National Program 1995-2000 will bring very effective results for tourism development in Mexico, especially for long distance tourism bus trips.

Figure A.3. 15 Road network in 2000



Source: SCT

c. Railway systems

Improvement of cargo service

- To focus on market segments which offer a clear competitive advantage, such as agricultural products, minerals, oil products, cement, paper, automobiles, and containers.
- To adopt a better commercial strategy, and offer flexible tariffs.
- To modernize operations and maintenance, and expand current infrastructure to improve cargo service.

Integration with major ports in Mexico through improved container handling

Infrastructure modernization and upgrading of highly utilized routes

Systems and equipment control modernization to increase flexibility and punctuality

d. Port systems

Expansion and modernization of the four most important ports

- To proceed privatization that is expected to sustain investment and productivity increases in the competitive environment established by the new port law.
- To continue with modernization efforts to increase productivity in the 4 major ports.

To foster merchandise movement with containers

- To increase cargo movement throughout the country using containers. The use of containers will aid the growth of cargo movement within the port system and will make ports to continue adopting international practices.

To promote efficient operation in the port network

- To support regional merchandise movement throughout Mexico, modernization and continued maintenance are necessary for a more intense use of the network.

(2) Major projects and investment plan

a. Long-term investment plan

Total investments for transport sectors during the period 1993 to 2010 is estimated nearly US$ 20 billion. These investments will largely be met by both domestic and foreign private investors. Such private investment is a critical element of the government's strategy : it provides not only technical but also financial resources to modernize and expand transportation facilities and other infrastructure facilities. While a precise estimate is difficult, the share of private investments is expected to reach at least 60 %. Investment estimated by each transport sector is shown as follows.

Table A.3. 31 Investment plan

Transport Sector	Total Investment (million US$)	Investment of key major projects (million US$)
Highway	15,000	1,684 (11%)
Airport	1,250	585 (46%)
Port	770	551 (72%)
Railway	2,398	951 (40%)
Total	19,418	3,771 (19%)

Source: SCT

b. Key major projects

Key major projects of each sector shown in the above table are listed in Table A.3. 32.

Table A.3. 32 Key major projects (To be invested in immediate)

Transport Sector	Project Description	Investment (million US$)	Timing
Airport	- Construction of Mexico-City's second airport	340.0	1996 - 1997
	- Construction of new terminal building in Cancun	145.1	2005 - 2010
	- Remodeling and expansion of commercial aviation	100.0	1999 - 2004
	building and gateway in Guadalajara Airport	(585.1)	
	(Sub-total)		
Highway	- Highway Pachuca - Tuxpan	625.0	1995 - 2000
	- Highway San Blas - Villa Union - Mazatlan	415.6	1995 - 2000
	- Highway San Luis Potosi - Lagos de Moreno	322.0	1995 - 2000
	- Highway Reynosa - Matamoros - Tamaulipas	188.0	1996
	- North of State of Nuevo Leon Highway (La Gloria	55.0	1996
	-Colombia) Access to border bridge solidaridad	24.0	1996
	- Outside loop in Nogales, Sonora	17.0	1995
	- Outside loop in Nuevo Laredo, Tamaulipas	19.0	1995
	- Modernization of border crossing in Tijuana, B.C	18.0	1995
	- Border crossing in Reynosa, Tamaulipas	(1,683.6)	
	(Sub-total)		
Railway	- Modernization and improvements in telecommunication systems and traffic control	458.7	1994 - 1998
	- Towing equipment	373.0	1994 - 1998
	- Outside railway loop in Nuevo Laredo,Tamaulipas	75.0	1996
		44.0	1996
	- Outside railway loop in Ciudad Juarez, Chihuahua	(950.7)	
	(Sub-total)		
Port	Modernization, expansion and basic and support infrastructure in most important ports :		
	- Veracruz	187.0	1994 - 1999
	- Manzanillo	97.0	1994 - 2008
	- Lazaro Cardenas	68.3	1994 - 2000
	- Altamira	198.7	1999 - 2005
	(Sub-total)	(551.0)	
	Grand Total	3,770.4	

Source : SCT

c. Major projects of each transport sector

Details of each sector are shown in Table A.3. 33 to Table A.3. 38

Table A.3. 33 Major projects of airports

Airport Name	Projects Description	Investment (million US$)	Timing
Mexico City	- Second airport for Mexico City	250.0 - 340.0 *	1996 - 1997
	- New terminal # 2 construction	97.0	1995 - 1998
	- New tax authority building	57.0	1999 - 2004
	(Sub-total)	(404.0 - 494.0)	
Guadalajara	- General aviation building expansion and up-grading	100.0	1999 - 2004
	- Satellite terminal construction and terminal building improvement	20.0	2005 - 2010
	- Hangers infrastructure development and vehicle parking expansion	12.0	1994 - 2004
	- General aviation building expansion and up-grading	4.8	1999 - 2004
	(Sub-total)	(136.8)	
Cancun	- New terminal building construction	145.1	2005 - 2010
	- New satellite terminal construction	80.6	1994
	- Cargo terminal construction	25.8	2005 - 2010
	(Sub-total)	(251.5)	
Tijuana	- Terminal building and parking area expansion	64.5	2005 - 2010
	- Terminal building, parking and boarding gates expansion	32.9	1994 - 2004
	- New terminal building, platform,secondary access and parking area construction	80.0	1999 - 2004
	- General aviation platform expansion	9.7	2005 - 2010
	- Hangars infrastructure development	2.3	1944
	(Sub-total)	(189.4)	
Monterrey	- New terminal building, secondary access and parking area construction	88.7	2005 - 2010
	- Cargo terminal building	25.0	1995
	- Central terminal building expansion	9.7	1995
	- General aviation platform expansion	8.8	1994 - 2010
	- Vehicle parking area expansion	0.3	1999 - 2004
	- Satellite building and commercial platform expansion	7.1	1994 - 1995
	(Sub-total)	(139.6)	
Puerto Vallarta	- Aisles and boarding gates construction	15.0	2005 - 2010
	- Cargo terminal construction	25.0	2005 - 2010
	- Hotel	12.0	2005 -2010
	- General aviation terminal	9.0	2005 - 2010
	- Commercial aviation building expansion and renovation	9.7	1998
	- Parking area expansion	4.8	1999 - 2004
	- Commercial aviation platform expansion	2.3	1999 - 2004
	- General aviation building expansion and renovation	1.6	1997
	- New fire fighters building	1.6	1997
	(Sub-total)	(83.5)	
Acapulco	- Terminal building expansion and renovation	9.7	1999 - 2004
	- Gateways installation	3.9	1994
	- Hangers development infrastructure	1.0	1994
	- General aviation terminal	7.0	1994
	(Sub-total)	(21.6)	
	Total	1,226.4 - 1,316.4	

Note: 1. The above required investment is expected from private sector. The public sector will invest at least 400 million US$.
2. Mark (*) indicates total investment. Private funding will depend on the privatization scheme to be implemented.

Source : SCT data, compiled by JICA study team

Table A.3. 34 Projects of national program of highways 1995-2000
(1) Length of projects

Projects	Length (km)
A) Projects in Evaluation	
San Luis Potosí-Saltillo (*)	450
Allende -Saltillo	335
Linares -Ciudad Victoria- Manuel Station	300
Connection San.Blas-Villa Unión-Connection Airport Mazatlán (*)	227
Acapulco-Zihuatanejo	223
Pirámides-Tihuatlán (*)	210
Sonoita-San Luis Río Colorado (*)	200
North Detour of Mexico´s City (*)	132
San Luis Potosí-Lagos de Moreno (*)	130
Zacatecas-Cuencamé	123
South and West Detour of Querétaro (*)	90
Atizapán-Atlacomulco	85
Abasolo-Ecuandureo (*)	75
Aguascalientes-Zacatecas (*)	75
Cuitzeo-Salamanca	70
Tapachula-Ciudad Hidalgo	40
Allende-Nava (*)	12
International Bridge Reynosa-Mcallen and Acces (*)	8
Subtotal	2,785
B) Project in Study	
Villa Hermosa- Champotón	300
Ciudad Victoria- Matamoros	280
Durango-Mazatlán	270
Nuevo Laredo-Piedras Negras-Ciudad Acuña	240
Cosoleacaque-Tehuantepec	226
Tuxpan-Cardel	225
Tuxpan-Tampico (*)	186
Detour of Jalapa (*)	40
West of Saltillo (*)	35
Villahermosa-Macuspana (*)	34
South Detour of Toluca (*)	24
Several Routes Sistems and State Work´s	850
Several Highway Detours	360
Subtotal	3,070
Total	5,855

Note: Projects marked (*) are successions of national program 1989-1994.
Source: SCT

Table A.3. 35 Projects of national program of highways 1995-2000
(2) Estimated cost

Main Axial Route	Route Length (Km)			Project Section & Length (Km)	Improvement Plan (lanes)	Esitated Cost (1000 $)	Unit Cost (1000 $/Km)
	Total	Completed	Project				
Mexico-Guadalajara-Tepic -Mazatlan-Guaymas-Hermosillo -Nogales , with branch lines to Lazaro Cardenas and Tijuana	3,036	1,976	1,060	Branch of San Blas-Villa Union (227)	2 to 4	1,150	5,070
				San Luis Rio Colorado-Sonoyta (200)	2 to 4	600	3,000
				Santa Ana-Caborca-Sonoyta (254)	2 to 4	760	2,990
				La Rumorosa-Tecate (54)	new 4	320	5,930
				Patzcuaro-Uruapan (56)	2 upgrade	320	5,710
				Urapan-Lazaro Cardenas (269)	2 upgrade	1,600	5,950
Mexico-Queretaro -San Luis Potosi-Saltillo Monterrey-Nuevo Laredo , with branch lines to Reynosa and Piedraq Negra	1,816	1,094	722	San Luis Potosi-Puerto Mexico (393)	2 to 4	1,080	2,750
				Saltillo-Castanos (170)	2 to 4	680	4,000
				Monclova-Sabinas (90)	2 to 4	360	4,020
				Agujita-Allende (55)	2 to 4	220	4,000
				Allende-Nava (14)	2 to 4	60	4,290
Queretaro-Irapuato-Leon-Lagos de Moreno-Aguascalientes-Zacatecas-Torreon-Chihuahua-Cd. Juarez	1,610	1,293	317	Aguascalientes-Zacatecas (111)	2 to 4	560	5,050
				Ent. Ramon Lopez Velarde-Cuencame (206)	2 to 4	620	3,000
Acapulco-Cuernavaca-Mexico-Tuxpan-Tampico-Matamoros	1,044	202	842	Piramides-Tihuatlan (185)	2 to 4	740	4,000
				Tuxpan-Tampico (193)	2 to 4	770	4,000
				Tres Marias-Estacion Manuel (47)	2 to 4	140	2,980
				Est. Manuel- Soto La Marina (148)	2 to 4	440	2,970
				Soto La Marina-Matamoros (269)	2 to 4	810	3,010
Mexico-Puebla-Coatzacoalcos-Campeche-Merida-Cancun-Chetumal with branch lines to Oaxaca and Chiapas	2,806	1,607	1,199	Agua Dulce-Cardenas (82)	2 to 4	410	5,000
				Villahermosa-Cd. del Carmen (168)	2 to 4	840	5,000
				Cd. del Carmen-Champton (147)	2 to 4	590	4,010
				Campeche- Merida (192)	2 to 4	770	4,010
				Cardenas-P. Nezahualcoyotl (132)	2 upgrade	920	6,970
				Ocozocoautla-Las Cruces (67)	2 upgrade	430	7,010
				Las Cruces-Arriga (47)	2 upgrade	240	5,110
				Cancun-Chetumal (379)	2 upgrade	900	2,370
Mazatlan-Durango-Torreon-Saltillo-Monterrey-Reynosa-Matamoros	753	388	365	Mazatlan-Durango (294)	2 upgrade	1,470	5,000
				Reynosa-Matamoros (71)	new 4	700	10,000
Manzanillo-Guadalajara-Lagos de Moreno-San Luis Potosi-Tampico	908	381	527	Lagos de Moreno-San Luis Potosi (130)	2 to 4	510	4,000
				San Luis Potosi-Cd. Valles (259)	2 to 4	1,040	4,020
				Cd. Valles- Tampico (138)	2 to 4	550	4,040
Acapulco-Cuernavaca-Puebla-Veracruz	446	344	102	Atlixco-Alpuyeca (102)	2 upgrade	510	5,000
Veracruz-Tampico-Monterrey	737	192	545	Cardel-Nautla (122)	2 to 4	500	4,840
				Nautla-Poza Rica (97)	2 to 4	400	4,120
				Est. Manuel-Cd. Victoria (162)	2 to 4	490	3,020
				Cd. Victoria-Linares (164)	2 to 4	490	2,990
Trans-peninsula of Baja California	1,738	200	1,538	R. Sanchez Toboada-Gro. Negro (592)	2 to 4	1,700	2,870
				Guerrero Negro-La Paz (770)	2 to 4	2,000	2,600
				La Paz-Entrance of San Jose del Cabo Airport (176)	2 to 4	520	2,950
Total	14,894	7,677	7,217			27,210	

Table A.3. 36 National program of Highway

Plan	Project Description	Number of Projects	Length in km
National Programof Highways 1989 - 1994	- Toll Highway by concession	81 (4)	5,263 (144)
	- Federal Free Way	26 (0)	732 (0)
	- State Toll Road	8 (1)	316 (44)
	- State Free Way	4 (0)	68 (0)
	- Roads by CAPUFE	4 (2)	122 (26)
	- Roads in charge of SCT	4 (3)	316 (289)
	Total	127 (10)	6,817 (503)
National Program of Highways 1995 - 2000	- Major Projects in evaluation	18	2,785
	- Major Projects in study	13	3,070
	Total	31	5,855

Note: 1. Figures in parentheses indicate 2 lanes highways and their length. The others are more than 4 lanes highways.
2. 6,223 kilometers of the above 6,817 kilometers targeted in 1989 - 1994, put in operation during 1989 - 1994. The rest and additional 152 kms are under construction.
3. Project costs are not defined. Total amount of the program 1989 - 1994 is presumed to be nearly 20 billion new pesos.
4. CAPUFE : Caminos y puentes federales de ingresos y servicios conexo

Source : SCT

Table A.3. 37 Major project of railways (1994 - 1998)

Expected Investment Sector	Project Description	Required Investment (million US$)
Private Investment	- Construction of new railways (100 km)	109
	- Acquisition of railways machinery	91
	- Inland cargo terminals and intermodal terminals	114
	- Specialized hauling equipment (3,250 cars)	227
	- Workshop machinery and supply zone	91
	- Telecommunications and transit control	379
	- Railway loop of Nuevo Laredo, Tamaulipas	75
	- Railway loop of Ciudad Juarez, Chihuahua	44
	Sub-total	1,130
Public Investment	- Infrastructure and telecommunications	1,040
	- Engines and locomotive equipment	146
	- Computing systems	40
	- Supervision, engineering and administrative	12
	- Development (studies, training, technical assistance)	30
	Sub-total	1,268
	Grand Total	2,398

Source : SCT

Table A.3. 38 Major projects of ports

Port Name	Project Description	Investment (million US$)	Timing
Veracruz	(Phase 1)	(82.7)	1994-1996
	- Wharf upgrading and reinforce	10.3	
	- Wharf construction for multiple uses	8.1	
	- Access roads construction	2.3	
	- Demolition of various installations	1.7	
	- Construction of berths	1.3	
	- Other basic infrastructure construction	6.5	
	- Grain terminal automation and warehouse restoration	15.6	
	- Roll-on / roll-off terminal construction	6.3	
	- Aluminum terminal transfer	6.9	
	- Construction of assembly wharves	5.6	
	- Construction of marinas	5.1	
	- Other investments	13.0	
	(Phase 2)	(104.3)	1997-1999
	- Patio upgrading in the multiple uses terminal	21.9	
	- Containers wharf expansion	7.8	
	- Installation of basic services	7.8	
	- Relocation of Pemex tubing	6.3	
	- Other basic infrastructure development	18.9	
	- Equipment for container movement	25.0	
	- Warehouses construction	13.8	
	- Parking lot construction	2.8	
	Total	187.0	
Manzanillo	(Phase 1)	(75.0)	1993-2000
	- Outside loop construction	-	
	- New dock dredging	-	
	- General services and navigational lights improvement	-	
	(Phase 2)	(37.0)	2001-2008
	- Containers terminal improvement		
	- Construction of specialized terminals, intermodal terminals , industrial and commercial facilities		
	Total	112.0	
Lazaro Cardenas	(Phase 1)	(54.3)	1993-1994
	- Upgrading of Lazaro Cardenas - Zihuatanejo highway	20.0	
	- Construction of road access by Guerrero	7.0	
	- Outside loop construction (in Paso de Burras)	3.3	
	- San Francisco secondary road construction	24.0	
	- Beach protection and dock expansion	12.0	
	(Phase 2)	(14.0)	1995-2000
	- Dredging on industrial canal	7.0	
	- Industrial park urbanization	7.0	
	Total	68.3	
Altamira	(Phase 1)	(57.6)	1994-1997
	- Water supply for petrochemical plants, etc.	23.0	
	- Drainage for petrochemical plants , etc.	9.7	
	- Water treatment plant	2.5	
	- Power generation plant for multiple uses terminal, etc.	11.5	
	- Road access	5.3	
	- Railway for petrochemical plants	5.6	
	(Phase 2)	(133.1)	1994-2005
	- South dock expansion	21.1	1994-2000
	- Outside loop in Tampico	18.8	2000-2005
	- Berth	72.9	2000-2005
	- Gas pipe relocation	20.3	2000-2005
	Total	190.7	
	Grand Total	558.0	

Source : SCT data, compiled by JICA study team