

4.3 TRANSPORTATION

(1) Existing Conditions

1) Road Transportation

The form of the city, along the lakeshore, creates a linear system of road in the longitudinal axes of north-south, between Alto Puno (exit to Juliaca) and Salcedo (exit to Ilave or Desaguadero), with an exit toward the University (to the east) and another toward the road to Moquegua (to the south-west). The flows of vehicles of Puno City are essentially toward the north (69%) through Juliaca City, toward the south side (18%) going to the frontier with Bolivia, and toward the south-west (13%) going to Moquegua and Tacna.

The vertical axes of east-west (from the lakeshore to the hill area) are not much used, because of poor condition of the roads with narrow, steep, non-paved and bad drainage conditions. This situation causes problems of congestion especially in the central market areas, rain water drainage and city cleaning.

In the upper part of the city, there is the Av. Circumvallation, a north-south axis, conceived originally as a by-pass road (for the heavy traffic). However, at present, it functions as a collector road of the upper areas.

The main road is paved with concrete in many sections. In the central or old city area, the widths are rather narrow (6 m on average), while they are wider in the longitudinal axes (north-south). All the longitudinal axes are connected by steep and narrow streets that don't allow appropriate traffic flows.

The number of vehicles in Puno City is 5,073 vehicles, which represents 55% of the automobiles, landcruisers, pick-up vans, station wagons, trucks and buses, and 25% of the motorcycles registered in Puno Department.

2) Rail Transportation

Puno City has a railroad station, a property of Ferrocarriles Corp.'s National Company (ENAFER), that is located in the center, on the Av. La Torre. A cargo line goes to Puno Port. The Puno railway is a branch of the main line of Arequipa-Juliaca-Cusco.

At present, there are three passenger train services a week between Puno and Arequipa/Cusco. The numbers of passengers of Puno-Cusco and Puno-Arequipa are 36,410 and 7,454 (in 1998) respectively. The train service between Cusco and Puno is important for tourism. As for the cargo transport, the most significant goods are fuel and beer.

3) Lake Transportation

ENAFER also operates a cargo ship between Puno and Bolivia crossing Lake Titicaca. They have 2 ships, one is 2,000 tonnes and the other is 1,800 tonnes, with a loading capacities of 750 tonnes and 1,050 tonnes respectively. The major goods are wheat for import and soy beans for export. Annual voyages are

between 116 to 168 (1 ship per 2 to 3 days), but the loads of those goods are vary 10 to 100 tonnes;

There are also tourist boat services to the Uros and other tourist islands. The number of tourists has been rapidly increasing and reached 39,000 persons in 1995, almost 3 times as many as that in 1993.

(2) Future Road Network Plan

Figure II.4.2 shows the road network system in the future, proposed by the INADUR. In the plan, the hierarchical road network system are proposed as follows.

① Departmental roads

It is a trans-ocean line of the highway Ilo - Acre (Brazil) that bypasses the city center, connecting with the Departmental highways to Moquegua (to the southwest), to Juliaca (to the north) and to Ilaye (to the south).

② Circular-ecological road

It is intended as a special characteristic for the city, a new road of Ecological Circuit, serving as an urban limit in the hill slope, with 12 meters median, and each roadway is at different level. The section of this road is 44.40 m, with connection to Jr. Tacna - Av. Laykakota and the present Av. Circunvalacion

③ Main Road Network

Improvement of the existing north-south main road system including Av. Bolivar - Highway to Ilaye, Av. El Sol - The Army, Highway to Juliaca - Jr. Juliaca - Av. La Torre - Av. Leoncio Prado. A section of two lanes with central median is planned for most roads, respecting the existing width (between 6.00 and 6.60 m.)

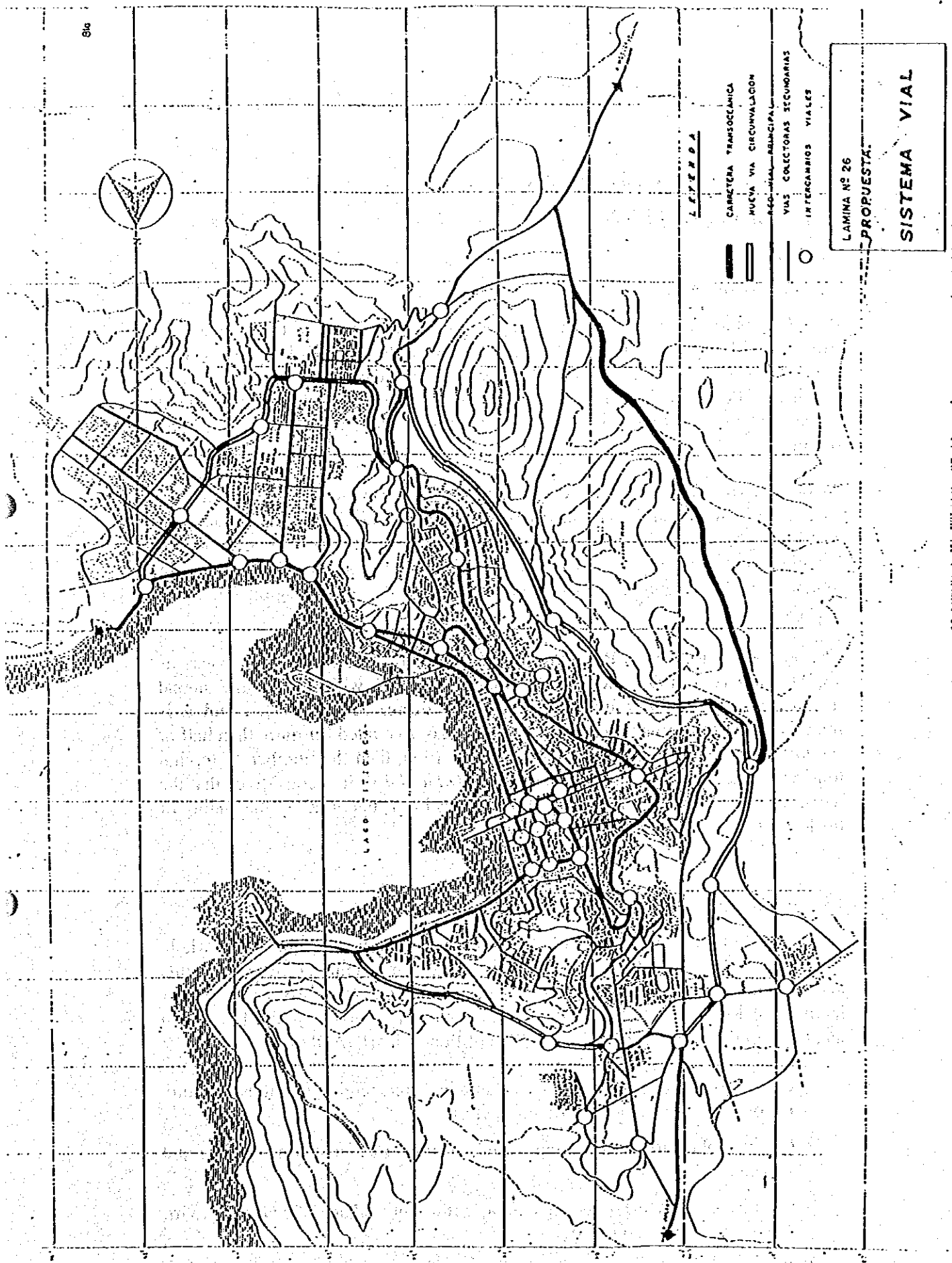


Figure II.4.2 Proposed Road Network System (INADUR)

④ Collector or Secondary Road Network

⑤ Interchanges of Roads

4.4 TOURISM

(1) Existing Conditions

Puno City is located on Peru's most important tourism corridor of Lima - Cusco - Bolivia. Although the number of tourist arrivals to Puno is still low and most of the tourists stay for a short period at present (1.3 days on average, in Puno Province). Puno Province has great potentials for tourism development as one of the major tourist destinations in Peru considering its attractive nature and cultural resources.

At present (in 1997), in Puno City, there are 60 accommodations in total: 16 hotels, 20 hostals and 24 non-categorized lodgings; being the total capacity of 1,092 rooms, with 2,200 beds in 1997 according to the Director of Lodging Establishments. As well as, 40 travel agencies, 23 tour agents, 45 vehicles for tourists, and 228 restaurants in 1998 according to the data of the regional office of MITINCI.

The number of tourists in Puno Province has rapidly increased in these years as 73,286 tourists in 1993 and 113,199 tourists in 1996 with an average annual increase rate of 15.6% (although the number decreased in 1997). And it is remarkable that the number of foreign tourists has accounted for more than half of the total tourists visiting Puno Province since 1996, then the number of foreign tourists reached 54,236 in 1997, as shown in *Table II.4.1*. It is considered that the recent increase of the number of the tourists has been supported by the ending of the terrorism and effort of sales promotions.

(2) Tourist Circuits and Attractions

As for the tourist attractiveness of Puno, these are distributed among the whole area of the Sub-region of Puno. It is noted that the improvement of tourist circuits and attractions as well as strengthen of sales promotion are necessary for further increase of tourism industry of Puno. The following tourist circuits have been identified in the report of the Director Plan of Puno City (INADUR);

- ① Circuit in Puno City (hotels, restaurants, commercial facilities, culture, history, transportation, information, etc.)
- ② Circuit Lake Titicaca (floating islands of the Uros, islands of Taquile and Amantani)
- ③ Circuit North-West (Quechua area, Sillustani, Juliaca, Pucara, Ayaviri, Azángaro, Asillo Yourillo)
- ④ Circuit North-East (Taraco, Huancané, Mold, Conima, Putina)

- ⑤ Circuit South-East(the area of Aymara, Chucuito, Acora, Ilave, Juli, Pomata, Zepita, Yunguy and Desaguadero)

(3) PELT's Ecotourism Development Plan

PELT conducted a study on the projection of tourists to Puno District, as shown in the report of "The Definitive Study for Collection, Treatment and Integrated Management of Sewage in Puno City". The tourist projection by PELT is rather ambitious from the viewpoint of regional development as follows:

- Puno District's share of tourists in the whole Puno Department is projected to be 90%, while the current Puno Province's share of hotel arrivals (in 1997) is estimated to be around 60% as shown in *Table II.4.1*.
- PELT's projection expects the length of tourist's stay in Puno to increase to 4.0 days in the year 2025, which is equivalent to three times the present length of 1.3 days.

Table II.4.2 shows the list of major facilities and areas of the eco-tourist zone proposed by PELT.

According to the plan, the total development area for the eco-tourism zone is accounted for 225ha (net area). The inundation area, which extends from the Esteves Island in the north to the Espinar Island in the south, is proposed as a planning site for tourism and recreational facilities.

A big investment especially on the public facilities such as parks, sports and recreational facilities are proposed in the plan, however the framework of facility plan such as the number of proposed hotel rooms has not been clarified yet.

(4) Tourism Development Plan by JICA/MITINCI

JICA conducted another study on the national tourism development in cooperation with MITINCI from September 1998 to March 1999 ("Master Plan Study on National Tourism Development (Phase-1)"). *Table II.4.3* shows the comparison of the tourist projections by JICA/MITINCI with those by PELT. The projections by JICA/MITINCI seem to be a little conservative.

Puno District's share of tourists in the whole Puno Department is projected to be 70%. The length of tourist's stay in Puno is projected to be 2.6 days in the year 2025, which is equivalent to twice the present length of 1.3 days.

(5) Tourism Development Scenario for the Study

The differences between the PELT's Ecotourism Development Plan and the JICA/MITINCI's National Tourism Development Master Plan must be derived from the different planning approaches. The PELT's plan is based on a micro-view, but the JICA/MITINCI's plan on a macro-view. In other words, the

PELT's plan is focused on a desirable regional development for Puno City, but the JICA/MITINCI's plan is derived from the national tourism development plan. Therefore it would be meaningless to discuss which is more accurate.

In this Study, the layout of tourism development plan is based on the PELT's plan. The planning frame such as the number of tourists or hotel rooms is based on the JICA/MITINCI's plan, because conservative projections can be rather favorable for planning facilities to avoid the risk of excessive investment.

Hotel arrivals and bed-nights in Puno Department are shown in *Table II.4.4*. *Table II.4.5* shows the major indicators for the projection of the number of tourists and required hotel rooms in the Puno Province up to the year of 2025.

Based on the above-mentioned consideration and data, the tourism development scenario for Puno City is assumed as follows:

- ① Required hotel rooms in the year 2025 will be 6,528 (of all hotel classes) in total.
- ② Of which, 1,337 rooms (3 to 5 star classes) will be located along the shore of Puno Interior Bay (inundation area).
- ③ Most hotels would be located in the zone from the Esteves Island to Puno Port (Zone A), because of the following reasons;
 - A hotel construction plan has been committed and the site has been already acquired within the zone near the existing hotel (Esteves Hotel).
 - A lake shore road (Boulevard) runs in the zone.
 - Lake water quality in front of the zone is relatively clean and favorable for a resort
 - Less influence by/on the traffic congestion problem of the city center.
 - Accessibility to Puno Port which is the gateway of the Lake Titicaca boat tour

Table II.4.6 shows the hotel rooms requirement up to the year 2015. Required acreage for the development of the tourist area between Puno Port and the Esteves Island (Zone A) will be 48 ha in 2015 as shown in *Table II.4.7*.

- ④ After the year 2015, the other zones between Puno Port and the Espinar Island (Zone B), and further southern zone (Zone C) will be developed for the expansion of tourist and recreation area towards 2025 for both domestic and international tourists, as proposed in the PELT proposal.

The distribution of the hotel rooms in the inundation area are also assumed in this Study. 1,021 hotel rooms will be required in the Zone A and 316 hotel rooms in the Zone B and Zone C. The total of required area for tourism and recreation in the inundation area is estimated to be around 80 ha as shown in *Table II.4.8*.

Tables II.4.1 Present Situations of the Tourism in Puno

(1) Number of Hotels, Rooms and Beds by Provinces in Puno Department, 1997

Province	PUNO			SAN ROMAN(Juliaca)			OTHERS			TOTAL		
	Establishments	Rooms	Beds	Establishments	Rooms	Beds	Establishments	Rooms	Beds	Establishments	Rooms	Beds
Hotel	3 star	7	279	547	1	22	36	0	0	0	8	583
	2 star	8	204	391	8	241	392	0	0	0	16	783
	1 star	1	53	88	2	95	179	0	0	0	3	267
	3 star	4	72	140	0	0	0	0	0	0	4	140
Hostal	2 star	11	152	304	8	160	288	0	0	0	19	592
	1 star	5	92	196	15	258	412	0	0	0	20	608
Non-category	24	240	534	0	0	0	0	10	174	289	34	823
Total	60	1,092	2,200	34	776	1,307	10	174	289	104	2,042	3,796
Share of Puno Province	58%	53%	58%									

Source: Directorio de Establecimientos de Hospedaje, 1997

Elaboration: Oficina de Registro Unificado, Estadística e Informática de la DRIT - PUNO

(2) Number of Hotel Arrivals by Provinces in Puno Department, 1997

Province	Puno	San Ramon	Others	Total
Domestic	54,236	55,892	8,468	118,596
International	56,065	2,575	409	59,049
Total	110,301	58,467	8,877	177,645
Domestic	46%	47%	7%	100%
International	95%	4%	1%	100%
Total	62%	33%	5%	100%

Source: Resumen mensual de las Estadísticas de Establecimientos de Hospedaje por Provincias

Elaboration: Oficina de Registro Unificado, Estadística e Informática de la DRIT - PUNO

(3) Number of Hotel Arrivals and Bed-nights in Puno Province, 1997

	Number of Hotel Arrivals			Number of Bed-nights			Occupancy Rates			Length of Stay		
	Domestic	Intern'l	Total	Domestic	Intern'l	Total	Room	Bed	Domestic	Intern'l	Total	
Hotel	3 star	4,978	32,474	8,475	43,498	51,973	51%	26%	1.7	1.3	1.4	
	2 star	12,461	6,096	14,831	8,950	23,781	32%	17%	1.2	1.5	1.3	
	1 star	4,438	144	4,973	147	5,120	26%	16%	1.1	1.0	1.1	
	3 star	2,078	2,876	4,954	3,659	8,226	31%	16%	1.8	1.6	1.7	
Hostal	2 star	1,961	4,807	3,520	6,987	10,507	19%	9%	1.8	1.5	1.6	
	1 star	5,807	2,484	6,716	3,048	9,764	29%	14%	1.2	1.2	1.2	
Non-category	22,513	7,184	29,697	28,225	9,580	37,805	43%	19%	1.3	1.3	1.3	
Total	54,236	56,065	110,301	70,399	76,777	147,176	37%	18%	1.3	1.4	1.3	

Source: Resumen mensual de las Estadísticas de Establecimientos de Hospedaje por Provincias

Elaboration: Oficina de Registro Unificado, Estadística e Informática de la DRIT - PUNO

(4) Share of Puno Province by Hotel Classes

Hotel class	Number of Tourists		
	Domestic	Intern'l	Total
Middle	13%	63%	38%
Low	87%	37%	62%

Note: Calculation from the above table

(5) Occupancy Rates by Hotel Classes

Hotel Class	Occupancy rates	
	Rooms	Beds
Middle	47%	24%
Low	32%	16%

Note: Calculation from the above table

(6) Number of Hotel Arrivals 1975- 1997

	PUNO DEPARTMENT				PUNO PROVINCE					
	Domestic		International		Total		Domestic		International	
	Inc. ratio	Inc. ratio	Inc. ratio	Inc. ratio	Inc. ratio	Inc. ratio	Inc. ratio	Inc. ratio	Inc. ratio	Inc. ratio
1975	98.359	5.1%	37.822	22.4%	136.181	9.9%	n.a.	n.a.	n.a.	n.a.
1976	103.363	-6.4%	46.283	-12.9%	149.646	-8.4%	n.a.	n.a.	n.a.	n.a.
1977	96.780	1.9%	40.329	24.2%	137.109	8.5%	n.a.	n.a.	n.a.	n.a.
1978	98.662	-11.8%	50.088	11.0%	148.750	-4.2%	n.a.	n.a.	n.a.	n.a.
1979	86.996	10.8%	55.580	16.0%	142.576	12.8%	n.a.	n.a.	n.a.	n.a.
1980	96.390	38.8%	64.495	-5.5%	160.885	21.1%	n.a.	n.a.	n.a.	n.a.
1981	153.826	-3.6%	60.977	-18.2%	194.803	-8.2%	n.a.	n.a.	n.a.	n.a.
1982	128.947	1.3%	49.907	-22.5%	178.854	-5.4%	n.a.	n.a.	n.a.	n.a.
1983	130.594	4.4%	38.664	-4.5%	169.258	2.3%	n.a.	n.a.	n.a.	n.a.
1984	136.285	0.2%	36.931	5.7%	173.216	1.4%	n.a.	n.a.	n.a.	n.a.
1985	136.531	17.0%	39.025	4.6%	175.556	10.6%	n.a.	n.a.	n.a.	n.a.
1986	159.690	7.2%	40.827	20.1%	200.517	10.2%	n.a.	n.a.	n.a.	n.a.
1987	171.197	-5.6%	50.596	-5.2%	221.793	-5.5%	n.a.	n.a.	n.a.	n.a.
1988	183.558	-4.9%	60.758	-33.4%	244.316	-17.7%	n.a.	n.a.	n.a.	n.a.
1989	173.346	-10.3%	57.614	-49.6%	230.960	-15.7%	n.a.	n.a.	n.a.	n.a.
1990	164.871	-17.7%	38.390	-1.0%	203.261	9.2%	n.a.	n.a.	n.a.	n.a.
1991	147.860	6.8%	19.365	24.9%	167.225	21.0%	n.a.	n.a.	n.a.	n.a.
1992	121.741	12.6%	19.163	66.4%	140.904	3.5%	n.a.	n.a.	n.a.	n.a.
1993	129.980	-5.1%	23.930	34.7%	153.910	-2.6%	49.508	1.5%	18.528	-
1994	146.342	-11.4%	39.816	20.3%	186.158	-5.3%	50.268	24.2%	23.018	24.2%
1995	138.942	3.6%	53.647	-8.5%	192.589	4.4%	57.585	63.0%	37.516	63.0%
1996	123.042	95%	64.562	95%	187.604	60%	54.394	34.3%	50.395	34.3%
1997	118.596	95%	59.049	62%	177.645	21.5%	51.975	-8.4%	61.224	21.5%
							54.236	-8.4%	56.065	-8.4%
									110.301	-2.6%
										#VALUE!
									68.036	7.7%
									73.286	29.8%
									95.101	10.2%
									104.789	8.0%
									113.199	-2.6%

(7) Share of Hotel Arrival of Puno Province in the Department

	Domestic	International	Total
1992	41%	97%	48%
1993	39%	96%	48%
1994	39%	94%	51%
1995	39%	94%	54%
1996	42%	95%	60%
1997	46%	95%	62%

Sources: Direccion Sub Regional de Industria y Turismo - Puno

Elaboration: Oficina de Registro Unificado, Estadística e Informática de la DRIT-Puno

Table II.4.2 Hotel Arrivals and Bed-nights in Puno Department

	Domestic		International		Total	
	Hotel Arrivals	Bed-nights	Hotel Arrivals	Bed-nights	Hotel Arrivals	Bed-nights
1997*1)	130,300	244,964	64,801	143,210	195,101	388,174
1997Dept.*2)	118,596	-	59,049	-	177,645	-
1997Prov.*2)	54,236	70,399	56,065	76,777	110,301	147,176
2005	215,562	405,256	420,230	928,709	635,792	1,333,965
2015	390,672	734,463	839,134	1,854,487	1,229,806	2,588,950
2025*3)	476,227	1,071,511	1,022,900	2,791,914	1,499,127	3,863,425

Source; JICA Tourism Development Study except *1)*2)*3)

*1) MITINCI

*2) Resumen Mensual de las Estadísticas de Establecimientos de Hospedaje por Provincias

*3) Assumption by the Study Team

Table II.4.3 Major Indicators for the Assumptions of Hotel Rooms

Indicators			1998	2005	2015	2025
Share of hotel tourists of Puno	Domestic		46%*1)	50%	50%	50%
Province in the Department	International		95%*1)	90%	80%	80%
Share of bed-nights of Puno	Domestic		40%	40%	40%	40%
Province in the Department	International		80%	80%	85%	85%
Distribution of bed-nights by hotel classes	Domestic	H	-	0%	5%*2)	5%*2)
		M	17%*1)	20%	30%*2)	30%*2)
		L	83%*1)	80%	65%*2)	65%*2)
	International	H	-	20%	30%	30%
		M	63%*1)	50%	50%	50%
		L	37%*1)	30%	20%	20%
Room occupancy rates by hotel classes		H	-	50%*2)	70%*2)	80%
		M	47%*1)	50%	60%*2)	70%
		L	32%*1)	40%	50%*2)	60%
Number of guests per room			1*1)	1.42*2)	1.7	1.7
Distribution of the hotel rooms in the Puno City by hotel classes	Interior bay side	H	70%	70%	70%	70%
		M	10%	10%	10%	10%
		L	0%	0%	0%	0%
	Puno town	H	90% of R	90% of R	90% of R	90% of R
		M	90% of R	90% of R	90% of R	90% of R
		L	90% of R	90% of R	90% of R	90% of R
	Others	H	R	R	R	R
		M	R	R	R	R
		L	R	R	R	R

Notes;

*1)	Actual figure
*2)	Based on JICA Tourism Study
Others	Assumed by the JICA Study Team
R	Remaining
H	High(4-5 star classes)
M	Middle(3 star class)
L	Low(1-2 star classes and below)

Elaboration; JICA Study Team

Table II.4.4 Comparison of Tourist Projections by PELT and JICA Study Team

1) Projection of Tourists by PELT

Year	Number of Hotel Tourists					Length of Stay	Number of Tourists/day
	Department	District	Share	Per Day	Inc. Ratio		
1997	270,017	243,015	90%	665.8	-	1.20	799
2005	635,041	571,537	90%	1,565.9	11.3%	1.85	2,897
2015	1,091,320	982,188	90%	2,690.9	5.6%	2.92	7,858
2025	1,547,600	1,392,840	90%	3,816.0	3.6%	4.00	15,264

Source; PELT D/D Report

2) Projection of Tourists by JICA

Year	Number of Hotel Tourists					Length of Stay	Number of Tourists/day
	Department	District	Share	Per Day	Inc. Ratio		
1997*1)	195,101	110,301	57%	302.2	-	1.33	403
2005*2)	635,792	485,988	76%	1,331.5	20.4%	1.86	2,480
2015*2)	1,229,806	866,643	70%	2,374.4	6.0%	2.16	5,124
2025*3)	1,499,127	1,056,433	70%	2,894.3	2.0%	2.60	7,525

Source; *1) MITINCI, *2) JICA Tourism Study and *3) Assumption by the Study Team

Table II.4.5 Major Facilities and Area of Eco-Tourism Zone(Proposed by PELT)

	North Zone	Central Zone	South Zone	Symbol	Area(ha)
Hotel & Commercial	Hotel Esteves(existing)	Hotel	Hotel at Espinar	CE	59.60
	Commercial Shops	Commercial Shops	Commercial Shops		
	Restaurants	Open-air Market Restaurants	Craftsmen Shops Restaurants		
Education & Cultural	Technical Institute	Ship Museum	Cultural Center	CC	5.12
	Dormitories		Museums		
	Assembly Hall				
Sports & Recreation	YMCA			ZR	23.82
	Club House		Sports Clubs		
Park & Green	Sports/Recreation Area			PE	52.80
	Parks	Amusement Park	Espinar Zonal Park		
Other Uses	Forest		Ecological Park	OU	9.26
	Piers	Puno Port(existing)	Piers		
	Parking Areas	Bus Terminal Piers Parking Areas	Parking Areas		
Administration		Administration Center		CCA	6.50
Industry	Canning Factory(existing)			Y	1.61
Residential	Middle Density	Middle Density	Middle Density	RDM	26.20
	Low Density	Low Density	Low Density	RDB	32.20
Total Area(Net)					217.11
Total Area(Gross)					255.03

Note; List is made from drawing of the PELT F/S by JICA Study Team

Table II.4.6 Distribution of the Hotel Rooms up to the Year 2025

		High	Middle	Low	Total	Zone 1	Zone 2	Zone 3	Zone 4	Zone 6	Zone 7
Puno Interior Bay Side	1998	0	126	0	126	Location; Between Port to Isl. Esteves					
	2005	401	156	0	557						
	2015	786	235	0	1,021						
	2025	1,034	303	0	1,337						
Puno Town	1998	0	203	669	872	785	22	22	22	0	22
	2005	155	1,262	1,531	2,948	2,653	37	37	74	74	74
	2015	286	1,801	1,387	3,474	3,126	43	43	87	87	87
	2025	377	2,316	1,720	4,413	3,971	55	55	110	110	110
Outside (Islands, Sillustani,	1998	0	23	74	97	* including areas along the Outer Lake					
	2005	17	140	170	328						
	2015	51	318	245	613						
	2025	66	409	303	779						
Total	1998	0	352	743	1,095						
	2005	573	1,559	1,701	3,833						
	2015	1,123	2,354	1,632	5,108						
	2025	1,477	3,028	2,023	6,528						

Note; High: 4-5 star, Middle: 3 star, Low: Below 2 star
Assumption; JICA Study Team

Table II.4.7 Area Requirement in the Tourist Area Phase I (Zone A: Hotel Esteves-Puno Port)

	1998	2000	2005	2010	2015	2020	2025	Notes;
Hotel sites	(3ha)*1)	(3ha)*1)	14.0	20.0	25.0	25.0	25.0	40 rooms/ha
Amenity areas			1.5	4.0	6.0	6.0	6.0	restaurants, museum, plaza, shops, etc.
Recreation areas			5.5	8.0	10.0	10.0	10.0	sports, green, promnade, parks
Roads, utilities			2.0	5.0	7.0	7.0	7.0	
Total			23.0	37.0	48.0	48.0	48.0	

Note: *1) Hotel Esteves
Assumption: JICA Study Team

Table II.4.8 Tourist and Recreational Area in the Inundation Zone

	1998	2000	2005	2010	2015	2020	2025
Required Number of Hotel (rooms)	126	126	557	789	1,021	1,021	1,021
Zone A							
Zone B*2)			0	0	0	158	253
Zone C*3)			0	0	0	0	63
Total			557	789	1,021	1,179	1,337
Required Tourist Areas (ha)	(3ha)*1)	(3ha)*1)	23.0	37.0	48.0	48.0	48.0
Zone A			0.0	0.0	0.0	15.8	25.3
Zone B*4)			0.0	0.0	0.0	0.0	6.3
Zone C*4)			23.0	37.0	48.0	63.8	79.6
Total			23.0	37.0	48.0	63.8	79.6

Note: *1) Hotel Esteves.

*2) 80% x Room requirement of total Puno Town after year 2020 x 30% of high + 20% of middle class hotel rooms

*3) 20% x Room requirement of total Puno Town after year 2020 x 30% of high + 20% of middle class hotel rooms

*4) 10 rooms per ha, including hotel, amenity facilities, road, openspace and other related areas.

See Figure II.3.5

Assumption: JICA Study Team

5. ORGANIZATIONS AND INSTITUTIONS

5.1 GENERAL STRUCTURE OF ADMINISTRATIVE BODIES

According to the last Political Constitution of 1993 and its Organic Act N°23853 of 1984, the Peruvian country is divided into regions, departments, provinces and districts. At this present time (1998), beside Lima Metropolitan which is considered as a specified department, there are 22 departments whose names are as follows (see *Figure II.5.1*).

- | | | |
|----------------|-------------------|----------------|
| 1. Apurímac | 2. Amazonas | 3. Ancash |
| 4. Arequipa | 5. Ayacucho | 6. Cajamarca |
| 7. Cusco | 8. Huanuco | 9. Ica |
| 10. Junín | 11. La Libertad | 12. Lambayeque |
| 13. Loreto | 14. Madre de Dios | 15. Moquegua |
| 16. Pasco | 17. Piura | 18. Puno |
| 19. San Martín | 20. Tacna | 21. Tumbes |
| 22. Ucayali | | |

As shown in *Table II.5.1* and *Figure II.5.2*, the Puno Department has 13 provinces, with the total surface area is 71,999 km² and the total population is 1,079,849 (according to INEI data in 1993).

Table II.5.1 Surface Area and Population of the Puno Department

Administrative Area		Surface Area (km ²)	Population in 1993		
			Total	Urban	Rural
Puno Department		71,999	1,079,849	423,253	656,596
Province	1 Azángaro	4,970	136,998	29,332	109,666
	2 Carabaya	12,266	46,777	16,662	30,115
	3 Chucuito	3,978	93,001	16,211	76,790
	4 Collao	5,600	75,456	17,050	56,406
	5 Huncané	2,806	80,317	12,197	68,120
	6 Lampa	5,792	43,416	14,127	29,334
	7 Melgar	6,447	72,005	30,254	41,751
	8 Moho	1,000	33,320	4,766	28,554
	9 Puno	6,493	201,215	102,815	96,390
	10 San Antonio de Putina	3,207	28,475	9,495	18,980
	11 San Román	2,278	168,534	145,724	22,810
	12 Sandía	11,862	50,042	11,812	38,230
	13 Yunguyo	288	48,258	12,808	35,450

Source: INEI Census, 1993

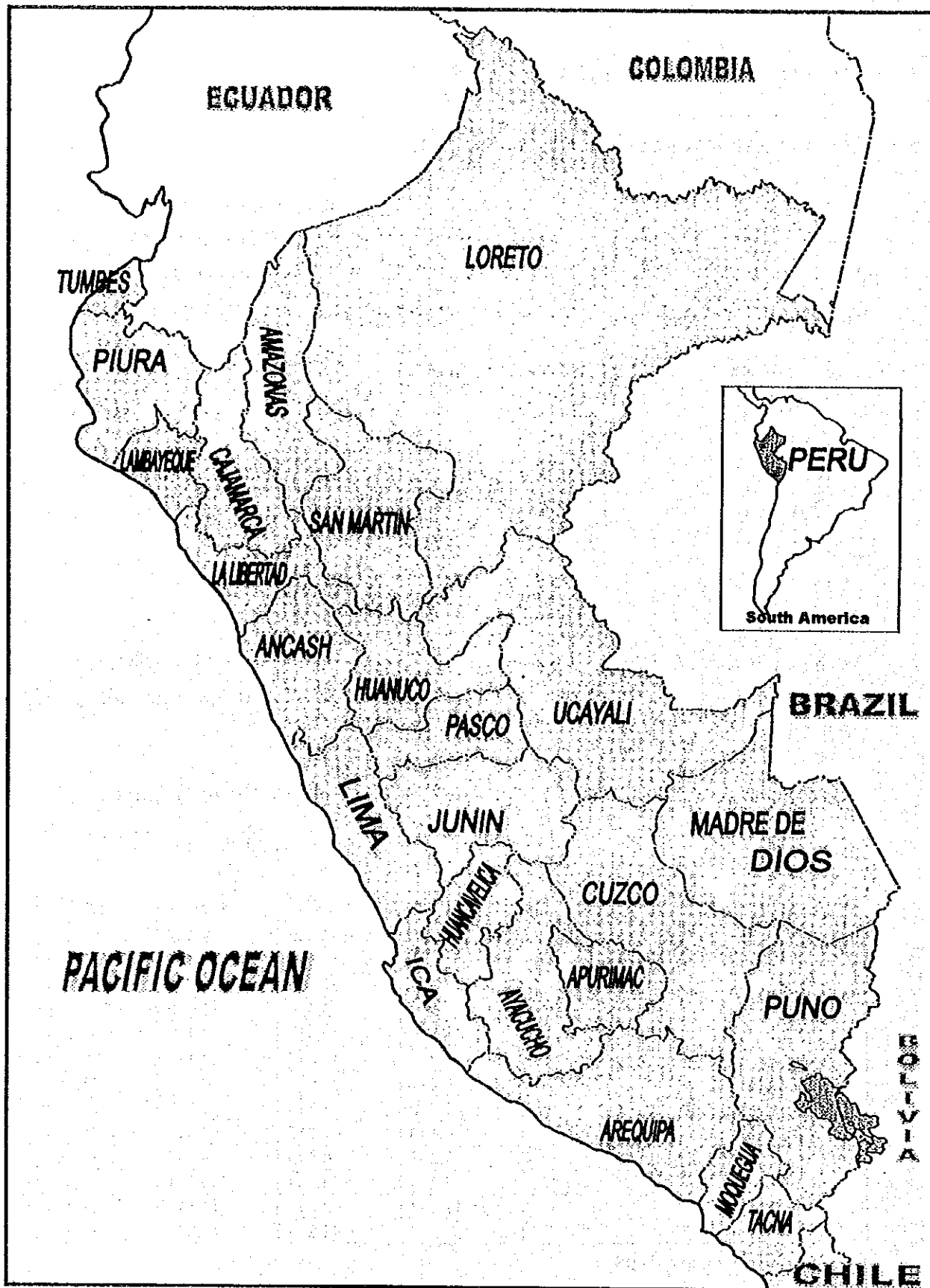


Figure II.5.1 Departments of the Republic of Peru

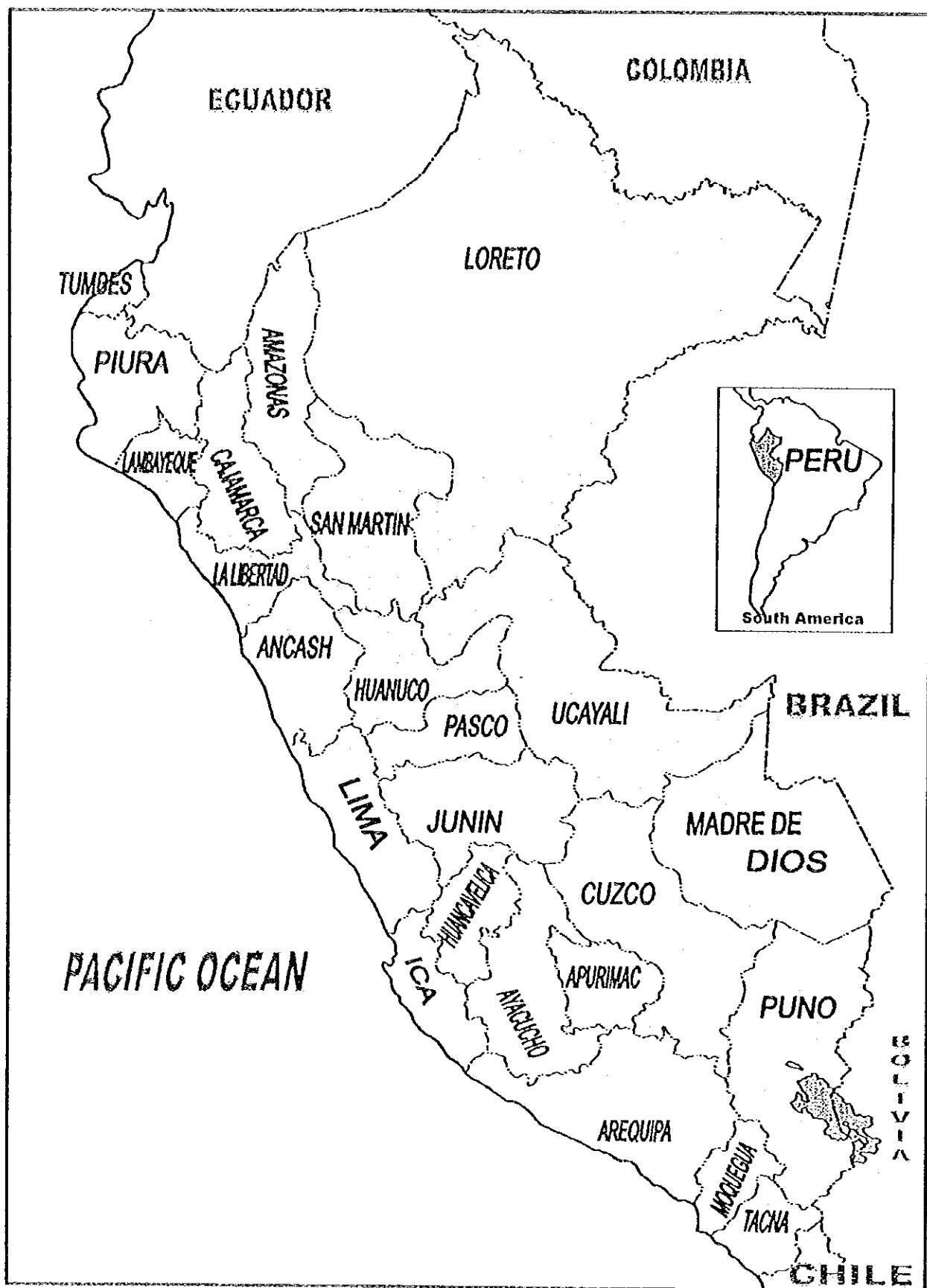


Figure II.5.1 Departments of the Republic of Peru

Puno Department and Its Provinces

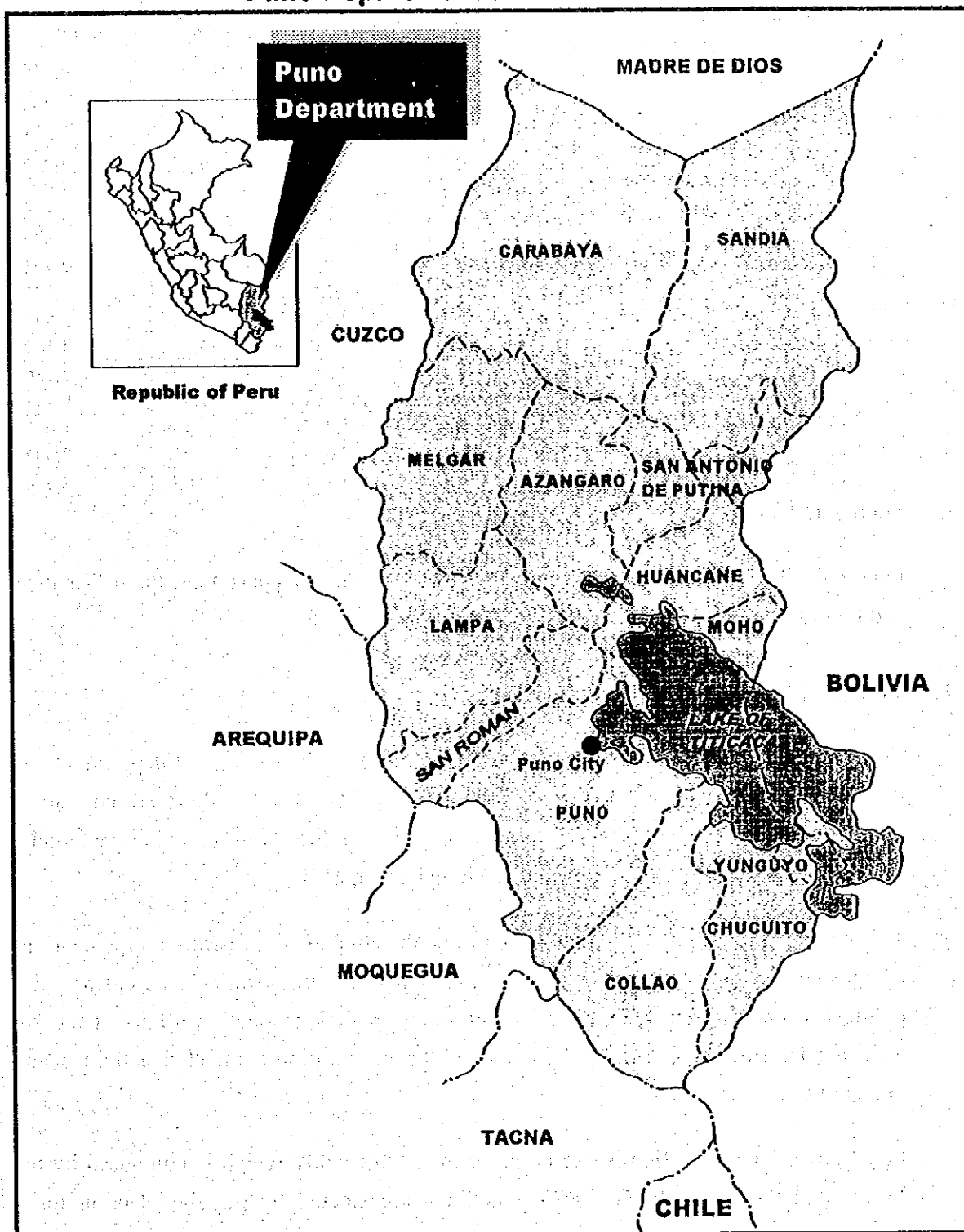


Figure II.5.2 Provinces of the Puno Department

Puno Department and Its Provinces

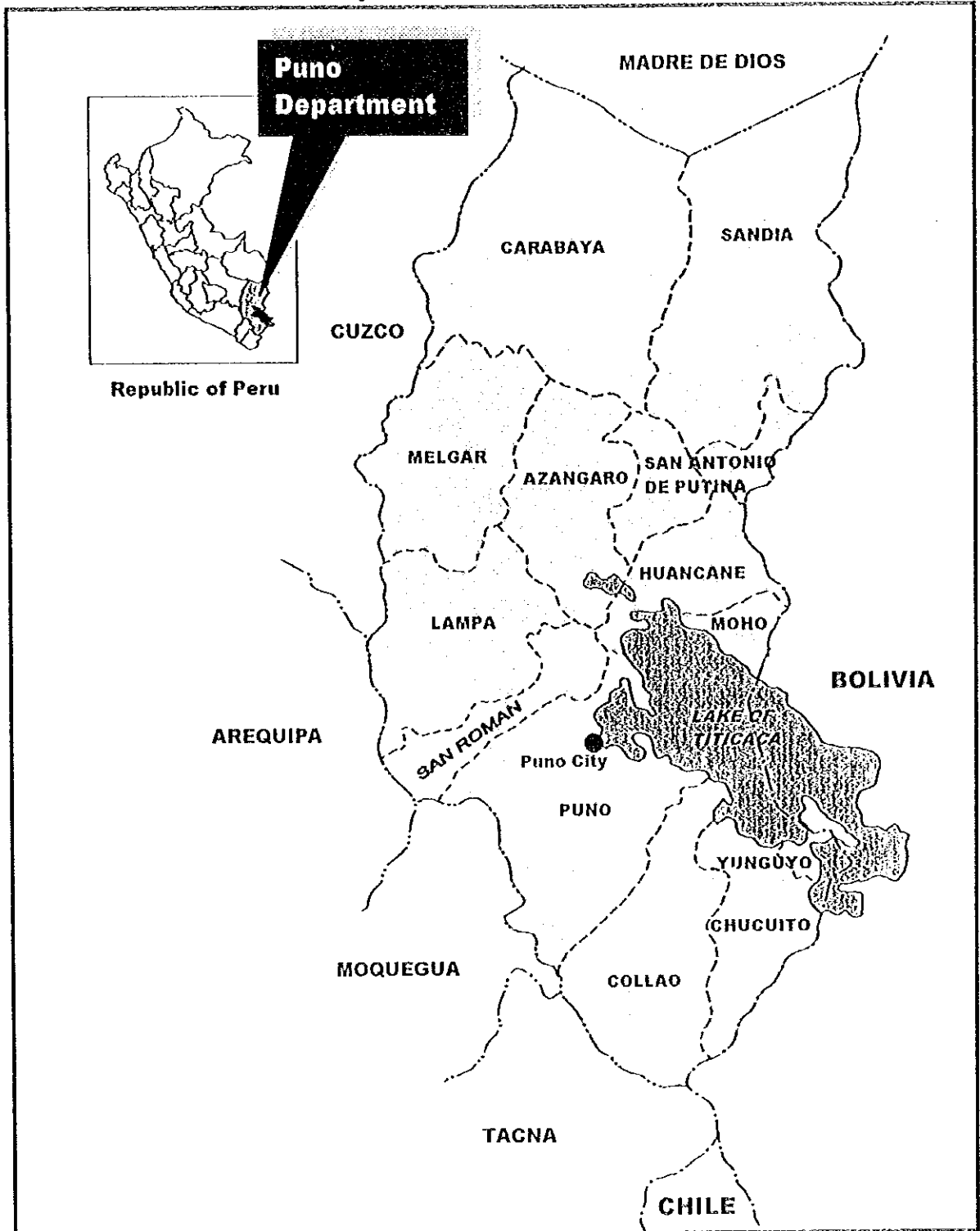


Figure II.5.2 Provinces of the Puno Department

The Puno Province has 15 districts as presented in *Table II.5.2*.

Table II.5.2 Surface Area and Population of the Puno Province

Administrative Area		Surface Area (km ²)	Population in 1993		
			Total	Urban	Rural
Puno Province		6,493	201,215	102,815	96,319
District	1 Acora	1,941	29,420	2,070	27,350
	2 Amantani	15	3,913	392	3,521
	3 Atuncolla	NA	4,830	237	4,593
	4 Capachica	117	11,435	337	11,098
	5 Chucuito	121	9,833	995	8,838
	6 Coata	104	6,301	421	5,880
	7 Huata	130	2,925	221	2,704
	8 Mañazo	NA	5,586	2,230	3,356
	9 Paucarcolla	170	4,382	455	3,927
	10 Pichacani	NA	6,149	1,988	4,161
	11 Platería	239	9,287	501	8,786
	12 Puno	461	100,168	91,877	8,291
	13 San Antonio	NA	1,237	160	1,077
	14. Tiquillaca	NA	2,638	246	2,392
	15. Vilque	NA	3,101	685	2,416

Source: INEI Census, 1993

Puno City (La Ciudad de Puno) is the capital of the Puno Department, Puno Province, and Puno District.

(1) Municipality Administrative Institution

There are municipalities in the capital of Peru (Lima), in the capitals of departments, in the capitals of provinces, and in the capitals of districts. Besides, there are communal municipalities delegated in the inhabited centers, in the rural communities, under agreement with the respective Provincial Municipal Council.

The municipalities in Peru are considered to be the eligible administrative organizations composing the local government. The municipalities are juridical organisms with political, economic and administrative autonomy in their respective affairs. They are managed by rules and laws and in line of the constitution-controlled activities and operations.

Local government function is exercised by the Municipality which is composed by the Mayor and the Councilmen. The Councilmen are elected by popular election for a

period of three years until 1998. After 1999, their term of office will be four years, from 1999 to 2002, and five years from 2002 and later on.

1) Municipal Council

As mentioned above, the Mayor and the Councilmen are elected by their local residents through the democratic processes, and all together form the Municipal Council governed by the Mayor. Municipal Council has governmental, normative, administrative and controlling functions, while the Mayor has executive functions.

The Mayors of provincial and district municipalities are temporal and remunerated. Councilmen receive allowances by attendance of sessions. Remuneration and allowance amount are subjects to the budget affordability of each municipality.

2) Municipality Functions

As stipulated by the Organic Act of Municipalities N°23853, the functions of the municipalities are to give direction to the plans, and to execute the actions dedicated to improve the residents' living standard. In general, these functions are performed through the works such as the followings:

- Development of appropriate land use, housing environment, social security, etc;
- Development of socio-economic infrastructure and urban facilities;
- Citizen registration (marital status registry);
- Improvement of public health and sanitation.
- Improvement of education, culture, tourism, recreation and sport.
- Organization for the safety urban transportation, traffic and road system.
- Organization for the supply and commercialization of products and authorization of commercial, industrial activities and services.

3) Municipality management

To perform an appropriate and coherent management, the municipalities must formulate the plans such as the followings:

- Integral Development Plan
- Land Use Plan
- Urban Plans

These management instruments are determined according to the Supreme Decree N°007-85-VC, Regulation on Development of Territory, Urban, and Environment.

The performance of the public management systems described below should be considered in performing the municipal management:

- National Planning System
- National Budget System
- National Rationalization System
- National Staff System
- National Supply System
- National Treasury System
- National Accounting System
- National Control System
- National Statistics and Computer System

4) Municipality Financial Resource

The municipality financial resource is derived from the collection of taxes, the production and sale of goods, the service providing, the central government's subsidy, the management of municipal properties and assets, etc.

The municipality collects the land tax, public cleaning tariff charges, fees for issuance of licenses, usufruct of municipal assets, administrative rights, etc.

Besides, the SUNAT (National Superintendence of Taxes) collects the taxes such as the municipal compensation fund, mining and petroleum tax, income tax, etc.

(2) Puno Province Municipality

1) Organization Structure

Figure II.5.3 shows the organization structure of the Puno Province Municipality.

The organization of the Puno Province Municipality can be classified into two different levels: governmental level and administrative management level.

In the governmental level, the Municipality Mayor and Councilmen are responsible for making policies aiming at the development of the municipality, and managing the

municipal administrative organs in line of these policies. The Municipal Council is the promoter organ of local development.

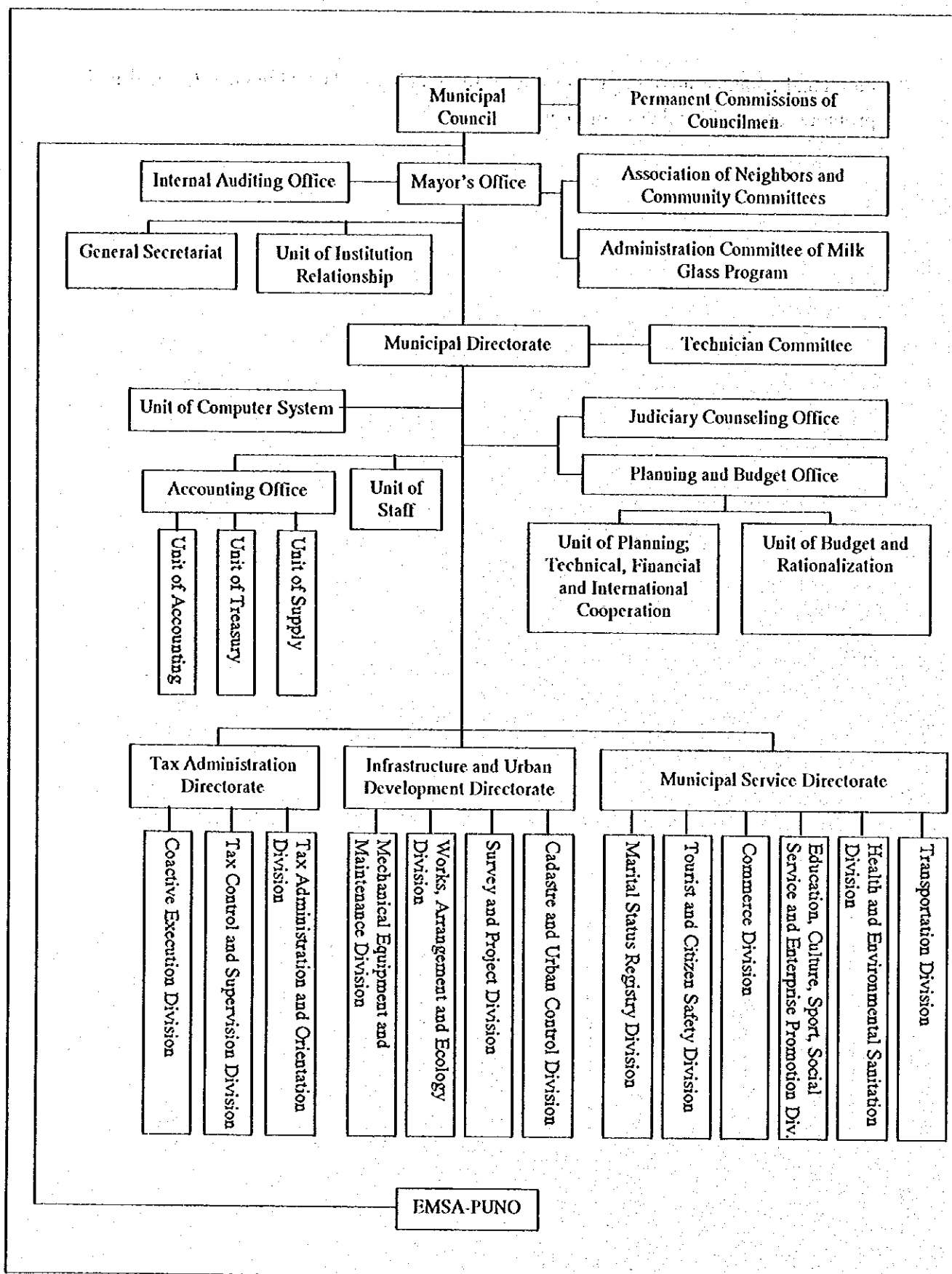


Figure II.5.3 Municipality of Puno Province – Organization Structure in 1999

The Mayor assumes the executive function, while the Councilmen assume the controlling and normative functions.

In the administrative management level, there are the offices, units and directorates which act as the execute, control, counseling and support organisms.

2) Organization Function

Table II.5.3 describes the functions of the organisms of the Puno Province Municipality.

The organization structure, and the functions of the organisms mentioned above are adopted recently in January 1999.

It is worthy to notify that there are two organs, naming: (1) the *Unit of Public Relation and Institutional Image*, and (2) the *Directorate of Public Promotion and Participation* among few organs which were newly installed in January 1999. The establishment of these two organs indicates that the Puno Province Municipality is concentrating efforts in improving the public relation, promoting and motivating the residents' participation into the municipality's activities, campaigns, etc.

In particular, the Unit of Public Relation and Institutional Image is considered to be one of the organs which will take the most important role in carrying out the environmental education and campaigns proposed by this Study. According to the Regulation of Organization and Function of the Puno Province Municipality adopted in February 1999, the functions of this Unit are inscribed as follows:

- a) To make the programs for conducting the activities on public relation, public information, and internal/external particular events, in coordination with the Mayor's Office;
- b) To permanently carry out the studies and evaluation on the public opinion regarding the municipality's administration;
- c) To maintain the permanent relationship and coordination with the public/private, national/international entities, and with the mass media;
- d) To organize the press conferences when it is necessary to gather the journalists for directly transferring of information on the municipality's activities;

Table II.5.3-a Functions of the Organs of the Puno Province Municipality

GOVERNMENTAL ORGANS IN HIGH LEVEL	
	Municipal Council
	Mayor's Office
	Municipal Directorate
COORDINATION AND PARTICIPATION ORGANS	
	Permanent Commissions of Councilmen
	Assembly of Districtal Mayors
	Local Community Committees
	Inter-institution Coordinator
	Civil Defense
CONTROL ORGANS	
	Office of Internal Auditing
COUNSELING ORGANS	
	Technician Committee
	Office of Legal Consultanship
	Office of Planning and Budget
	- Unit of Planning, Budget and Rationalization
	- Unit of Administrative Support and Technical Cooperation
SUPPORT ORGANS	
	Office of Supervision
	Unit of General Secretary
	Unit of Public Relation and Institutional Image
	Unit of Computer Centre and Information
	Office of Administration
	- Unit of Human Resource
	- Unit of Accounting
	- Unit of Treasury
	- Unit of Supply
LINEAR ORGANS	
	Directorate of Generation of Resources and Rents
	Division of Tributary Registration
	Division of Tax Collection and Taxpayer Orientation
	Division of Coactive Execution
	Division of Fiscalization
	Directorate of Development and Infrastructure
	Division of Urban Planning, Urban Control and Cadastre
	Division of Equipment Mechanic and Maintenance
	Division of Works
	Division of Studies and Projects
	Directorate of Public Service
	Division of Commercialization and Sanitary
	Division of Transportation
	Division of Civil Registration
	Division of Public Cleaning
	Division of Ecology, Ornament, Parks, and Gardens
	Division of Civil Security
	Directorate of Public Promotion and Participation
	Division of Education, Culture, Recreation and Sports
	Division of Social Promotion
	Division of Youth, Micro Company and Tourism Promotion
	Division of Municipal Defense of Women, Children and Adolescent

Table II.5.3-b Functions of the Organs of the Puno Province Municipality (continues)

DECONCENTRATED AND DECENTRALIZED ORGANS	
	Municipal Enterprise
	Municipal Enterprise for Potable Water and Sewerage: EMSA-PUNO
	Municipal Service Centers
	Municipal Bank
	Special Projects
	Programs
	Children Public Park
	Program of A Glass of Milk
	Terrestrial Terminal
	Culture Houses

- e) To diffuse the information through the mass media;
- f) To elaborate and to maintain the municipality's activities in conformity with the actualized Civil Calendar;
- g) To make use of the internet, create one municipality's web-page, and make use of the electronic mail;
- h) And other functions assigned by the Mayor, regarding its competency.

The annually budget of the Unit of Public Relation and Institutional Image will be formally decided since the 2000 fiscal year. However, at this present time, with a limited provisional budget, this Unit is carrying out many activities to improve the image of the municipality toward its residents. These include the publish of a weekly newsletter, named "La Comuna Informa", and deliver to the residents through the barrio's leaders.

3) Available Management Instruments

In general, the Municipal Council should have a Regulation of Organization and Function (ROF) beside a number of management instruments, whose objective is regulating and supporting the municipality administration.

However, as shown in *Table II.5.4*, at this present time, the Puno Province Municipality is still in lack of such management instruments.

Table II.5.4 Available Management Instruments of the Puno Province Municipality

(at December 30, 1997)

Management instruments	Dispositions of passing
Operation Plan 1997	RA N°611-97 MPP-A of November 28 of 1997. It is a short-term plan, which includes annual management policies and all of organized activities and projects for the Puno development.
Organization and Function Regulation (ROF)	Municipal Edit N° 005-987-CMPP of June 25 of 1997 It explains in detail the structure and function of each organic unit as well as their hierarchical levels. Organic structure adopted by the Municipality has been designed in accordance to the Organic Act of Municipalities and other complementary dispositions. These functions have been joined according to the objective, authority criteria.
Internal Regulation of Municipal Council (RIC)	Municipal Resolution N° 060-96-CMMP of April 01 of 1996. It explains in detail the Council session development, Mayor and Councilmen functions, composition of Councilmen commissions, discipline punishments, etc.
Organization and Function Regulation (OFR)	It explains in detail the position and functions of the Municipality agencies. The Puno Province Municipality had established a new one in February 1999
Proceeds Handbook (MP)	No disposition. It establishes internal proceeds that the whole administrative papers must follow. Municipality of Puno does not have this instrument.
Staff Assignment Table (CAP)	Municipal resolution N°069-97-CMPP of December 17 of 1997. It is where position is assigned for performing the Municipality functions. The current CAP foresees 185 work positions. But in practice, there are 334 positions in work.
Staff Nominative Table (CNP)	No disposition
Staff analytical budget (PAP)	No disposition. It is where financial resources are assigned to the work positions established by the CAP according to the working requirements. Municipality of Puno does not have this documentation.
Unique Text of Administrative Proceeds (TUPA)	Municipal Statute N°008-97-CMPP of December 9 of 1997. It establishes the requirements, rates and levels of determinate administrative papers and it is available for all people. However, it is not well used and diffused.

Source: Office of Planning and Budget, Puno Province Municipality

4) Financial situation (Source: Presupuesto Municipal 1999, Municipalidad Provincial de Puno.)

(a) 1997 F/Y

According to the 1997 F/Y financial (actual) statement, Ordinary expense (salary and purchase of goods & service) S/. 6,059,826 was covered by Ordinary income (tax, fee and mineral royalty) S/. 6,910,502. Capital expense (investment) S/. 11,614,104 were not covered by subsidy income S/. 8,847,453, so Puno Municipality borrowed S/. 2,630,000 from Peru-Central Bank and some commercial banks. Loan payments including interest expense was S/. 1,152,181, which was the reason of fund management problem.

(b) 1998 F/Y

In 1998 fiscal year, the actual of income was S/. 17,428,697. But loan payment S/. 1,754,653 were the cause of fund shortage and investment expense decreased from S/. 11,614,104 to S/. 8,372,738. As the result of fund shortage, the unpaid salary amount S/. 3.6M is off book debt. The accounting division head explains that at most one third of that debt can be paid to employees.

(c) 1999F/Y

The 1999 fiscal year budget mentions that Mineral royalty income will be decreased to approximately 50% for the reason that the Ministry of Economy & Finance decided to reduce the fund rebate to minimize this kind of subsidy.

So Capital income (the sale of building) S/. 1,500,000 is estimated to cover the shortage of the above subsidy. But loan payment and interest expenses are not estimated for the loans principal were paid back by November in 1998. The administrative expenses are minimized in 1999.

(d) Accounting treatment

The staffing of the Puno municipality including the accounting division changed greatly in November in 1998 and the number of municipality employee has decreased to 170. As a result , there does not seem to be the continuity of accounting treatment. Monthly accounting reports (B/S, P/L) have not prepared since July of 1998. The accounting unit head is not a permanent employee. The volume of 1999 budget document is smaller

than that of 1997 or 1998. But the fund control is effective. The income of tax and fee is the source of staff salary, subsidy income is also the source of staff salary and donation (the project of a glass of milk) . According to the current accounting system for budget and actual, there is not any report of each division . So it is impossible to know how much each division spends the expense and investment.

(e) Fund control

The actual tax income is less than budget tax income. The function of Puno municipality tax department is not effective. But as a whole, in spite of off book salary debt of approximately S/. 3.6million to the Puno municipality employees, there is not any bank loan and the fund of Puno municipality is under control by the new Puno mayor's management.

PUNO MUNICIPAL BUDGET/ACTUAL – INCOME

(unit : S/. 000)

	1997Actual	1998 Actual	1999 Budget	1999Actual-half
Ordinary income				
1. Tax income	1,783	1,168	1,832	644
2. Fee income	1,413	1,479	1,715	921
3. Mineral royalty	2,923	4,089	1,499	1,244
4. Other	792	1,113	1,142	452
Sub total	6,911	7,849	6,195	3261
Capital income	0	0	,500	0
Subsidy income	8,847	9,077	8,305	4,395
Financial income				
1. Loan & other	2,630	0	0	81
2. Prior year adj.	371	503	0	0
Sub total	3,001	503	0	81
Income Total	18,759	17,429	15,999	7,737

PUNO MUNICIPAL BUDGET/ACTUAL -- EXPENSE

(unit : S/. 000)

	1997 Actual	1998 Actual	1999 Budget	1999 Actual-half
Ordinary expense				
1. Payroll & welfare	2,551	2,605	3,188	1,467
2. Pension provision	988	946	1,311	526
3. Goods & service	2,517	2,682	2,514	1,112
4. Other	4	48	14	2
Sub total	6,060	6,281	7,027	3,107
Capital expense				
1. Investment	11,614	8,373	7,563	1,409
2. Other expense	6	25	1,410	0
Financial expense				
1. Interest	277	212	0	0
2. Loan payment	875	1,753	0	0
Expense Total	18,832	16,644	15,999	4,516

5.2 ENVIRONMENTAL MANAGEMENT

(1) Relevant Laws and Regulations

Since the Stockholm Conference on human-life environment (Sweden, 1972), and especially after the United Nations' Conference on Environment and Development (Brazil, 1992), the Peruvian government has made many efforts to improve its legal system on environment. In consequence of these efforts, a relatively orderly legal system was developed which is seen to be conformable to the modern international principles on environment.

Nevertheless the legal system on environment in Peru is really abundant and it dates back to several decades in the past. As described in a work carried out by the SPDA within the framework of the Project PR-5 (a program sponsored by the United Nations relevant to environment), since 1904 more than 6,000 regulations relevant to environment sector were issued, of which about 1,200 regulations are still in effect.

The Peruvian laws and regulations on protection of natural resources and conservation of the environment have cross effect to all scopes of the national activities in practice. Major laws and regulations which are directly or indirectly relevant to the environmental sector in Peru, are the followings.

- Law 21147 (13-05-75), Forest Law and of Fauna Silvestre.
- Decree Supreme 158-77-AG (06-04-77), Regulation of Conservation of Flora and Fauna Silvestre.
- Decree Supreme 159-77-AG (06-04-77), Regulation of Forest Ordination.
- Decree Supreme 160-77-AG (31-03-77), Regulation of Units of Conservation.
- Decree Supreme 0007-85-VC (20-02-85), Regulation of Territorial Acondicionamiento, Develop Urban and environment.
- Law No. 26154 (30-12-92), create the National Fund for State Protected Natural Areas - FONANPE.
- Law No. 26410 (22-12-94), approving the Law on the National Council of the Environment - CONAM.
- Resolution No. 26515 (08-08-95), approving the International Agreement in 1994 on the Tropical Woods published on August 08 1995.
- Resolution Jefatural 054-96-INRENA (20-03-96), approving the National Strategy for the Conservation of Humedales in the Peru.

- Decree Supreme 008-96-ITINCI (06-05-96), approving the Regulation on the Protection of Obtentores of Vegetable Varieties that regulates at national level the decision 045 agreed at the Cartagena's Commission that establishes a general framework for the protection of the right of obtentores of vegetable varieties.
- Resolution 26468, approving the Protocol for the Conservation and Administration of the Protected Marine and Coastal Areas of the Southeast Pacific, pub. 11-06-95.
- Law No. 26496, Law on the Ownership, Commercialization and Sanctions for the Hunting of the Species of Vicuña, Gump and their Hybrid, pub. 11-07-95.
- Resolution No. 26536, approves the Convention of the United Nations on the Fight against the Desertification in the countries affected by serious drought or desertification, particularly in Africa, pub. 07-10-95.
- Decree Supreme No. 007-96-AG, regulates of the Law on the Ownership, Commercialization and Sanctions for the Hunting of the Species of Vicuña, Gump and their Hybrid, pub. 09-06-96.
- Law No. 26664, stipulates the Administration of the Green Areas for the Public Use, pub. 22-09-96.
- Decree Supreme No. 002-97-RE, disposes that the Peruvian State supports the Convention on the Conservation of Wild Animals' Migratory Species, pub. 28-01-97.
- Ministerial resolution No. 0034-97-AG, establishes the Center of Forest Information (CIF) in the National Institute of Natural Resources (INRENA), as the institute in charge of the management of all forestry lands, pub. 14-02-97.
- Law No. 26786, Law on the Environment Impact Assessment for Works and Activities, pub. 13-05-97.
- Law No. 26793, Law on the Creation of the National Fund for Environment, pub. 22-05-97.
- Law No. 26821, Law on the Organism for the Sustainable Use of the Natural Resources, pub. 26-06-97.
- Law No. 26822, Law on the creation of the National Center of Eco-diversity Preservation, pub. 26-06-97.
- Law No. 26834, Law of Protected Natural Areas, pub. 04-07-97.
- Law No. 26939, Law on the Conservation and Sustainable Use of the Biological Diversity, pub. 16-07-97.
- Decree Supreme 019-97-ITINCI, Regulation on the Environmental Protection for the Improvement of Industry Manufacturer's Activities, pub. 01-10-97.

- Decree Supreme 048-97-PCM, approves the Regulation on Organization and Functions (ROF) of the National Council of the Environment (CONAM), pub. 04-10-97.
- Decree 001-97-CD-CONAM, approves the Structural System of Environmental Administration (MEGA), pub. 19-11-97.
- Decree Supreme 056-97-PCM, establishes the cases of which the approval of the Environment Impact Assessment Report and Environmental Measure Programs require the technical INRENA's opinion, pub. 19-11-97; modified by Supreme Ordinance 061-97-PCM, pub. 04-12-97.
- Law No. 613, Law on Environment and Natural Resources, pub. 20-01-1998.

(2) Procedure of Environment Impact Assessment (EIA)

According to the Law on Environment and Natural Resources published in January 1998, an Environment Impact Study (EIA) is required for any work or activity, which can provoke severe damage to the environment, regardless of its public or private characteristic. And also according to this Law, such EIA should be approved by the competent authority. (Article 8)

Particularly, an EIA is required in the cases such as the followings:

- a) Irrigation, dams, hydroelectric generation and other hydraulic works.
- b) Infrastructure works of road network and transportation.
- c) Urbanization.
- d) Installation of oil pipelines, gas pipelines and similar.
- e) Projects of energy development.
- f) Mining, fishery and forestry development activities.
- g) Works and activities being allowed in the protected areas.
- h) Activities related to the chemical industry, petro-chemical industry, metallurgical industry, steel industry, and other activities which could generate radioactive rays, noises or other kinds of severe damage to the environment.
- i) Construction and enlargement of urban zones.
- j) Agricultural enterprises.

The EIA studies should contain the description on the proposed activity, and on the direct or indirect impacts caused by this activity on the physical and social environment,

in short and long term, as well as the technical evaluation on these impacts, the proposed measures to be necessary to avoid or mitigate the damages. In addition, the competent authority can point out other requirements which must be included in this EIA (Article 9).

The CONAM (Consejo Nacional del Ambiente) is legally assigned the role to implement the system of EIA.

Besides, the Law of Increasing Private Investment, in its Article 50, stipulates that the competent authorities mentioned in the provisions of the Law on Environment and Natural Resources are the sectorial ministries which are supervising the enterprise or entity in charge of undertaking the activities that cause impacts to the environment.

Especially, according to the Supreme Decree No. 002-99-SA enacted recently in July 1999, the DIGESA (General Director of Health Environment) of the Ministry of Health is responsible for the approval of the EIAs related to many important projects in the sanitary sector, such as the projects to build up the water treatment systems, the wastewater treatment systems, the solid waste final disposal sites, etc.

(3) Environmental Standards

According to the Supreme Ordinance No. 261-69-AP, which was published on December 12, 1969, for the enforcement of the General Law on Water (promulgated on July 24, 1969), the water bodies in Peru territory are classified into 6 classes depending on its usage. The following *Table II.5.5* shows these classified water bodies, and *Table II.5.6* resumes the water quality standards (the allowable limits) applied to each water body.

Table II.5.5 Classification of Water Bodies

Class	Definition
I	Waters for home supply with simple disinfecting.
II	Waters for home supply with combined treatment processes of mixture and clotting, sedimentation, filtering and chlorination approved by the Ministry of Health.
III	Waters for irrigation of vegetables of raw consumption and for use as animals' drinking water.
IV	Waters for the recreation zones of primary contact (bathrooms and similar)
V	Waters for bivalve shellfish extraction.
VI	Waters for zones of aquatic fauna preservation, or recreation, or commercial fishing.

Table II.5.6a Water Quality Standard for Classified Water Bodies

I.- Bacteriologic limits (values in n.m.p./100 thousand) Understood as maximum value in 80% of 5 or more monthly samples.						
Parameter	I	II	III	IV	V	VI
Total Coliform	8.8	20,000	5,000	5,000	1,000	20,000
Fecal Coliform	0	4,000	1,000	1,000	200	4,000
II- Limits of biochemical demand of oxygen (BOD, 5 days, 20°C), and the dissolved oxygen (DO) (values in mg/l)						
BOD	5	5	15	10	10	10
DO	3	3	3	3	5	4

**Table II.5.6b Water Quality Standard for Classified Water Bodies
(continues)**

III.- Limits of potentially dangerous substances (values in mg/m3)					
Notes: For the water body IV, the limits are not applicable N.A. Not applicable value. * Test of 96 hours LC50 multiplied by 0.1 ** Test of 96 hours multiplied by 0.02 LC50 Lethal dosage to cause 50% of dead or immobilization of the species of BIO TEST 1+ Values to be determined. In case of suspect its presence will be applied the values of the V column provisionally. Pesticides. the criteria of water quality established by the Environment Protection Agency of the United States of America will be used as the limits.					
Parameter	I	II	III	V	VI
Selenium	10	10	50	5	10
Mercury	2	2	10	0.1	0.2
PCB	1	1	1+	2	2
Esteres	0.3	0.3	0.3	0.3	0.3
Estalatos					
Cadmium	10	10	50	0.2	4
Chromium	50	50	1,000	50	50
Nickel	2	2	1+	2	**
Cooper	1,000	1,000	500	10	*
Lead	50	50	100	10	30
Zinc	5,000	5,000	25,000	20	**
Cyanide (CN)	200	200	1+	5	5
Phenol	0.5	1	1+	1	100
Sulfide	1	2	1+	2	2
Arsenic	100	100	200	10	50
Nitrate (N)	10	10	100	N.A.	N.A.
IV.- Limits of substances or parameters potentially harmful (values in mg/l) (applied in the uses of water bodies I, II, III, IV and V)					
Note: (1) Extractive material in Hexane. (Mainly Grease) (2) Actives substances in Methylene Blue (Mainly Detérgent) (3) Extract of column of active carbon by alcohol. (According to the Slow Flow Method) (4) Extract of column of active carbon by Chloroform. (According to the Slow Flow Method)					
Parameter	I and II		III	IV	
M.E.H. (1)	1.5		0.5	0.2	
S.A.A.M. (2)	0.5		1.0	0.5	
C.A.E. (3)	1.5		5.0	5.0	
C.C.E. (4)	0.3		1.0	1.0	

The above-mentioned water quality standards are now being revised by the DIGESA (under the code name "Gesta Agua"), and this organization proposes to complete the revision and approve the new standards by the end of this year 1999.

Besides, at this present time, the wastewater quality standards, the air quality standards (under the code name "Gesta Aire"), the noise standards ("Gesta Ruido") are also being drafted, and are to be approved in the coming days as proposed by the relevant authorities.

(4) Relevant Organizations

In Peru, numerous organizations, entities, etc. are involving in the environmental sector, in order to respond to the environmental problems. These entities are contributing a lot to the works aiming at protecting the Peruvian environment which suffers various impacts caused by the rapid economic development in Peru in recent years. However, though a system of abundant regulations is existing, the environmental management does not work efficiently, due to the institutional weakness, the inefficient executive capacity, the lack of financial arrangement, etc..

CONAM

The "Consejo Nacional del Ambiente" (National Council of Environment, CONAM) had been established by means of the Law No. 26410 on December 22, 1994, as a Peruvian Government's effort to consolidate the isolated efforts for environmental protection. Its main objectives are the consolidation of an comprehensive environmental policy, and the organization of a system of effective environmental administration.

The CONAM's organization structure is shown in *Figure II.5.4*.

There are 7 representatives from various sectors co-working in the CONAM: 3 from the public sector, 2 from the managerial sector, 1 from the regional governments, and 1 from the local governments. The main works of the CONAM Directive Council, which was settled in June 1995, are:

- Formulation of the Environmental National Action Plan;
- Development of the National System for Environmental Management (SNA);
- Installation of the National System of Environmental Information (SINIA);
- Creation of the National Fund for Environment (FONAM);
- Implementation of the system of Environment Impact Assessment
- Improvement of capacity on environmental technique, science and education;
- Promotion of political support, citizen and international cooperation.

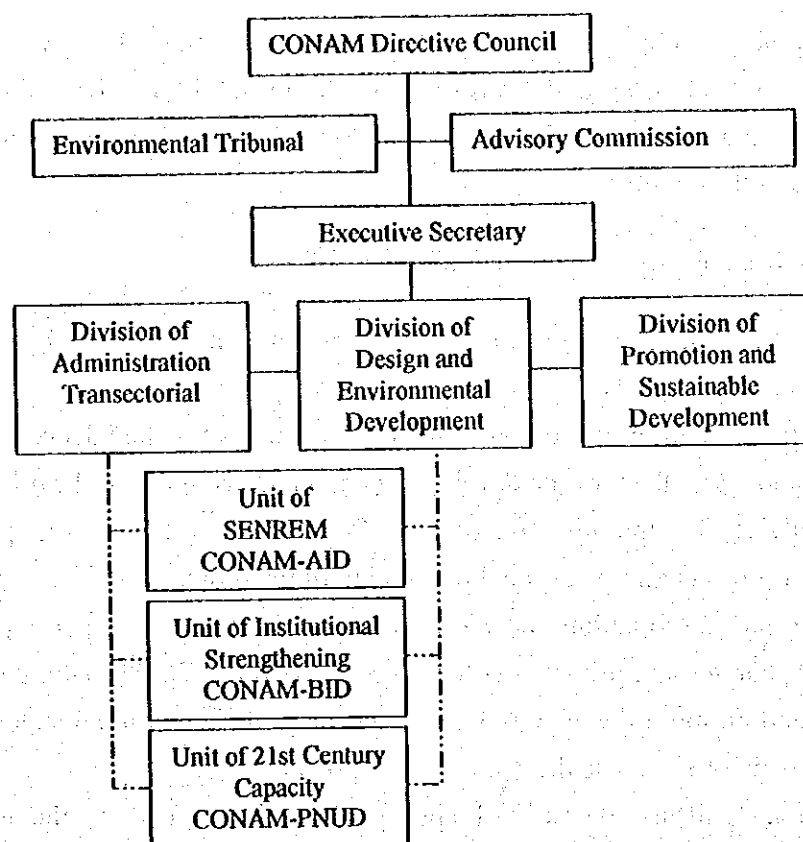


Figure II.5.4 CONAM's Organization Structure

INADUR

The National Institute of Urban Development, identified as INADUR, is a national public institution belong to the Ministry of Transports, Communication, Housing and Construction. The INADUR's main responsibility is to investigate and to promote the studies of urban planning and urban development of the urban areas; as well as, to support the Regional and Local Governments in the identification, preparation and implementation of their plans, programs and specific projects for local development, recruit of qualified personnel, evaluating and defining the achievements and advising the Local Governments in finding financial resource required for the implementation of the plans.

The INADUR is governed by the Organic Law, D.L.No.144, of 12 June 1981, and the relevant regulations. It works with technical, economic and administrative autonomy,

and with policies, objectives and goals approved by the Ministry of Transports, Communications, Housing and Construction. The INADUR has its main office in the Lima Metropolitan, and it can establish Operative Offices or Centers of Investigation in other places of the country.

The INADUR's objectives and functions are as follows.

- a) Promote the land use plans of the national land and of the urban areas as the development instruments.
- b) Support the execution of integral programs or projects for the adequate utilization of national land; as well as for the development and improvement of the urban areas.
- c) Offer advice for the identification of financial sources for the programs and investment projects aiming at the development of the urban areas.
- d) Promote the coordination between the institutions and the participation of the organisms, publics and private, in order to conserve the country's natural environment.
- e) Diffuse and promote the actions for the management, control and supervision of the urban areas, in order to use these areas appropriately.
- f) Promote and diffuse the use of appropriate technologies for the environmental improvement, and promote the citizens in participating in the plans for protection of the ecological environment.
- g) Support the permanent improvement of legislation related to urban development and urban administration, and promote the enforcement of these relevant laws, regulations.
- h) Support the national program of fighting against the poverty, by means of projects of Concentration of Social Investment and Development of the Productive Environment.

The INADUR's organization structure is shown in *Figure II.5.5*.

The INADUR functionally operates for the implementation of the studies and projects which are proposed annually in its Institutional Plan. With its technical autonomy, the INADUR subscribes the Agreements of Execution Responsibility with the entities, institutions or organisms those require to obtain its services. The features of the requested service, such as the products, the cost, the working schedule, etc. will be specified in advance of the formulation of the Terms of Reference. In this case the service will be financed by the entity that applies for obtaining the service. Another source of finance comes from the State Budget, which finances the projects with high institutional priority and projects of emergency. With this specified finance resource, the

INADUR can offer technical assistance or consultation to the Municipalities who need these supports to carry out the integral studies or urgent actions.

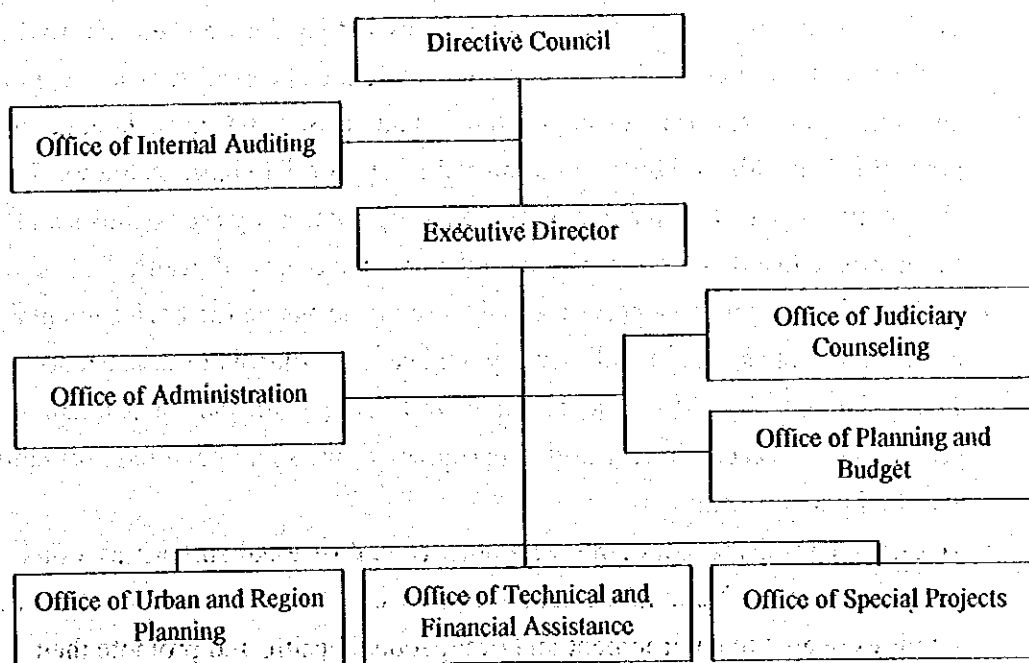


Figure II.5.5 INADUR's Organization Structure

DIGESA

The General Administration of Environmental Health (Dirección General de Salud Ambiental, **DIGESA**) is a sub-organ of the Ministry of Health whose main responsibility is establishing the norms relevant to the environmental protection, basic sanitation, alimentary hygiene, control of zoonosis and occupational health, as well as supervising, controlling, evaluating the enactment of these norms, in cooperating with other regional and local authorities, public and private organizations, in the same sector or in other sectors.

The DIGESA was firstly established in 1950 with the name of 'the Department of Sanitary Engineering' belong the General Administration of Public Health, a sub-organ of the Ministry of Health (MINSA). It was then developed and grew up gradually, and

became the General Administration of Environment in 1982. In 1990, it was reformed to be the current organization with the name DIGESA.

The main functions of the DIGESA are the followings:

- To formulate and propose the national policies and legal norms relevant to the environmental protection by mean of controlling the chemical substances, radiations and other energy forms that can generate potential risks and cause damage to the population's health, and by mean of providing appropriate basic sanitation services, alimentary hygiene to the citizens, as well as by controlling the zoonosis and occupational health in conformity with the national policy of health.
- To formulate, regulate, supervise and diffuse the norms on the environmental protection, basic sanitation, alimentary hygiene and control of the zoonosis.
- To regularize and to diffuse the advanced technologies for the environmental protection and occupational health, appropriate to the socio-economic actuality and the Peruvian culture.
- To direct, coordinate, cooperate with other central/regional authorities, other components of the National System of Health, etc., to supervise and control the activities related to environment and occupational health, and promote their participation in the tasks for resolving the problems of environmental health.
- To participate in the formulation of the Sectoral Plan of Action Against Disasters and Emergencies, with relation to the health and the environment.

The following *Figure II.5.6* shows the DIGESA's organization structure:

The position of DIGESA's General Director is usually taken by a Vice- Minister of Health.

The Executive Director of Basic Sanitation has the following functions:

- To participate in the formulation, supervision and evaluation of the plans and national programs of basic sanitation, in coordination with the central/regional authorities and other components of the National System of Health and other relevant sectors;
- To regularize and establish technical approaches on the physical, chemistry and biological quality of water provided for human use, in coordination with the competent organs;

- To supervise and evaluate the activities developed by the operative levels of the regional and local governments, in the control of water quality for human consumption, as well as the appropriate treatment of served waters and sewerage;
- To coordinate with the competent organs to execute the programs of water supply and latrinization.

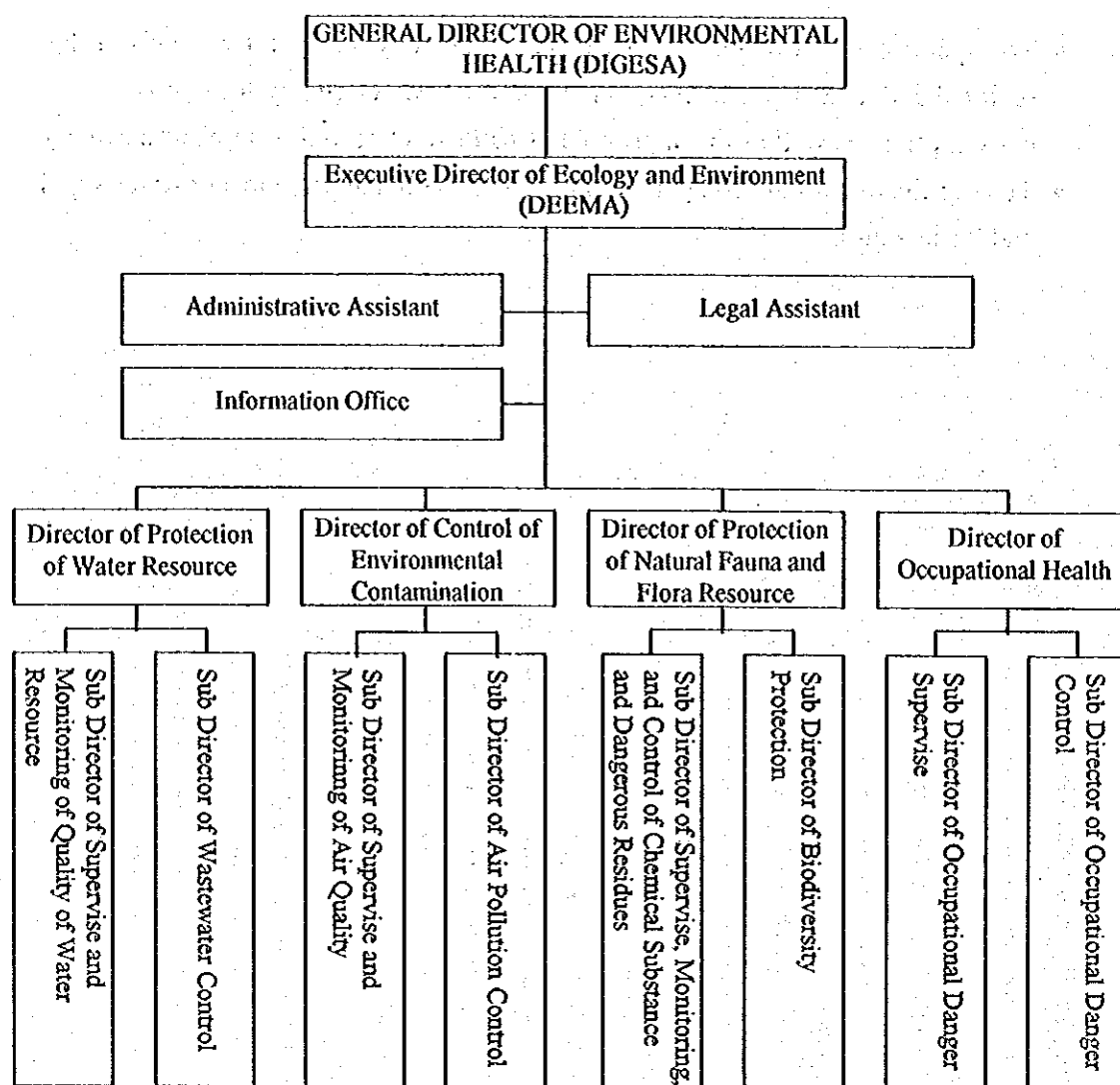


Figure II.5.6 DIGESA's Organization Structure

The Executive Director of Ecology and Environment has the following functions:

- To coordinate with the regional and local authorities to develop the plans, programs and projects of controlling the environmental contamination that can cause damage to the public health or can present a potential risk in cases of operative accidents or natural disasters. It also supervises the application of the related controlling methodologies in conformity with the national policies of health;
- To normalize, control and apply the sanctions settled in the regulations on sanitation and environment, against the cases of generating noises, vibrations that cause serious impacts direct or indirectly to the public health and security and citizen's well-being.

- To promote, in coordination with the regional and local governments and other components of the National System of Health, the conservation and protection of environment as conditioning factors for human health;
- To provide technical consultancy, to the regional and local governments and other public/private institutions, on the matters related to the protection of environment; to promote and diffuse the use of appropriate technologies developed bases on the results of appropriate investigations.

The functions of the Executive Director of Alimentary Hygiene and Control of the Zoonosis are the following:

- To coordinate and supervise the plans and programs for protection of foods, drinks of human use, as well as to control the zoonosis in harmony with the sectorial policies of health.
- To normalize, with the coordination with other relevant organizations, the activities related to the hygienic and sanitary control of foods and beverages for human use.
- To advise, promote and diffuse the investigations aiming at the protection of foods, beverages for human use, and the control of the zoonosis, oriented to the regional and local governments.
- To normalize, in technical aspects, the tasks for the prevention and the control of the zoonosis and accidents caused by poisonous animals.
- To drive the system of Sanitary Registration and Control of the Centers of alimentary production, trade of foods and drinks.

The DIGESA has a staff number of 230 persons in the central level offices, of which 150 are professional and 80 are technical or assistant personnel. Its professional staff consists of engineers of various fields: chemical, security and hygiene, sanitation, civil, industrial, geologists, agricultural, etc. and medical surgeons, veterinary doctors, psychologists, biologists, lawyers, economists, and administrators.

In the regional offices, it has in total 300 people working at 34 regional administrations. Also, it has 1,850 sanitary technicians, one in each Center of Health and 2,500 sanitary technicians in the Health Stations located in the dispersed communities throughout the country.

The DIGESA's budget in 1999 is 21.5 million S/. derived from the State Budget for its proposed investment and operation. Besides, it also has several financial supports from

international technical cooperation, such as the Fund of Countervalue Peru (Switzerland), GTZ (Germany), OPS, Italian Cooperation, FACES, PNUMA, AID, etc.

INADE

The National Development Institute (Instituto Nacional de Desarrollo, INADE) is a decentralized public organism, created in 1983, belong to the Ministry of Presidency. It has the internal public rights as a juridical entity with the technical, economic, and administrative autonomy. The INADE's main duty is to carry out the investment projects with finance came from the State Budget, for the development of rural areas, electric power supply plants, and for the integral development projects in the frontier areas through out the country.

Figure II.5.7 presents the organization structure of the INADE.

The projects in coastal regions mainly aim at the development of rural areas and hydraulic electric generation plants. And the projects in the mountainous regions (Andes mountains) and in the ones in the forestry regions (Amazon forests) are the integrated development projects, which aim at the improvement of the living standard of the poor residents living in the extreme poverty communities in these regions, by mean of rational use of natural resources and sustainable development.

Besides, the Program of Support Development with Automatic System (APOSESA) aims at the improvement of living standard of the peoples living in the most *deprimidas* areas of the country, by strengthening the institutional capacity of the local government, with the utilization and implementation of the modern automatic management system applied to all sectors of the local municipalities, in order to enable the appropriate and timely policy-decisions.

The INADE's activities are financed mainly by the State Budget, and a part of its financial resource came from the external entities such as CAF, KfW, IDB, WB, BIRF, as well as from the relevant private enterprises. In 1996, the INADE's total annual budget was US\$ 350 million.

In principal, the INADE recover its investment by: (1) indirect ways such as: the peoples' living standard improved by the basic social and economic infrastructure developed by the INADE's projects; and (2) direct ways such as: the sale of lands,

collection of charges of supplied water, concession of major infrastructure such as the irrigation system, hydraulic power supply plant, etc.

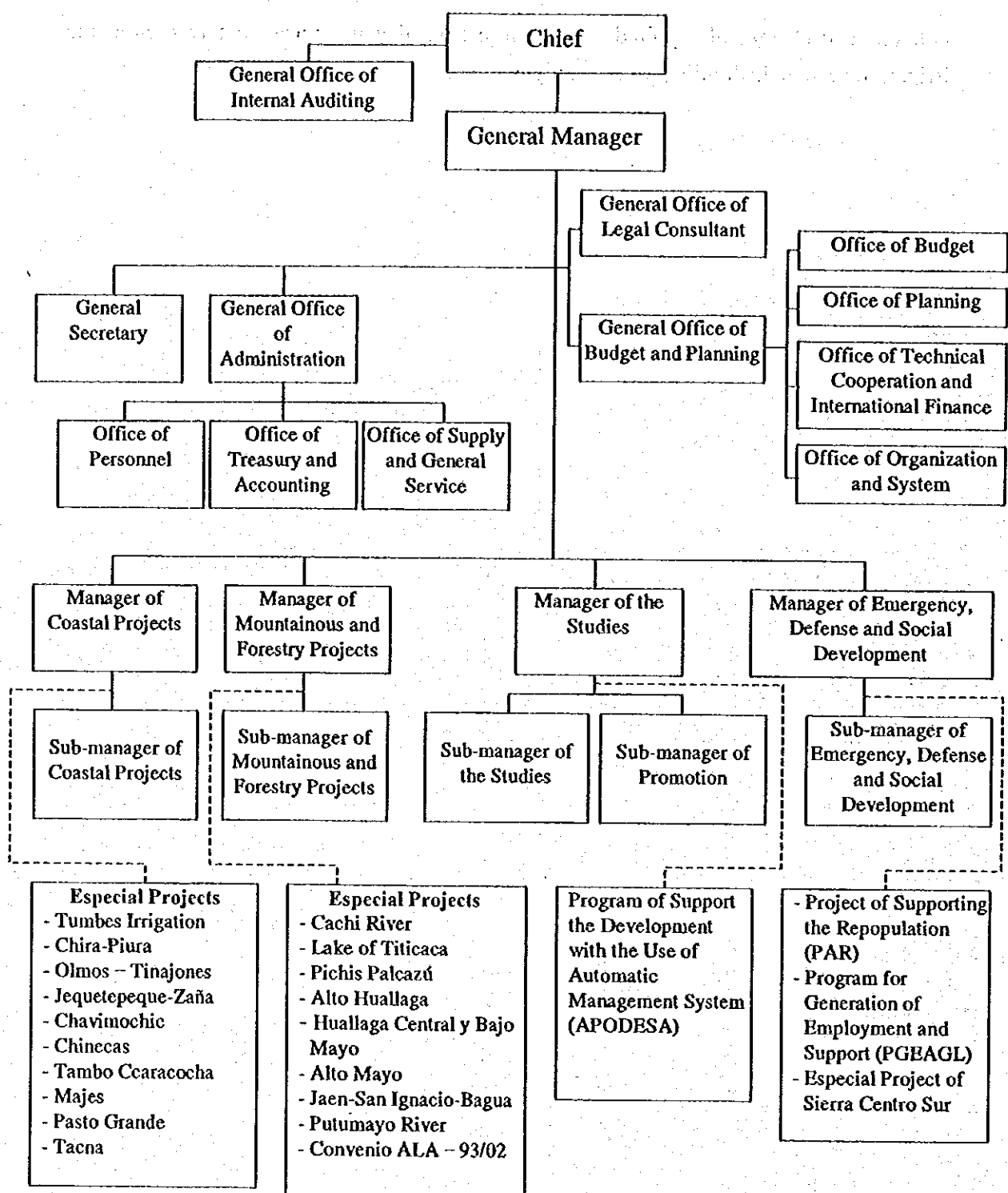


Figure II.5.7 The INADE's Organization Structure

ALT

The Bi-National Autonomous Authority of Titicaca Lake, Desaguadero River, Poopo Lake, Salar de Coipasa (La Autoridad Binacional Autónoma del System Hídrico del Lago Titicaca, Río Desaguadero, Lago Poopó, Salar de Coipasa, or ALT, in short) is a bi-national authority created by the Peruvian government and Bolivian government, through the Reversal Notes exchanged on December 12, 1992, and May 18, 1993, and June 15, 1993.

The ALT is an organization of international public right with plain autonomy of decision and administration in all technical, administrative, economical, and financial aspects. Its functions and policies are directed by the Peruvian and Bolivian Foreign Affairs Ministries. The ALT's President has to report directly to the chancellors of both governments, and perform its role in line of the policies agreed by these two governments.

The ALT's financial resources are the followings:

- Contribution from Bolivian Government and Peruvian Government which is based on the agreement between these two governments;
- Proper incomes from its administrative activities.
- Non-reimbursable technical and financial cooperation from national and international organisms and agencies;
- Donation and/or grants.
- Granted credits, with its corresponding government guarantors.
- Capitals, assets and goods provided based on national or international agreements.

The ALT'S main objective is to promote and guide the actions, programs and projects, as well as to dictate and make the norms of orders, management, control and protection related to the Water System of Titicaca-Desaguadero-Poopo-Salar Coipasa (or the TDPS Water System, in short), in the framework of the Bi-national Global Director Plan of the TDPS Water System (or the Director Plan, in short).

The ALT has the following main functions:

- To supervise the implementation of the Director Plan.
- To promote the sustainable development of the TDPS Water System, by carrying out the conclusions inscribed in the Director Plan.

- To take charge of an authority on water resources and hidrobiological resources of the TDPS Water System shared by the two countries, by establishing the necessary norms and regulations, and recommendations on the measures to be adopted in cases of natural disasters (such as drought, inundation, etc.)
- To secure the maintenance, continuity and utilization of the information systems (data bank, hydro-meteorological networks, etc.) and the mathematical models incorporated in the Director Plan.
- To prevent and to control the adverse impacts on the TDPS Water System.
- To promote and administrate the activities and projects defined in the Director Plan, in order to enable its implementation.
- To promote, supervise and conduct the project implementations and the bi-national cooperation works, with the tittle of a project owner.
- To conduct the improvement and the modification of the Director Plan, through the prioritization, planning and achievement of new projects, activities and actions, at bi-national or national level.
- To study and analyze the legal instruments relating to the administration of water resources and hidro-biological resources of the TDPS Water System, as well as to propose necessary legal and administrative instruments.
- To support and promote the preservation, recovering and conservation of the natural ecosystems, according to the Director Plan, in order to maintain and improve the sustainability of TDPS Water System. To establish norms of water quality. To promote technologies of rational use of natural resources.
- To watch over the investment activities of public and private entities, in order to ensure that only activities which are concordant and profitable to the Director Plan are entitled to have the ALT's supports.
- To administrate the programs, to operate and to maintain the works for supervising the rational use of water resources and hidro-biological resources.
- To promote the cooperation between the ALT and other entities, in order to facilitate the technological transference and capacity development.
- To establish rules on the use and management of water resources and hidro-biological resources, in conformity with the Director Plan.
- To analyze and establish the system of controlling and collecting the tariffs for the services provided by the ALT.
- To improve the inter-institutional coordination, at national and international level, which can serve for the ALT's interests.

- To subscribe the agreements or contracts, which are considered to be convenient for the water management or for the application and promotion of the Director Plan.
- Other charges determined by the Peruvian Government and the Bolivian Government, in relation to the TDPS Water System.

The ALT's organization consists of the following persons and sections:

- Executive President
- Directors of Linear Unit
- Linear Units:
 - Unit of Conduction of the Director Plan
 - Unit of Management and Integrated Control of Water Resources
- Units of Support and Advising
 - Administration
 - Planning and Financing
 - Juridical Advising

The ALT'S headquarter is located in the City of La Paz in Bolivia. Its executive president is a Peruvian assigned under the agreement of both Peruvian Government and Bolivian Government.

PELT

1) Structure

The Binational Special Project of Lake Titicaca (Proyecto Especial Binacional Lago Titicaca, PELT), was created by means of the Supreme Ordinance No. 023-87-MIPRE of October 27, 1987, as a project with national interest and belong to the National Institute of Development (Instituto Nacional de Desarrollo, INADE). And through the Supreme Ordinance No. 008-90-RE of April 20, 1990, the PELT was assigned as a "Binational Project" who is on behalf of Peruvian government in the works with the representative organization of Bolivian government for the sustainable development of the Lake of Titicaca.

The regulation which stipulated the PELT's organizational structure and functions was approved by Ministerial Resolution No. 279-93-PR of December 20, 1993.

According to the Supreme Resolution No. 241-96-RE of June 26, 1996, the PELT substitutes the Technical Secretary of the National Commission to carry out the tasks of the Binational Authority Autonomy of the Lake Titicaca's River System , River Desaguaedro, Lake Poopó and Salar of Coipasa.

In conformity to the Notes Reversales of the Governments of Peru and Bolivia [No. (DGAP-DAS) 6-7/09 of the May 18, 1993, and No. SBAPE-DGA/1042 of June 19, 1993], PELT was assigned as the executioner in the Peruvian side of the activities and projects for the development of the System of Global Binational Director Plan (TDPS). And according to the Notes Reversales of May 29, 1996, the PELT was assigned as the organ in charge of executing the studies, works and activities considered in the above-mentioned system TDPS.

The PELT, is a decentralized organ of the National Institute of Development (INADE). It has technical, economic and administrative autonomy.

As shown in *Figure II.5.8*, the PELT's organization consists of the following organs.

- (a) Executive Directorate as an administration organ responsible for assuring the execution of the objectives and goals of the Project, in accordance with the policy imparted by the INADE and the accords subscribed between Peru and Bolivia.