

1-3-4 The fifth five year plan

The fifth five year plan is aimed at the completion of projects already started and the improvement or reconstruction of the existing roads.

The construction of the Indus highway was eliminated from the plan.

Rs 3,619 million (46.8%) were allocated for national highways out of the total amount of Rs 7,734 million. Details are shown in Table II-1-14.

Bridge at Nowshera was completed in 1980 and satisfactory progress has been made on the construction of bridges over the Indus at Attock, DI Khan and Chazi Ghat. Ongoing projects are listed up in Table II-1-15 Project List of Roads and Bridges in May 1980.

1-3-5 Bottlenecks for container transport by road

Major highway network has been damaged by overloaded trucks as well as by inadequate maintenance.

The structural overloading of highway pavement is due to repetitions of over axle loads higher than the legal maximum load of 8 tonnes.

It is said that about half of the total truck fleet is about 25% overloaded. Increasing the axle load from 8 tonnes to 10 tonnes doubles the destructive effect.

NLC single rear axle truck is loaded to a maximum of 11 tonnes (24 Kips) during the dry season and 5.5 tonnes (12 Kips) during the monsoon season.

If tandem-axle semitrailers for 40' sea-borne containers are introduced and used in service for a 40' FCL container or two 20' the rear axle load will be about 10 tonnes. (See Fig. II-1-9).

If, therefore, semitrailers for 40' containers are introduced, transportation by these during the rainy season might be difficult unless the present pavement is improved.

If, on the other hand, semitrailers for 20' are introduced, there is no problem about transportation by these but this is uneconomical. Besides, they cannot be used to transport 40' containers which represent about 50% of all FCL containers.

1-4 Pipelines

An existing pipeline network is principally for the transportation and distribution of gas from the production sites and Karachi Port.

In addition to it, the construction of an oil pipeline from Karachi to Multan is expected to be completed in the early 1981 and will have a carrying capacity of about 2 million tonnes of crude oil per year.

The diversion of the crude oil traffic from railway to pipeline, the volume of approximately 500 wagons per day, will be expected.

Future expansion of pipeline system to other part of the country depends on the commercial possibilities for developing oil and associated gas output from the recently discovered oilfields such as Toot, Dirkoh, Phodak and Adi.

An important location of minerals and pipeline network is shown in Fig. II-1-10.

**Table II-1-1 Summary of the Fifth Five Year Plan (1978-83)
Allocation for the Transport and Communications
Sector**

(Rs. million)

Sl. No.	Federal	Provincial	Total
I. Public Sector:			
A. Transport:			
1. Railways	6,773	—	6,773
2. Highways	3,619	4,115	7,734
3. Ports: Others 226.00 Balance of Phase-I 1,745.00 P.Q.	1,971	—	1,971
4. Civil Aviation	1,350	—	1,350
5. Research & Studies	15	—	15
Sub-total (A)	13,728	4,115	17,843

Source: The Fifth Plan 1978-83

Table II-1-2 Route Kilometres by Type of Gauge

Unit: km

Year \ Route km	Broad	Metre	Narrow	Total
75/76	7,754.95	445.40	611.10	8,811.45
76/77	7,758.10	445.58	611.35	8,815.03
77/78	7,758.10	445.58	611.35	8,815.03
78/79	7,758.10	445.58	611.35	8,815.03
79/80	7,758.10	445.58	611.35	8,815.03

Broad: 1.676 m

Metre: 1.000 m

Narrow: 0.760 m

Source: NTRC Data

Table II-1-3 Railway Capacity and Utilization in 1979/80

Source: Pakistan Railway

Section	Potential Future Line Capacity	Capacity Available Aspect/ Table	Capacity Utilizes									
			Pass & Parcel		Goods		L/Engine		Total			
			Up	Dn	Up	Dn	Up	Dn	Up	Dn		
<u>Main Line</u>												
Karachi City-Karachi Cantt.		67+25	38	41	10	13	20	23	68	77		
Karachi Cantt-Landhi		126	51	54	14	13	7	6	72	73		
Landhi-Kotri.		37	18	18	15	13	4	4	37	35		
Kotri-Hyderabad.	80	45	17	17	14	13	5	6	36	36		
Hyderabad-Tando Adam.	75	46	15	15	13	12	1	1	29	28		
Tando Adam-Rohri.	90	40	16	16	13	13	4	4	33	33		
Rohri-Khanpur.	80	40	15	15	13	13	3	3	31	31		
Khanpur-Samasata.	80	46	14	14	13	12	1	1	28	27		
Samasata-Lohdran.	80	37	22	22	13	13	1	1	36	36		
Lodhran-Sher Shah.		18	13	13	4	3	1	1	18	17		
Sher Shah-Multan Cantt.		23	20	20	3	3	1	1	24	24		
Multan Cantt-Khanewal.		19	16	16	2	2	-	-	18	18		
Lodhran-Khanewal. (Chord)	80	25	5	5	10	10	-	-	15	15		
Khanewal-Sahiwal.	80	30	13	13	8	7	1	1	22	21		
Sahiwal-Raiwind.	80	28	16	16	8	7	3	4	27	27		
Raiwind-Lahore.	80	46	25	25	9	10	4	5	38	40		
Lahore-Sahdra Bagh.		84	46	40	15	14	4	5	59	59		
Sahdra Bagh-Wazirabad.	80	26	15	15	7	6	2	2	24	23		
Wazirabad-Lalamusa.	80	23	15	15	6	5	1	1	22	21		
Lalamusa-Mandra.	80	23	15	15	7	7	1	1	23	23		
Mandra-Chaklala.	80	25	17	17	7	7	1	1	25	25		
Chaklala-Rawalpindi.	80	53	17	17	5	5	2	2	24	24		
Rawalpindi-Golra.	80	59	22	22	6	5	2	2	30	29		
Golra-Taxila Cantt.	80	21	13	13	4	4	2	2	19	19		
Taxila Cantt-Attock City.	80	19	9	9	4	3	1	1	14	13		
Attock City-Noshera.	80	17	9	9	6	5	-	1	15	15		
Noshera-Peshawar Cantt.	80	25	10	10	5	4	2	2	17	16		
<u>Rohri-Chaman Line</u>												
Rohri-Sukkur.		25	13	13	5	5	7	7	25	25		
Sukkur-Habib Kot.		19	8	8	4	4	4	4	16	16		
Habib Kot-Jacobabad.		22	7	7	3	3	2	2	12	12		
Jacobabad-Sibi.		17	5	5	3	3	3	3	11	11		
Sibi-Abegum.		20	4	4	7	7	1	1	12	12		
Abegum-Kolpur.		27	4	4	7	7	1	1	12	12		
Kolpur-Spezand.		25	4	4	3	4	-	-	7	8		
Spezand-Quetta.		16	4	4	3	4	-	-	7	8		
Quetta-Chaman.		12/8	2	2	1	1	-	-	3	3		

Table II-1-4 Locomotives and Wagons Owned by P.R.

Unit: Number

	Gauge Year	Broad			Metre	Narrow	Total
		Steam	Diesel	Electric	Steam	Steam	
Locomotive	'75/76	450	468	29	36	41	1,024
	'76/77	404	468	29	36	41	978
	'77/78	404	468	29	36	41	978
	'78/79	411	462	29	36	41	978
	'79/80	414	474	36	37	42	1,003

	Gauge Year	Broad	Metre	Narrow	Total
		Wagon	'75/76	35,361	1,013
'76/77	35,143		1,013	564	36,720
'77/78	34,846		999	561	36,406
'78/79	34,757		989	530	36,276
'79/80	34,740		975	520	36,235

Source: NTRC Data

Table II-1-5 Freight Traffic by Commodity 1975/76-1979/80

Commodity	1975-76			1976-77			1977-78			1978-79			1979-80		
	Tonnes (Mil.)	Tonne Kms. (Mil.)	Average Lead (Kms.)	Tonnes (Mil.)	Tonne Kms. (Mil.)	Average Lead (Kms.)	Tonnes (Mil.)	Tonne Kms. (Mil.)	Average Lead (Kms.)	Tonnes (Mil.)	Tonne Kms. (Mil.)	Average Lead (Kms.)	Tonnes (Mil.)	Tonne Kms. (Mil.)	Average Lead (Kms.)
Wheat	1.7	1573.3	914	1.1	610.3	541	1.4	1347.2	947	2.0	2376.1	1148	1.2	1012.5	881
Rice & Paddy	0.8	737.4	912	0.6	509.4	815	1.0	794.1	958	1.0	996.6	992	0.8	722.2	958
Other Grains	-	48.6	797	-	38.6	715	-	13.7	685	-	10.1	673	-	8.4	764
Sugar	-	103.0	595	0.2	98.1	444	0.1	66.0	429	0.1	90.6	708	0.2	202.4	987
Firewood	0.1	117.4	323	0.3	110.2	333	0.4	99.4	360	0.3	97.1	379	0.3	122.3	372
Coal and Coke	0.5	559.1	1039	0.5	486.3	1033	0.4	425.1	1090	0.3	371.1	1114	0.3	380.6	1157
P. O. L.	1.5	1652.5	1043	1.6	1686.7	1035	1.6	1784.5	1106	1.5	1752.8	1158	1.7	1880.4	1119
Cement	1.0	393.3	367	1.0	405.4	423	0.9	281.6	306	0.5	230.0	487	0.8	526.4	664
Fertilizers	1.5	397.7	685	0.9	633.3	740	0.7	596.5	841	0.7	668.8	968	0.9	785.5	847
Iron & Steel	-	117.6	933	0.1	36.1	347	-	84.2	896	0.1	53.9	759	-	43.0	1132
Others Commodities*	3.8	2520.7	815	3.8	2707.4	737	4.0	2718.0	665	3.3	2569.4	768	3.7	2723.6	732
P. R. Freight	5.2	1206.9	232	5.0	1063.4	218	3.9	976.6	249	2.9	919.5	319	3.1	1042.9	339
TOTAL*	16.1	9427.5	599	15.1	8385.2	554	14.4	9186.9	637	12.7	10136.0	793	13.0	9450.2	726

* Includes other coaching freight tonnes/tonne Kms.

Source: Data from Pakistan Railways

Table II-1-6 Sectional Railway Cargo Traffic by Type of Commodity in 1978/79

(Unit: 1000 tonne)

	Containerizable Cargo %	Rice	Non- Containerizable Cargo Oil	Total
Main Line				
Karachi – Karachi Contt	647 (12.7)	84	4,348 (1,337)	5,079
Karachi Contt – Tando, Adam	955 (14.4)	737	4,942 (1,429)	6,634
Tando Adam – Rohri	1,038 (15.4)	751	4,973 (1,454)	6,762
Rohri – Khanpur	1,053 (16.1)	741	4,759 (1,421)	6,553
Khanpur – Lodhran	843 (12.9)	752	4,919 (1,420)	6,514
Lodhran – Khanewal (Cord)	802 (16.2)	716	3,436 (1,050)	4,954
(Loop)	146 (18.4)	7	639 (182)	792
Khanewal – Sahiwal	339 (16.3)	289	1,455 (445)	2,083
Sahiwal – Lahore	316 (16.0)	237	1,420 (438)	1,973
Lahore – Lalamusa	208 (19.5)	125	736 (84)	1,069
Lalamusa – Rawalpindi	321 (28.2)	83	735 (136)	1,139
Rawalpindi – Attock	250 (40.4)	42	327 (15)	619
Attock – Peshawar Contt	280 (20.8)	56	1,007 (209)	1,343
Peshawar Contt – Jamrud	1 (33.3)	–	2 (–)	3
Jamrud – Landi Kotal	1 (33.3)	–	2 (–)	3
Rohli – Chaman Line				
Rohri – Habibkot	149 (12.8)	41	973 (29)	1,163
Habibkot – Jacobabad	142 (12.5)	34	962 (29)	1,138
Jacobabad – Mangoli	99 (13.0)	6	658 (18)	763
Mangoli – Sibi	128 (13.1)	9	841 (29)	978
Sibi – Kolpur	120 (15.9)	7	629 (25)	756
Kolpur – Quetta	142 (15.3)	195	590 (29)	927
Quetta – Chaman	35 (37.6)	–	58 (2)	93
Sher Sha – Attock City Line				
Sher Shah – Bhakker	259 (18.3)	20	1,140 (203)	1,419
Bhakkar – Kundian	287 (18.0)	25	1,282 (220)	1,594
Kundian – Attock City	293 (19.6)	23	1,181 (196)	1,497
Kundian – Lalamusa Line				
Kundian – Khusab	35 (11.&)	3	260 (5)	298
Khusab – Malakwal	11 (0.8)	1	120 (–)	= 132
Malakwal – Lalamusa	48 (14.4)	7	278 (2)	333
Khanewal – Wazirabad				
Khanewal – Sherkot	420 (16.5)	489	1,635 (440)	2,544
Sherkot – Faisalabad	11 (0.7)	329	1,309 (508)	1,649
Faisalabad – Wazirabad	413 (24.7)	248	1,014 (153)	1,675

Source: Data from Pakistan Railways

**Table II-1-7 Summary of Railways Programme
(1978-83)**

(Rs. Million)

No.	Items	Estimated Expenditure 1970-78		Fifth Plan Provision 1978-83		Allocation as % of the Total
		Total	% of the Total	Total	FEC	
1	2	3	4	5	6	7
(i)	Rolling Stock	1,426.004	44.3	2,040.00	1,012.00	30.1
(ii)	New Construction	93.769	2.9	112.26	7.00	1.66
(iii)	Track Renewal	768.744	23.9	1,963.00	1,206.00	28.98
(iv)	Electric Traction	5.147	0.2	160.00	76.00	2.36
(v)	Marshalling Yards	220.634	6.8	102.00	42.00	1.51
(vi)	Signalling	27.043	0.8	119.00	48.00	1.77
(vii)	Telecommunications	17.889	0.6	305.50	152.00	4.52
(viii)	Air Brakes and Central Couplers, etc.	0.100	—	64.00	25.00	0.95
(ix)	Workshops	131.087	4.0	253.00	100.25	3.73
(x)	Line Capacity and Terminal facilities	209.581	6.5	324.00	68.00	4.78
(xi)	Rehabilitation of Bridges	257.410	8.0	365.60	37.10	5.39
(xii)	Research Development Centre	—	—	15.00	—	0.22
(xiii)	Miscellaneous	63.529	2.0	100.00	68.00	1.48
(xiv)	Contingency	—	—	850.00	400.00	12.55
	Total	3,220.937	100.00	6,773.36	3,241.35	100.00

Source: The Fifth Plan 1978-83

**Table II-1-8 Total Road Length in Pakistan for
Last Five Years**

(Unit: km)

Year	Paved Road	Up-paved Road	Total
1976	22,530.827	13,988.646	36,519.473
1977	23,652.300	13,710.289	37,362.589
1978	24,126.955	13,970.947	38,097.902
1979	24,557.436	13,644.978	38,202.414
1980			
Bulchistan	2,894.000	8,405.000	11,299.000
Sind	5,963.000	2,227.000	8,190.000
Punjab	11,700.000	175.000	11,875.000
NWFP	4,181.791	3,145.972	7,327.763
1980 Total	24,738.791	13,952.972	38,691.763

Source: NTRC Data

Table II-1-9 (1) Daily Traffic Volume on Major Highways in 1979/80

No.	Name	Traffic Volume by Type of Vehicle											Total Motorized Traffic	P.C.U. Daily Traffic	Pavement width (m)	Shoulder width		
		Animal Drawn Vehicle		Motor Cycled Scooter		Motor Passenger Buses		Truck & Tractor		Total								
		Bicycle	Non- Motorized	Motor Cycle	Scooter	Motor Passenger Buses	Truck & Tractor	Motorized Traffic	Tractor	Motorized Traffic	Tractor							
Route No. 5 Karachi - Torkham																		
1	(Super Highway) Karachi - Hyderabad	3	12	15	38	1,229	517	5,341	75	7,125	18,919	7.3						
2	Karachi - Thatta	89	1	90	92	566	195	1,530	64	2,383	5,839	over 5.0						
3	Thatta - Hyderabad	4	-	4	19	183	38	823	77	1,063	2,777	over 5.0						
4	Hyderabad - Sakrand	22	38	60	74	655	208	3,367	78	4,304	11,732	5.9-7.2	1.4-2.0					
5	Sakrand - Rohri	29	89	118	312	799	380	2,977	67	4,468	11,752	4.9-16.0	0.2-3.0					
6	Rohri - R.Y. Khan	26	6	32	58	231	212	2,944	85	3,445	9,789	5.0-7.5	1.0-2.0					
7	R.Y. Khan - Bahawalpur	191	41	232	64	228	283	2,585	81	3,160	9,287	4.9-11.5						
8	Bahawalpur - Multan	121	28	149	98	257	354	1,273	64	1,982	5,471	4.9-7.3						
9	Multan - Sahiwal	140	43	183	131	365	548	1,187	53	2,231	6,049	5.5-8.5						
10	Sahiwal - Lahore	42	23	65	37	479	667	1,943	62	3,126	8,532	6.0-7.3						
11	Lahore - Gujranwala	99	44	143	398	3,612	1,878	1,773	23	7,661	15,165	7.3						
12	Gujranwala - Gujrat	181	104	285	167	1,401	1,250	2,261	45	5,079	12,940	5.5-17.6						
13	Gujrat - Jhelum	137	-	137	795	1,895	979	1,796	33	5,465	10,686	8.5-14.0						
14	Jhelum - Rawalpindi	73	13	86	83	1,728	753	1,876	41	4,526	9,797	5.5-12.0						
15	Rawalpindi - Peshawar	59	6	65	81	1,950	670	2,206	45	4,907	10,696	5.5-15.0						
16	Peshawar - Torkham	32	-	32	85	950	315	923	41	2,273								
Route No. 25 Karachi - Quetta																		
17	Karachi - Bela	18	4	22	150	1,109	83	656	33	1,998	4,189							
18	Kalat - Quetta	89	19	108	107	220	41	124	25	492	965							
Route No. 65 Rohri - Chaman																		
19	Rohri - Sibbi	85	185	270	87	465	184	621	46	1,348	4,437							
20	Sibbi - Quetta	1	-	1	10	157	31	585	75	783	2,010	over 3.6						
21	Quetta - Chaman	36	-	36	38	684	221	402	30	1,345	2,590							

Table II-1-9 (2) Daily Traffic Volume on Major Highways in 1979/80

No.	Name	Traffic Volume by Type of Vehicle										Truck %	P.C.D. Daily Traffic	Shoulder width (m)	
		Total					Motorized								
		Bicycle	Animal Drawn Vehicle	Non-Motorized Traffic	Motor Cycle & Scooter	Motor Passengers Buses	Motorized Traffic	Motorized Traffic	Motorized Traffic	Motorized Traffic	Motorized Traffic				
	Multan - Quetta														
22	Multan - Muzaffargarh	73	12	85	94	519	702	1,778	57	3,093	8,138				
23	Muzaffargarh - Rakhni	-	-	-	4	7	8	265	93	284	828				
24	Rakhni - Quetta	-	-	-	8	22	8	24	39	62	111				
	Major Highways in Punjab														
	(Mandira - Uch)														
25	Mandira - Chakwal	55	-	55	47	186	176	129	24	538	1,152	3.7			
26	Chakwal - Khushab	15	5	20	15	102	177	311	51	605	1,621	3.0-5.5			
27	Khushab - Atharan Hazari	4	-	4	-	8	29	14	27	51	139	3.0			
28	Atharan Hazari - Muzaffargarh	115	24	139	20	111	225	529	60	885	2,632				
29	Muzaffargarh - Uch	38	1	39	32	156	170	1,424	80	1,782	4,981				
	(Chakwal - Mianwali - Sargodha)														
30	Chakwal - Talagang	396	-	396	36	108	71	115	35	330	882	3.0-5.5			
31	Talagang - Mianwali	44	3	47	7	121	77	453	69	658	1,760	3.0-6.1			
32	Mianwali - Khushab	94	10	104	26	138	212	253	40	629	1,673	3.0-7.3			
	(1978) Khushab - Sargodha	140	49	189	91	365	556	548	35	1,560	4,184				
	(Sargodha - Faisalabad)														
33	Sargodha - Chiniot	259	120	379	111	499	652	1,604	56	2,866	8,412	5.5-10.0			
34	Chiniot - Faisalabad	118	29	147	118	405	491	1,095	52	2,109	5,259	5.5-10.0			
	(Sialkot - Faisalabad - Multan)														
35	Sialkot - Gujranwala	135	108	243	304	963	626	373	16	2,266	4,243	5.5-9.8			
36	Gujranwala - Sheikhpura	33	20	53	56	340	505	823	48	1,724	4,528	5.5-7.3			
37	Sheikhpura - Faisalabad	74	19	93	94	827	1,003	621	24	2,545	5,935	6.1-12.2			
38	Faisalabad - Thang	60	5	65	27	144	347	650	56	1,168	3,218	6.1-14.3			
39	Thang - Multan	73	11	84	29	133	195	889	71	1,246	3,524				
	(Gujrat - Thang)														
40	Gujrat - Sargodha	175	45	220	60	137	118	256	45	571	1,736	3.0-7.3			
41	Sargodha - Thang	118	12	130	13	106	141	283	52	543	1,539				

Source: NTRC Data

Table II-1-10 (1) Peak Hourly Traffic Volume on Major Highways in 1979/80

No.	Name	Traffic Volume by Type of Vehicle											P.C.U. Hourly Traffic	Road Capacity Service Level	V/C Ratio
		Animal Drawn Vehicle		Motorized Cycle & Scooter		Motor Cycle & Motor Scooter		Passenger Buses		Truck & Motorized Truck		Total Motorized Traffic			
		Bicycle	Animal Drawn	Motorized Cycle	Scooter	Motor Cycle	Motor Scooter	Passenger Buses	Truck	Motorized Truck	Total Motorized Traffic				
1	Route No. 5 Karachi - Torkham (Super Highway)	-	-	-	-	-	32	13	361	89	406	1,154	1,400	0.82	
2	Karachi - Thatta	-	-	-	7	48	13	101	60	169	369	1,000	0.37		
3	Thatta - Hyderabad	1	-	1	4	12	2	69	78	88	227	1,000	0.23		
4	Hyderabad - Sakrand	-	-	-	-	17	3	236	92	256	734	1,140	0.64		
5	Sakrand - Rohri	2	3	5	25	47	23	175	65	270	678	1,000	0.68		
6	Rohri - R.Y. Khan	3	1	4	8	20	14	249	86	291	822	1,000	0.82		
7	R.Y. Khan - Bahawa'pur	16	11	27	8	30	28	168	72	234	718	1,000	0.72		
8	Bahawa'pur - Multan	20	3	23	13	25	24	56	47	118	305	1,000	0.31		
9	Multan - Sahiwal	11	9	20	12	31	33	92	55	168	489	1,140	0.43		
10	Sahiwal - Lahore	2	-	2	4	34	56	106	53	200	523	1,260	0.42		
11	Lahore - Gujranwala	10	3	13	43	404	146	73	11	666	1,111	1,400	0.79		
12	Gujranwala - Gujrat	13	5	18	12	119	75	57	22	263	567	1,140	0.50		
13	Gujrat - Jhelum	4	-	4	82	115	71	65	20	333	566	1,600	0.35		
14	Jhelum - Rawalpindi	14	-	14	5	145	46	75	28	271	517	1,140	0.45		
15	Rawalpindi - Peshawar	8	1	9	10	249	44	105	26	408	713	1,140	0.63		
16	Peshawar - Torkham	4	-	4	13	87	30	89	41	219	452	-	-		
17	Route No. 25 Karachi - Quetta	2	-	2	7	86	4	77	44	175	333	-	-		
18	Karachi - Bela	15	-	15	13	22	8	7	14	50	81	-	-		
19	Route No. 65 Rohri - Chaman	9	27	36	8	41	25	25	25	99	415	-	-		
20	Rohri - Sibbi	-	-	-	2	20	3	31	55	56	123	-	-		
21	Sibbi - Quetta	4	-	4	3	72	34	32	23	141	273	-	-		
	Quetta - Chaman	-	-	-	-	-	-	-	-	-	-	-	-		

Table II-1-10 (2) Peak Hourly Traffic Volume on Major Highways in 1979/80

No.	Name	Traffic Volume by Type of Vehicle										Total Motorized Traffic	Truck %	P.C.U. Hourly Traffic	Road Capacity Service Level	V/R Ratio	
		Animal Drawn Vehicle	Bicycle	Motor Scooter	Cycle	Motor Cycle	Passenger Buses	Truck	Motorized Traffic	Truck %	P.C.U. Hourly Traffic						
Multan - Quetta																	
22	Multan - Muzaffargarh	-	-	5	41	38	115	58	199	502							
23	Muzaffargarh - Rakhni	-	-	-	3	1	19	83	23	63							
24	Rakhni - Quetta	-	-	1	2	-	5	63	8	17							
Major Highways in Punjab																	
(Mandira - Uch)																	
25	Mandira - Chakwal	3	-	3	32	13	10	17	58	104							
26	Chakwal - Khushab	1	-	1	6	9	29	64	45	121							
27	Khushab - Atharan Hazari	-	-	-	-	3	4	57	7	21							
28	Atharan Hazari - Muzaffargarh	16	4	20	10	12	17	43	40	129							
29	Muzaffargarh - Uch	1	-	1	11	11	101	81	124	348							
(Chakwal - Mianwali - Sargodha)																	
30	Chakwal - Talagang	55	-	55	2	15	3	12	26	70							
31	Talagang - Mianwali	8	-	8	9	10	21	53	40	106							
32	Mianwali - Khushab	11	-	11	3	8	13	33	40	107							
(1978) Khushab - Sargodha																	
(Sargodha - Faisalabad)																	
33	Sargodha - Chiniot	48	8	56	12	37	60	36	166	482							
34	Chiniot - Faisalabad	22	8	30	9	40	32	26	125	347							
(Sialkot - Faisalabad - Multan)																	
35	Sialkot - Gujranwala	13	8	21	40	95	26	13	206	398							
36	Gujranwala - Sheikhpura	-	2	2	5	30	44	38	116	291							
37	Sheikhpura - Faisalabad	6	2	8	7	46	35	23	151	362							
38	Faisalabad - Jhang	4	-	4	-	7	30	42	71	201							
39	Jhang - Multan	-	3	3	-	4	109	94	116	364							
(Gujrat - Jhang)																	
40	Gujrat - Sargodha	19	10	29	13	13	11	24	46	169							
41	Sargodha - Jhang	17	4	21	1	9	7	29	24	92							

Table II-1-11 Motor Vehicles Registered by Type 1970-1978

Year	Car	Bus	Truck	Sub-total	Motor Cycle	Other	Total
1970	154.5	21.7	42.0	218.2	125.5	20.1	363.8
1971	167.0	23.8	44.0	234.8	147.4	21.0	403.2
1972	170.6	26.6	45.9	243.1	159.7	23.3	426.1
1973	177.3	29.8	49.3	256.4	175.1	26.3	457.8
1974	189.1	33.4	53.4	275.9	199.7	33.0	508.6
1975	203.3	36.1	57.2	296.6	232.9	43.0	572.5
1976	220.8	38.7	60.5	320.0	274.0	56.8	650.8
1977	227.3	41.7	56.9	325.9	314.3	76.0	716.2
1978	262.5	43.4	60.4	366.3	369.8	94.1	830.2
Growth rate	6.85%	9.05%	4.65%	6.69%	14.46%	21.28%	10.86%

Source: NTRC

Table II-1-12 Motor Vehicles on Roads by Type for Last Five Years

Province		Type	Car	Taxi	Bus	Truck	Motor Cycle and Scooter	Rikshaws	Other	Total
Punjab	1975		37,225	3,364	8,022	10,102	57,866	6,316	11,137	134,032
	1976		39,654	2,988	9,500	10,685	69,274	6,685	21,764	160,550
	1977		47,894	2,188	9,272	8,483	88,699	7,985	28,694	193,215
	1978		55,043	2,315	7,516	8,553	112,243	10,230	33,286	229,186
	1979		62,903	2,870	11,136	11,570	119,614	11,236	36,770	256,099
Sind	1975		39,663	7,045	4,133	7,398	46,261	8,347	5,940	118,787
	1976		44,788	7,175	5,359	7,912	55,389	8,266	8,231	137,120
	1977		51,386	7,278	5,287	8,382	67,692	8,966	12,830	161,821
	1978		59,539	7,528	5,436	16,078	83,152	9,410	19,066	200,209
	1979		68,908	7,920	5,590	9,833	102,217	9,974	27,680	232,122
N.W.F.P.	1975		8,710	2,378	3,489	5,019	4,023	762	2,581	26,962
	1976		10,342	2,752	3,795	6,839	5,344	996	3,449	33,517
	1977		11,585	4,146	4,125	7,248	6,802	1,174	5,257	40,337
	1978		13,057	4,542	4,378	9,822	8,160	1,406	6,530	47,895
	1979		16,103	5,287	4,603	10,255	9,745	1,669	6,408	54,070
Pakistan	1975		85,598	12,787	15,644	22,519	108,150	15,425	19,658	279,781
	1976		94,784	12,915	18,654	25,436	130,007	15,947	33,444	331,187
	1977		110,815	13,606	18,684	24,113	163,193	18,185	46,781	395,377
	1978		129,073	14,385	17,330	34,453	203,555	21,052	58,882	478,730
	1979		147,912	16,027	21,329	31,658	231,576	22,879	70,858	542,239

(Source: NTRC)

Table II-1-13 Trucks owned by National Logistic Cell

Make	Q'ty	Load Capacity per Veh.	Total Load Carrying Capacity
Vehicles held with TPT Fleet NLC			
a. Mercedes Benz L 1921/52	500	10 Tons	5,000 Tons
b. Peter Bauer Trailers (to be coupled with Mercedes Benz L 1921/52)	500+	10 Tons	5,000 Tons
c. Saviem SM 8/L	230	7 Tons	1,610 Tons
d. Mack/Saviem Trailers (to be coupled with Saviem SM 8L)	30	9 Tons	270 Tons
e. Ford D - 1211	100	7 Tons	700 Tons
f. Dodge PD - 600	66	5 Tons	330 Tons
g. Fiat Truck Tractors Coupled with Zorzi Cargo Van Semitrailers	200	20 Tons	4,000 Tons
h. Fiat Truck Tractors Coupled with Calbrese Tank Semi-trailers	100	28,000 Ltrs	2,800,000 Ltrs
i. Hino Truck Tractors Coupled with Tokyu Steel Van Semi-trailers	53	20 Tons	1,060 Tons
Grand Total			17,970 Tons 2,800,000 Ltrs

Source: Interview with NLC

Table II-1-14 Summary of Roads Programme

(Rs. Million)

A. Federal:		
(i) Improvement and widening of existing network:—		
(a)	National Highways including D.I. Khan-Fort Sandeman Road, R.C.D. Highway and North South link on west bank of Indus.	781.00
(b)	Third Highway Project:	
	Lahore-Okara	}
	Okara-Khanewal	
	Okara-Dipalpur	
	Hyderabad-Nawabshah	
	Nawabshah-Khairpur	
	Rohri-Reti	
	Khairabad-Peshawar	
	Peshawar-Charsada	650.00
(ii) Roads in Federally Administeted Areas:		
	Azad Kashmir	300
	Northern Area	180
	FATA	250
		730.00
(iii)	Other Roads	1,132.00
(iv) Major Bridges:		
	Nowshera, Attock, D.I. Khan, D.G. Khan and Dadu-Moro	300.00
(v) Studies:		
	Traffic count programme, Master Plan for Road Development and Rapid Transit System, etc.	26.00
	Sub-total "A"	3,619.00
B.	Provincial	4,115.00
	Total	7,734.00

Source: The Fifth Plan 1978-83

Table II-1-15 (1) Project List of Roads and Bridges in May 1980

Province	No.	Name of Project	Estimated Cost	Approval	Unit: Mil. Rs Invested Cost so far
Punjab	1.	Construction of Gujranwala Bypass (28.8km)	34.75 - 41.85	Approved by P D W P	40.573
	2.	Construction of Wazirabad Bypass (7.9km)	9.18 - 13.162	Idem	9.097
	3.	Widening & Improvement of Lahore-Multan-Quetta Road (52.8km)	5.146 - 3.15	Idem	3.90
	4.	New Road Construction of Gujranwala-Lahore and Sheikhpura-Gujranwala Section (44.5km)	77.20	Idem	69.861
	5.	New Road Construction of Shahdara-Muridke Section (9.6km)	23.933	Idem	22.937
	6.	Improvement of Lahore-Gujranwala Section (54.1km)	21.90 - 24.00	Idem	9.314
	7.	New Road Construction of New Chenab-Bhimber Nullah Section (11.6km)	9.70 - 14.158	Idem	10.848
	8.	Construction of Bhimber Flyover on Gujrat Bypass	7.59 - 8.140	Idem	8.443
	9.	Construction of Flyover at Tarrakki Railway Crossing	9.293 - 14.761	Idem	14.624
	10.	Construction of Oakrala Bridge on Gujranwala-Lahore Section	6.450 - 11.864	Idem	9.401
	11.	Construction of 4-Lane Divided Highway between Rawalpindi-Chablat Bridge (51.2km)	116.00	Idem	27.47
	12.	Improvement of Road Bridge on Gujranwala-Lahore Section	44.10	Idem	3.575
	13.	Improvement of West Pakistan Road in Sahiwal District (16.96km)	3.020	Idem	1.41
	14.	Construction of Kabiwala Bypass at Lahore on Lahore-Multan Road	14.540	Idem	7.891
	15.	Rehabilitation of Mandra Flyover on Lahore-Rawalpindi Road	1.42	Idem	—
	16.	Widening and Improvement of Charnigoth-Trinda Muhammad Pannah in Bahawalpur District	10.00	Idem	—
	17.	Improvement of Chenab Bridge at Wazirabad in Gujranwala District	58.36	—	—

Table II-1-15 (2) Project List of Roads and Bridges in May 1980

Province	No.	Name of Project	Estimated Cost	Approval	Invested Cost so far
	18.	Extension Work for Ravi Bridge in Lahore District	25.00	—	—
	19.	Widening and Improvement of Road Bridges on Sahiwal-Mian Channu Section	1.52	—	—
	20.	Chenab River Bridge Construction at Wazirabat in Gujranwala District	33.28	—	32.80
	21.	Bridge Construction Over The Indus at Ghazi Chat	260.00	Approved by E C N E C	50.740

Table II-1-15 (3) Project List of Roads and Bridges in May 1980

Province	No.	Name of Project	Estimated Cost	Approval	Invested Cost so far
Lahore Development Authority	1.	Widening and Improvement of National Highway at Chowk Chaurji in Lahore	1.992 - 2.121	Approved by P D W P	0.669
	2.	Widening and Improvement of National Highway between Bhuda Ravi and New Ravi	670 - 7.636	Idem	0.958
	3.	Widening and Improvement of National Highway on Lahore-Multan Road (10.2km)	6.250	Idem	1.594
	4.	Improvement of National Highway in Lahore City	7.0837 - 7.100	Idem	5.701
	5.	Construction of Multan Bypass	52.50	Idem	16.859
	6.	Widening of National Highway in Lahore City (3.2km)	4.00	—	—
	7.	Widening and Improvement of National Highway in Lahore City (3.2km)	4.900 - 5.00	—	—

Table II-1-15 (4) Project List of Roads and Bridges in May 1980

Province	No.	Name of Project	Estimated Cost	Approval	Invested Cost so far
Sind	1.	Improvement of Rohri-Quetta-Chaman Section	3.213	Approved by M O C	1.966
	2.	Widening and Rehabilitation of National Highway, N-5 (125km)	0.590	Idem	0.5822
	3.	Widening and Rehabilitation of National Highway, N-5 (128.6km)	1.525	Idem	1.285
	4.	Widening and Rehabilitation of National Highway, N-5 (27.2km)	2.539 - 2.760	Idem	3.017
	5.	Rehabilitation of Shahrah-Pakistan Section (57.6km)	2.4528	Idem	2.172
	6.	Widening and Rehabilitation of National Highway, N-5 (6.4km)	4.877	Approved by N H B	1.362
	7.	Widening and Rehabilitation of National Highway, N-5 (8.0km)	4.985	Idem	1.560
	8.	Rehabilitation of National Highway, N-5 (5.1km)	4.706	Idem	1.750
	9.	Rehabilitation of National Highway, N-5 (27.7km)	4.907	Idem	2.162
	10.	Rehabilitation of National Highway, N-5 (5.9km)	4.668	Idem	2.112
	11.	Widening and Improvement of Rohri-Quetta-Chaman Section (18.7km)	4.857	Idem	0.664
	12.	Widening and Improvement of Rohri-Quetta-Chaman Section (33.6km)	4.668	Idem	0.725
	13.	Widening and Improvement of Rohri-Quetta-Chaman Section (33.6km)	4.749	Approved by M O C	0.766
	14.	Construction of Dad-Moro Bridge in Hyderabad City	287.187	Approved by E C N B C	139.035

Table II-1-15 (5) Project List of Roads and Bridges in May 1980

Province	No.	Name of Project	Estimated Cost	Approval	Invested Cost so far
N W F P	1.	Widening and Improvement of Shahrah-e-Pakistan Road	5.187 - 4.995	Approved by N H B	4.751
	2.	Construction of Interchange at Nowshera on Shahrah-e-Pakistan Road	4.416	Idem	3.833
	3.	Improvement of Babu Nullah Bridge on Shahrah-e-Pakistan Road	1.816	Idem	1.927
	4.	Bridge Construction on Jamrud-Torkham Section	4.995	Idem	0.298
	5.	Improvement of Jamrud-Torkham Section (4.4km)	4.995	Idem	0.423
	6.	Pavement and Improvement of Darazinda-Moghalkot Section (56km)	9.344 - 18.3135	Approved by P D W P	11.951
	7.	Improvement of Peshawar-Nowshera Road in Pubbi Bazar Basin	4.55	Idem	—
	8.	Improvement of Jamrud-Torkham Section (40.2km)	18.95	Idem	—
	9.	Construction of Karakurram Road	18.675	Idem	—
	10.	Bridge Construction Over the Kabul at Nowshera	46.30 - 53.094	Approved by E C N E C	49.187
	11.	Bridge Construction Over the Indus at Attock/Khairabad	45.60 - 65.65	Idem	42.852
	12.	Bridge Construction Over the Indus at D.I. Khan Darya Khan	218.369	Idem	52.519
	13.	Interchange Construction at Nowshera-Manki Sharif Railway Crossing	1.427	—	—
	14.	Widening of Nowshere-Peshawar Section	84.68	—	—

Table II-1-15 (6) Project List of Roads and Bridges in May 1980

Province	No.	Name of Project	Estimated Cost	Approval	Invested Cost so far
Balchistan	1.	Construction of National Highway N-25, Wad Kannar Section	203.00 - 241.180	Approved by E C N E C	135.090
	2.	Improvement of National Highway N-25, at Khojak Pass	2.20	—	2.437
	3.	Improvement of National Highway N-65, Quetta-Kalpur Section	3.90	—	3.887
	4.	Construction of Purali Bridge on National Highway N-25	14.00	Approved by C D W P	—
	5.	Construction of Said Hamid Lora Bridge on National Highway N-25	8.80	Approved by P D W P	—
	6.	Improvement of National Highway N-65, Quetta Sibbi-Jacobabad Section	15.994 - 55.40	Idem	12.10
	7.	Improvement of National Highway N-65, Kalpur-Mach Section	4.976	—	—
	8.	Improvement of National Highway N-50, Qilla Saifullah-Zob Section	15.40	—	—
	9.	Construction of Kanki Bridge	10.90	Approved by C D W P	10.00
		P D W P : Provincial Development Working Party			
		E C N E C: Executive Committee of National Economic Council			
		M O C : Ministry of Communications			
		N H B : National Highway Board			
		C D W P : Central Development Working Party			

Source: Ministry of Communications

Fig. II-1-1 Transport Network in Pakistan

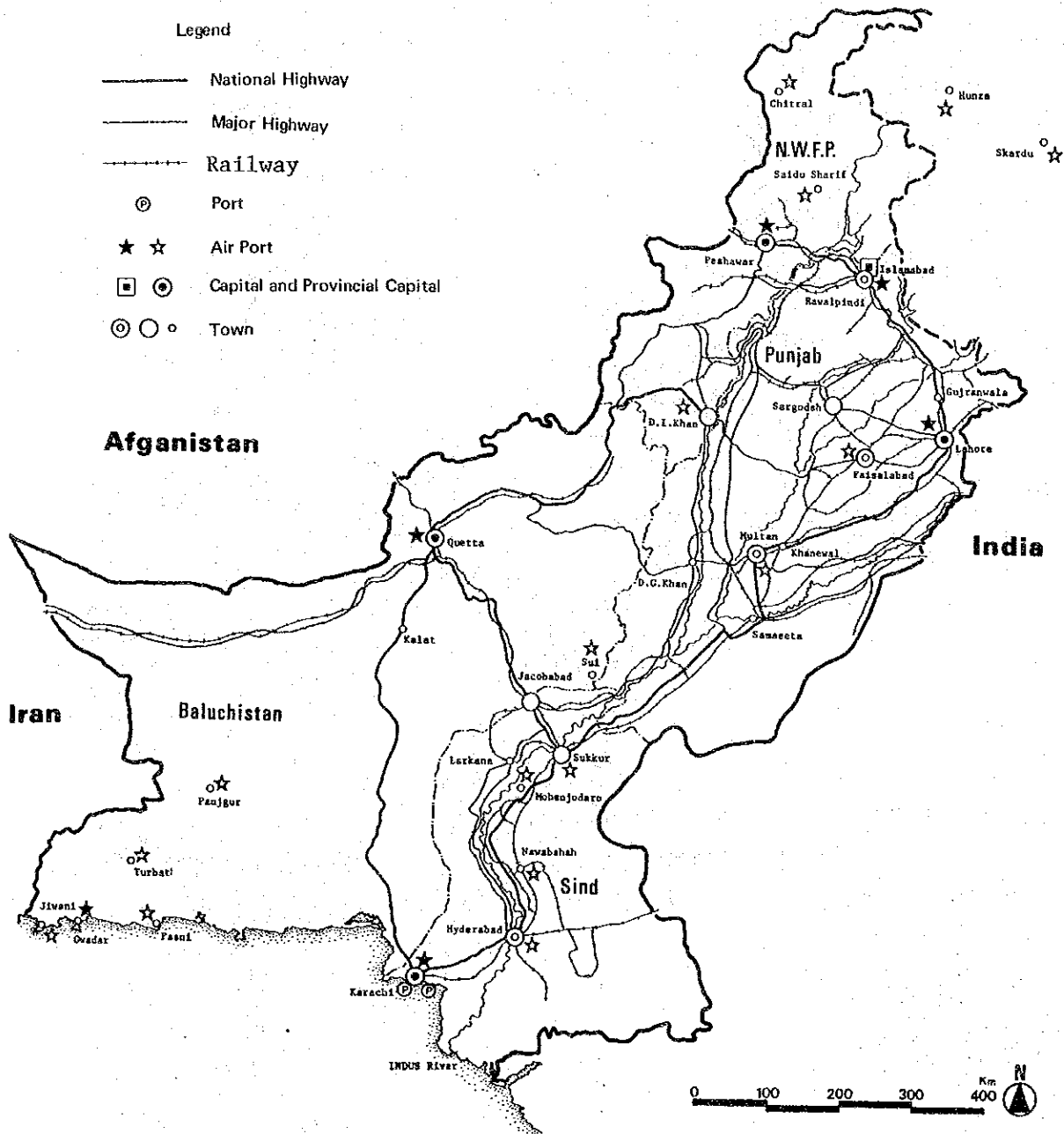


Fig. II-1-2 Railway Network in Pakistan

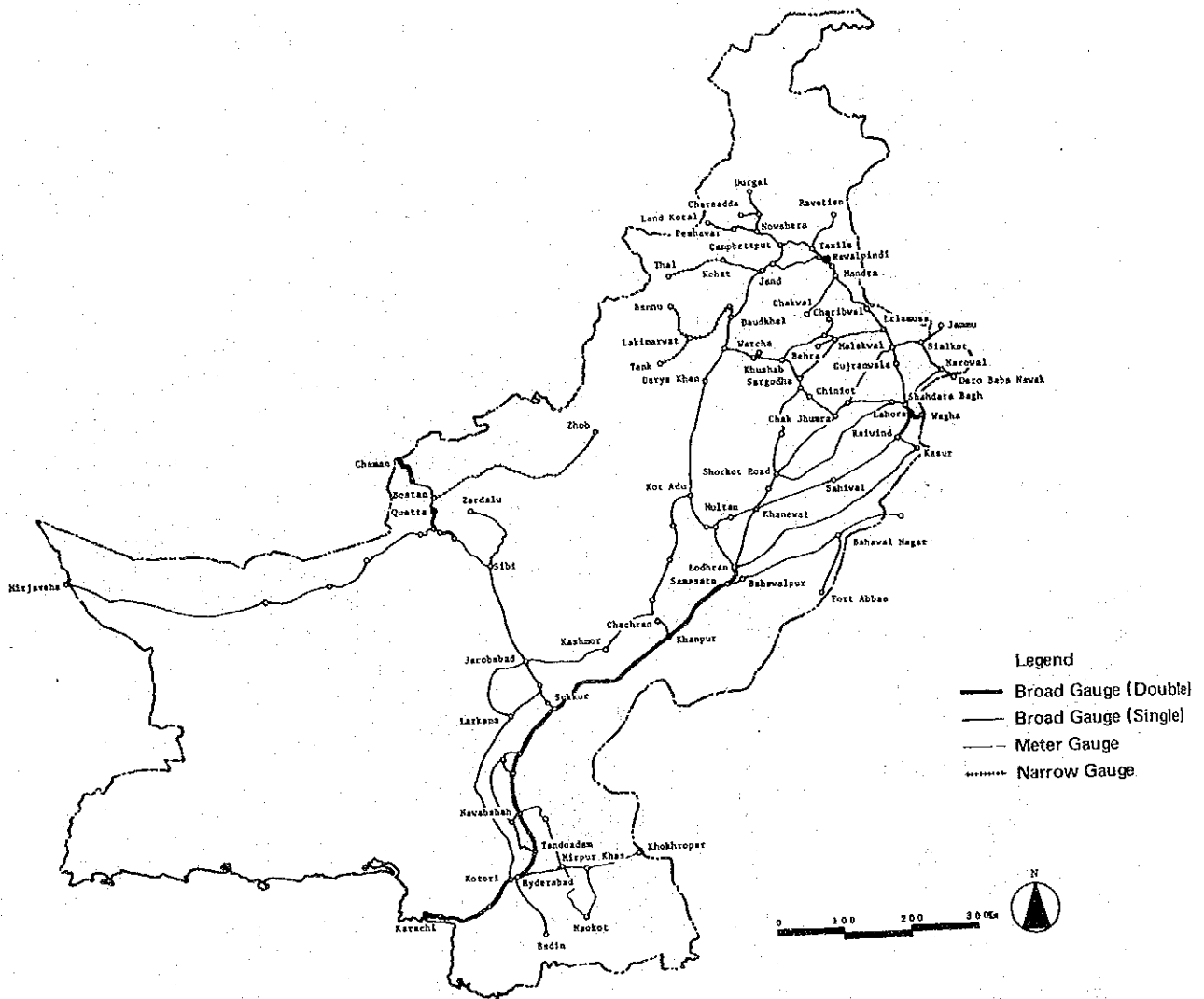


Fig. II-1-3 Railway Cargo Traffic in 1978/79

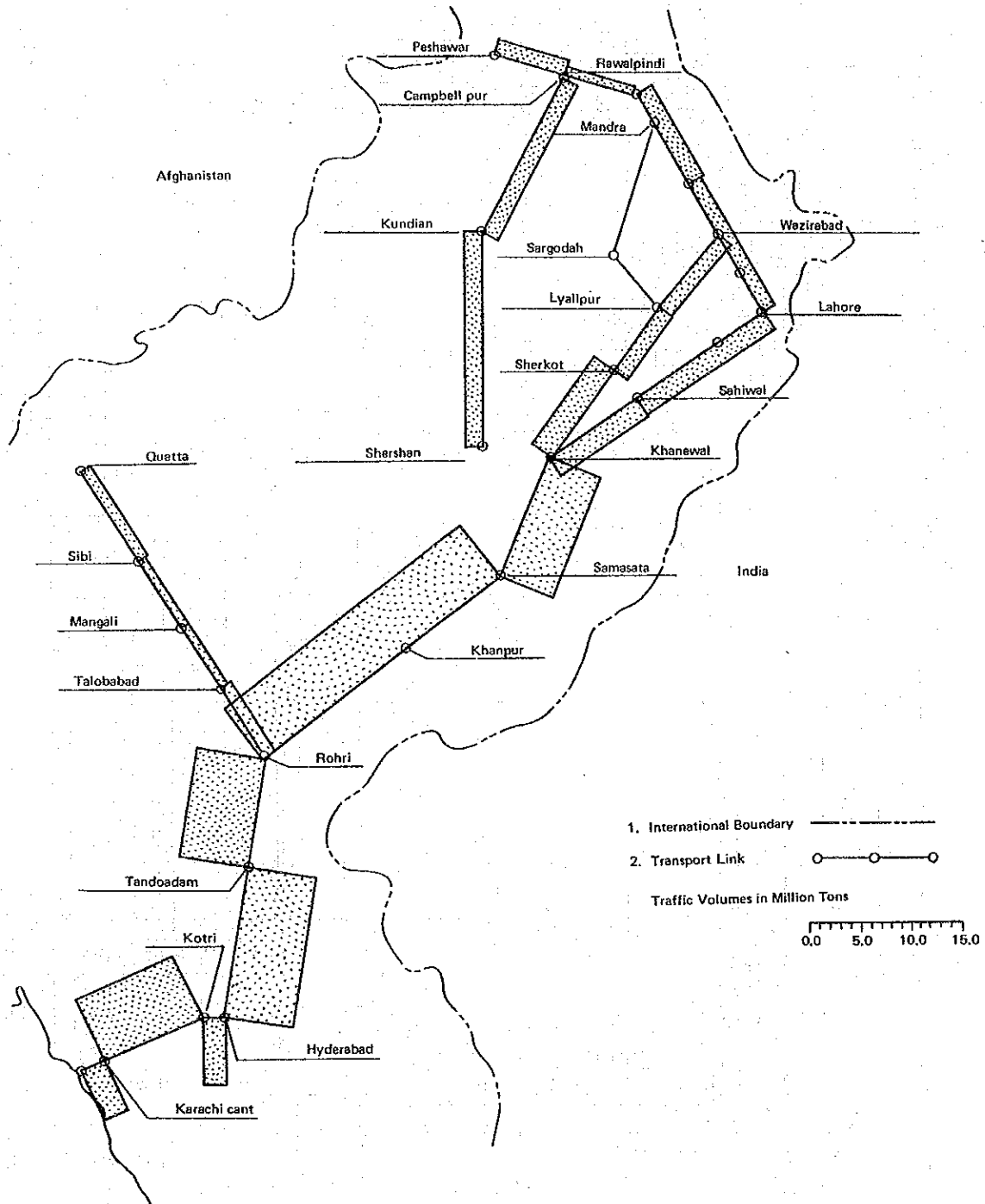


Fig. II-1-4 Vehicle Gauge and Container Over Dimension

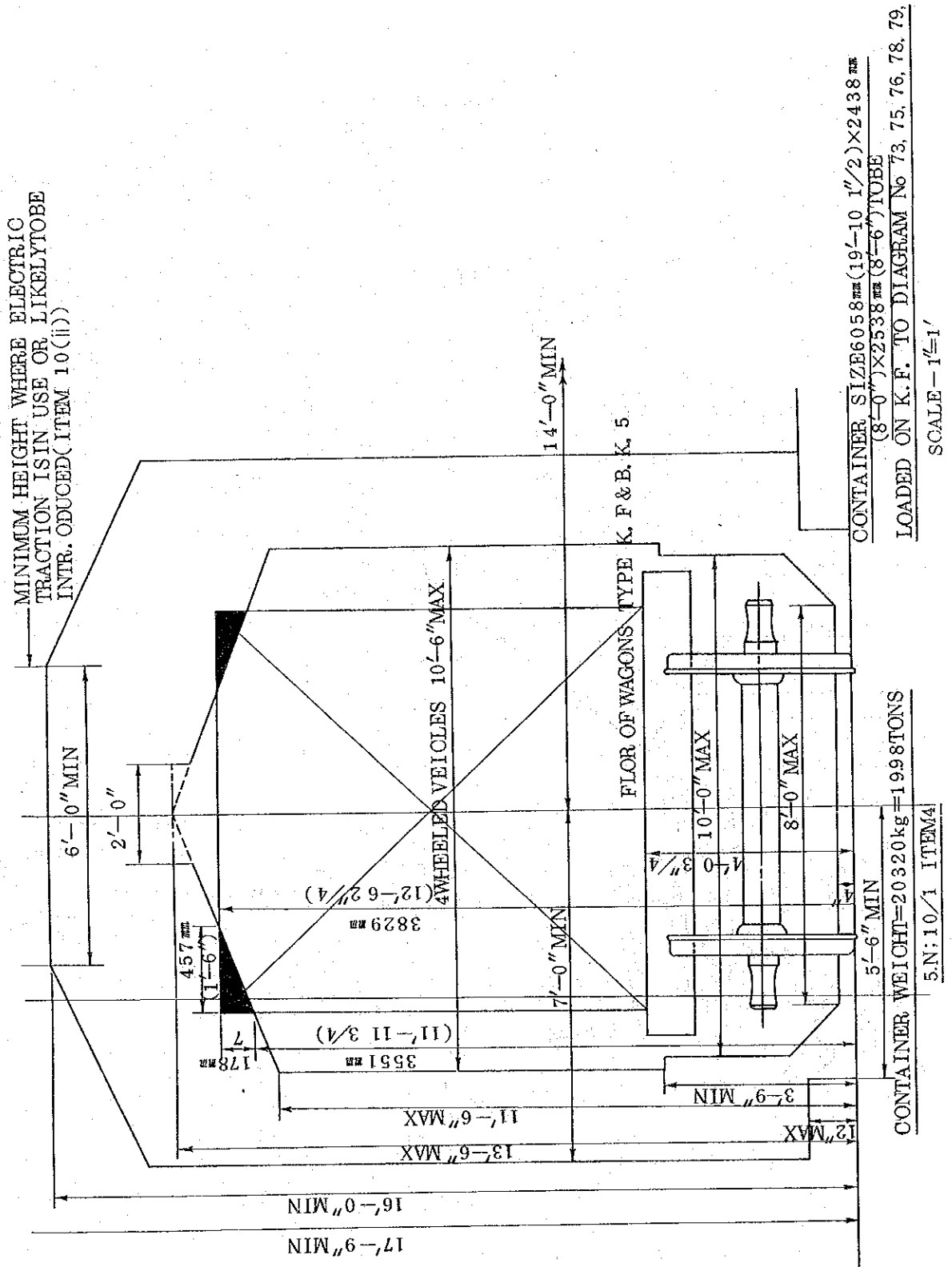
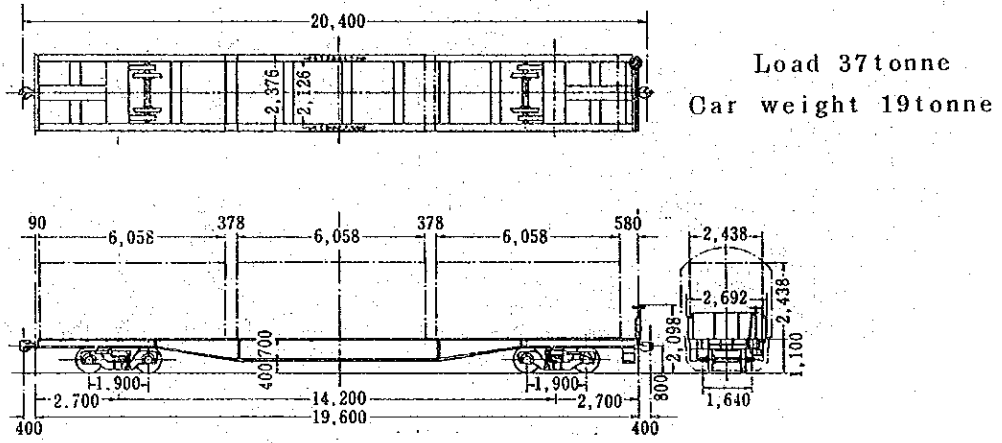


Fig. II-1-5 Container Carring Car



Load 37tonne
Car weight 19tonne

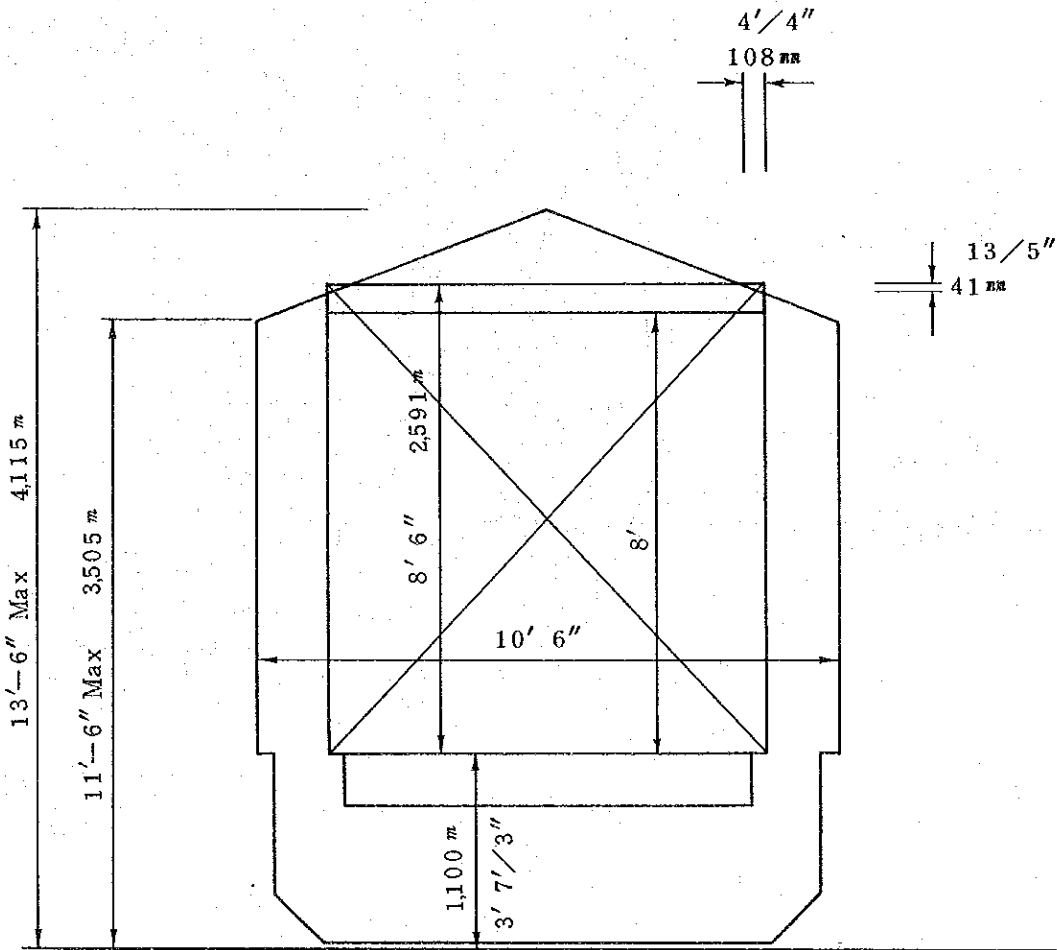
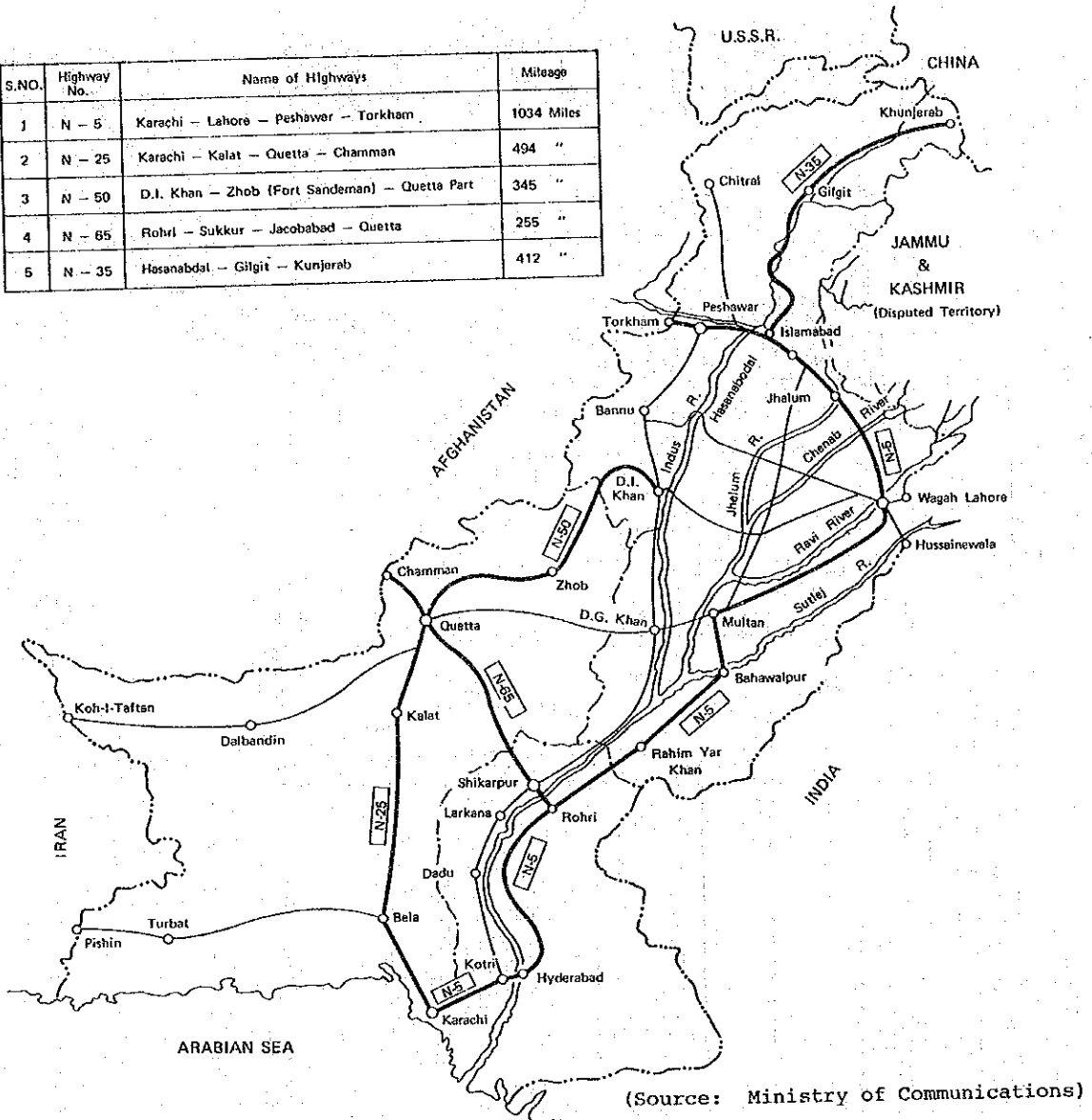


Fig. II-1-6 National Highway Network in Pakistan

S.NO.	Highway No.	Name of Highways	Mileage
1	N - 5	Karachi - Lahore - Peshawar - Torkham	1034 Miles
2	N - 25	Karachi - Kalat - Quetta - Chaman	494 "
3	N - 50	D.I. Khan - Zhob (Fort Sandeman) - Quetta Part	345 "
4	N - 65	Rohri - Sukkur - Jacobabad - Quetta	255 "
5	N - 35	Hosanaabdal - Gilgit - Kunjerab	412 "



(Source: Ministry of Communications)

Fig. II-1-7 Sectional Daily Traffic Volumes in Terms of P.C.U. on Major Highway in 1980

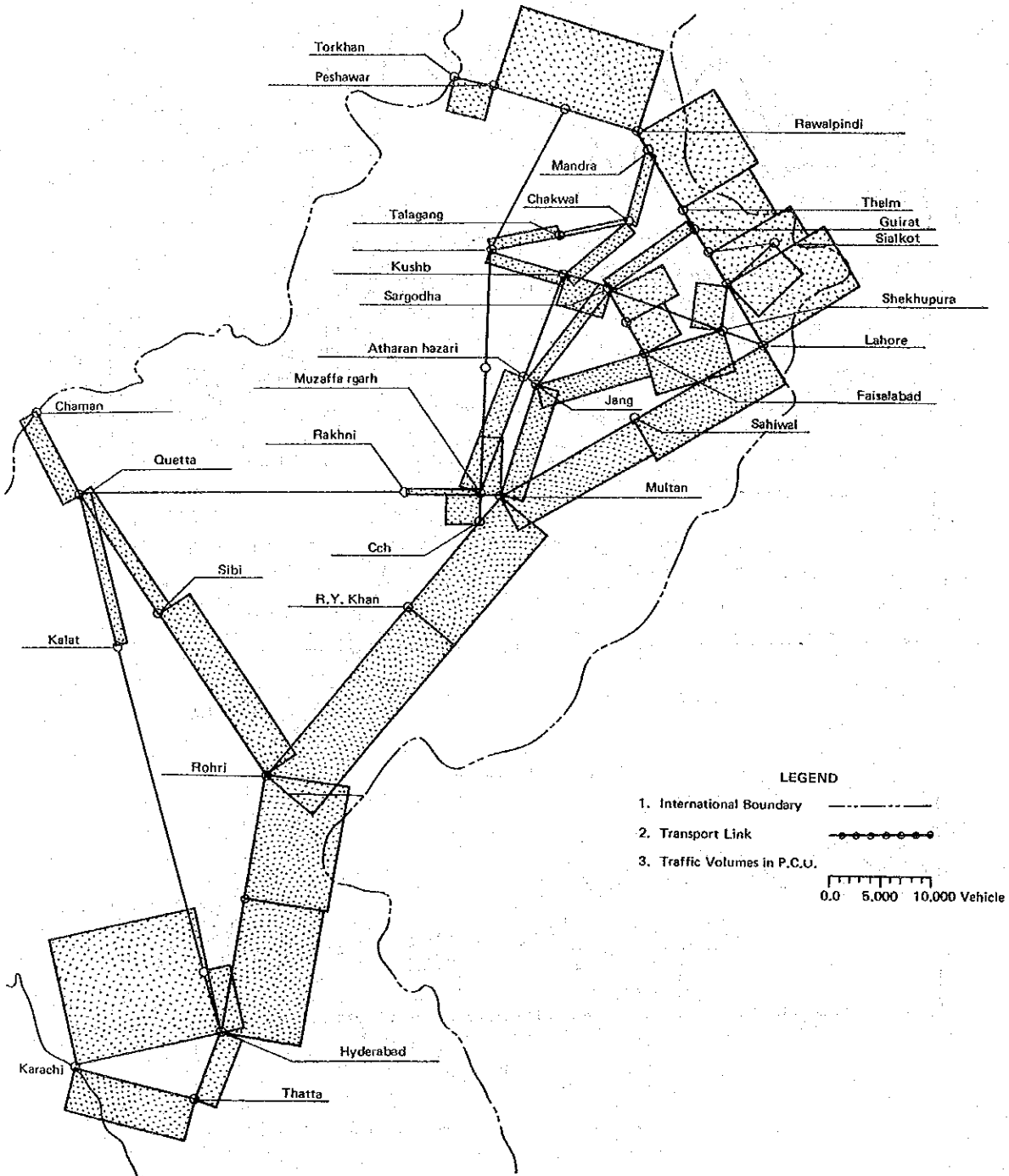
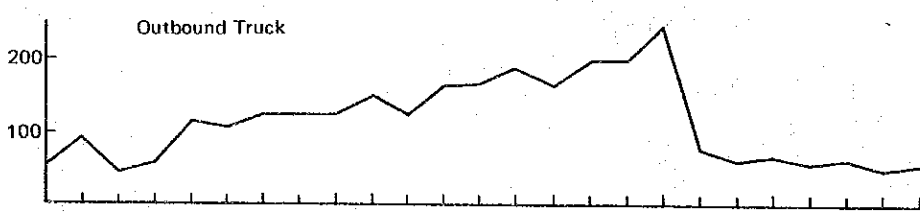
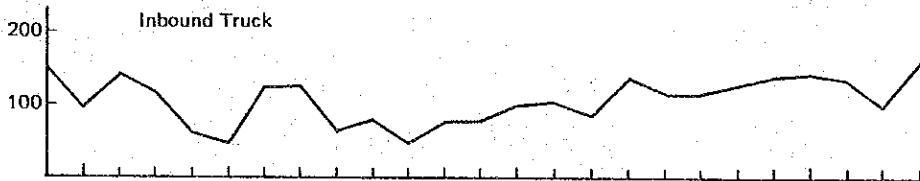
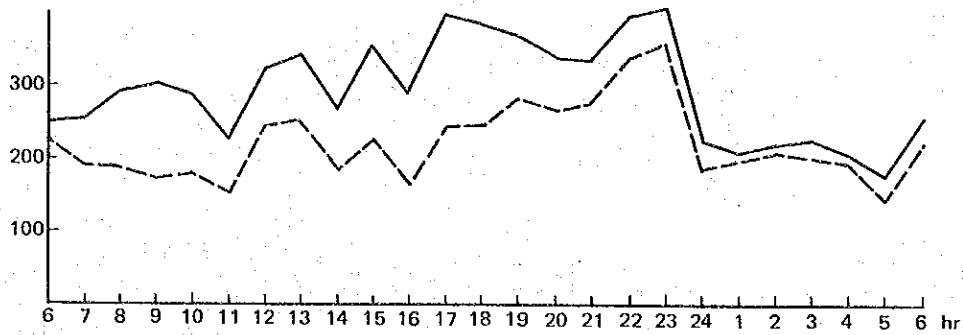
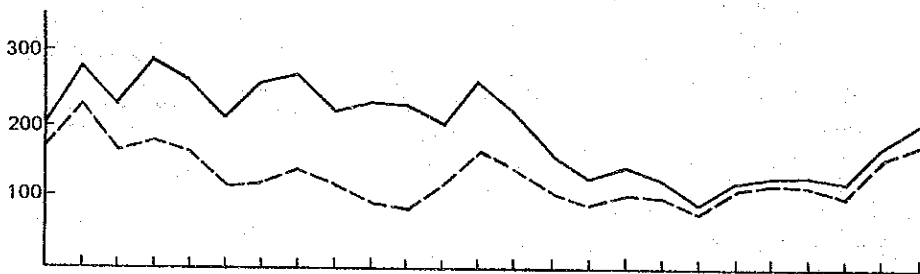


Fig. II-1-8 Hourly Variations of Traffic Volumes on Major Highways

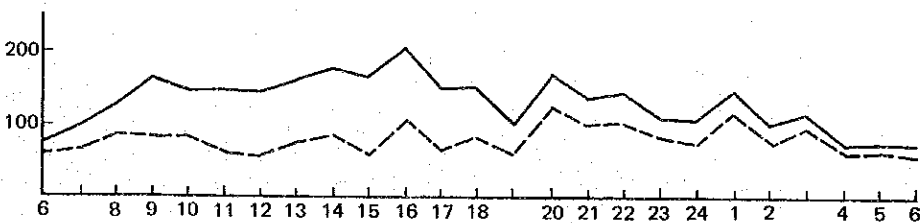
(Super Highway) Karachi-Kotori 26 Feb '80



Khairpur-rori 1 Jan '80



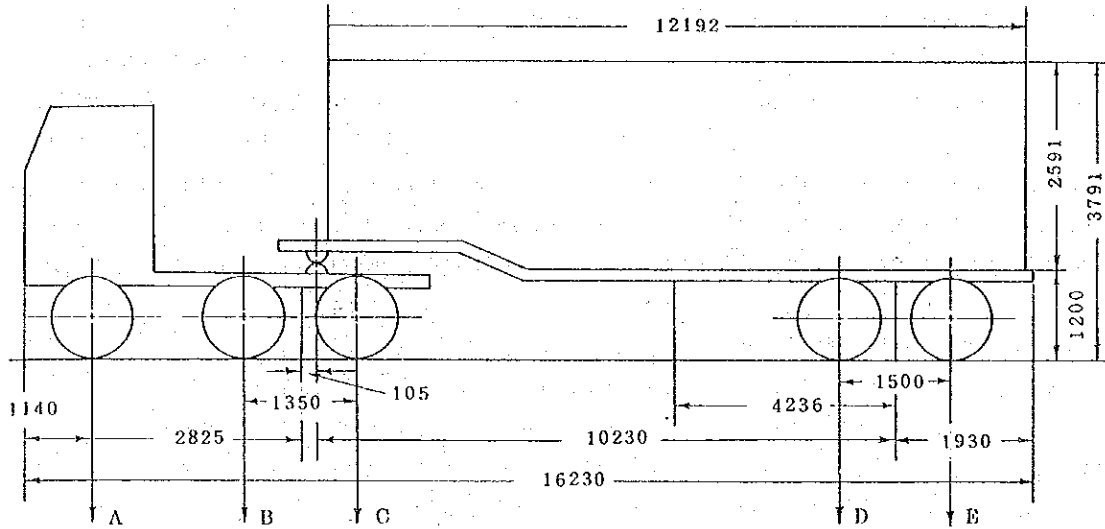
Okara-Lahore 10 Dec '79



— Truck

Fig. II-1-9 Axle Load of Container – Semitrailer

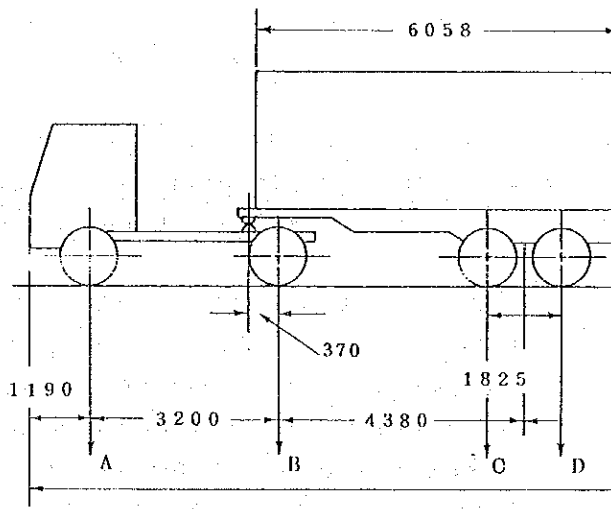
40 feet



Axle Load (Unit:kg)

A	B	C	D	E	
3,980	4,150	9,885	9,155	9,155	36,325

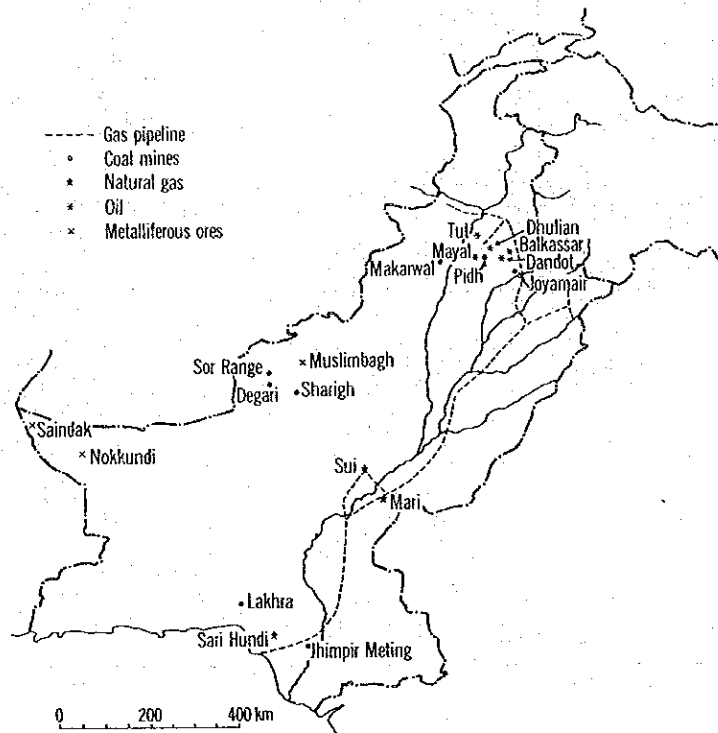
20 feet



Axle Load

A	B	C	D
4,275	6,850	5,030	5,030

Fig. II-1-10 Important Location of Minerals and Pipeline



(Source: Pakistan by B.L.C. Johnson)

CHAPTER 2. TRANSPORTATION SYSTEM IN GREATER KARACHI

2-1 Introduction

The potential and the problems of urbanization in Pakistan are typically highlighted in Karachi Metropolitan Area.

35 years ago, Karachi had only a subsidiary port and a small town with a population of one-third million.

It has been developed into a major port and the biggest city in Pakistan with a population of over 6 million. More than 40% of value of production of the whole country is shared by Karachi.

Karachi Port handles all seaborne container traffic and is constructing the container yard in order to meet the container traffic demand.

Qasim Port some 30 km from Karachi is now under construction. The plan includes a railway link from the Pipri marshalling yard. It will allow much of the bulk traffic to be handled without passing through the central urban area.

The Qasim project includes the construction of a single-track siding from the Pipri railway marshalling yard and a two-lane access road to a national highway. The pipri railway marshalling yard was constructed in 1979 in order to eliminate the congestions of small outdated and inadequate marshalling yards scattered over the city of Karachi.

The congestion of road traffic in Karachi City is not due to inadequate road capacity but to the unsatisfactory maintenance and control of road pavement and the extremely bad driving habits of drivers.

Fig. II-2-1 shows the goods flow in Karachi City in 1969/70 as an extract from "Karachi Development Plan, 1974 - 1985". Also, Table II-2-1 shows the number of automobiles registered in Karachi City during the period from 1970 to 1978. According to this table, the number of registered automobiles increased 320% during those eight years.

2-2 Karachi development plan

The transport system of the Karachi Metropolitan Area should be developed to provide the big amount of goods flow and commuters generated by both Karachi and Qasim Ports.

The most important project, therefore, were indicated on the development plan in 1974 as follows:

- i) The completion of the Southern Bypass connecting the East Wharf with the National Highway through the Korangi and Landi areas, proposed to be constructed in 1977.
- ii) The widening of the Mauripur Road to four lanes by 1975.
- iii) The removal of encroachment of a section of Estate Avenue near Shershah and its improvement to a four-lane divided highway by 1975.

The widening and improvement of these roads were expected to provide sufficient capacity for the efficient movement of goods and passenger vehicles through 1985.

Unfortunately, above-mentioned projects have not been carried out until now in 1981. Fig. II-2-2 and II-2-3 show the future road network and the result of traffic assignment in 1985 from the KDA master plan.

2-3 Railways in Karachi City

Even at present, the railway is an important mode of transportation in Karachi City. The Circular Railway was constructed in October 1970 for the convenience of commuters in Greater Karachi. The railway lines in this city are shown in Fig. II-2-4.

The terminal and marshalling yard facilities had been outdated by the rapid growth of seaborne traffic and no room for expansion in the surrounding built up area.

Up trains had been formed in at least three different yards of Karachi cantt., Hump Yard and Karachi City Marshalling Yard.

40% of Pakistan Railway freight traffic originates from Karachi Port and through trains are run from the Port Area to other yards in up-country such as Rohri, Samasatta, Lahore, Lalamusa and Kundian.

Therefore the necessity of providing a modern mechanized marshalling yard at Pipri about 49.5 km from Karachi was proposed in order to eliminate a railway congestion and improve marshalling facilities in the Karachi Area.

Pipri marshalling yard was completed at the end of 1979 and has a capacity of dealing with 2,500 wagons per day. It is now handling 750 wagons out of 2,500 wagons capacity in the first plan.

A modernized lighting system is provided to facilitate efficient working operations in the yard during night.

After commission of this yard, turn round time of wagons will be improved.

A railway siding from Pipri Station on main line to Port Qasim is being constructed by the Railway on behalf of the Port Qasim Authority.

The length of the siding is 12.4 km in addition to 9.17 km of truck in yard.

Present Locations of Marshalling Yards in Karachi are shown in Fig. II-2-5.

The frequency of KCR train operation is 22 trains a day both ways, compared with the railway capacity of 40 trains/day both way. No goods trains are operated on the KCR because this line has many level crossings and its permissible axle load is smaller, compared with the main lines. The allowable length of passing loop is smaller than that for the main lines: it is the length of 58 four-wheel cars, compared with 72 four-wheel cars for the main lines.

2-4 Roads in Karachi City

Sind Highway Department is primarily responsible for the construction and maintenance of the highways in Sind. Karachi Municipal Corporation is responsible for maintenance of about 4,700 km of roads in Karachi which is almost the entire road length of Karachi. National Highway in Karachi, the so-called Shahr-e-Faisal, is maintained by the Karachi Development Authority.

The design and construction of the new Napier Mole bridge is constructed by KPT and construction cost of this project is the charge of the Sind Highway Department.

The widening of National Highway between Star Gate and Qasim section was decided by the President in August 1980. The total construction cost for this purpose is 60 million Rs and will be widened into a four-lane road. It will be expected to be open to traffic by the end of 1983.

Meanwhile, the Mauripur Road, an access road to Karachi Port, will be widened by the end of 1982 from the present two lanes into a six-lane road except section of bridges. The construction cost of this project will be shared by KPT and KDA. Fig. II-2-6 shows bottlenecks of the access road in Karachi City.

Table II-2-1 Motor Vehicles on Road by Type in Karachi (1970-78)

As on	Total	Motor Cars Jeeps and Wagons	Motor Cycles	Taxis	Motor Rikshaws	Buses	Trucks	Others
31.12.70	59,032	27,432	15,609	3,366	6,458	1,296	3,714	1,157
31.12.71	71,279	32,109	21,634	3,772	6,458	1,174	4,022	2,110
31.12.72	78,418	34,339	25,913	3,956	6,561	1,215	4,400	2,034
31.12.73	81,961	35,271	27,543	4,128	6,602	1,453	4,779	2,185
31.12.74	90,940	38,495	31,214	4,331	6,855	1,595	5,158	3,292
31.12.75	83,367	33,143	31,766	3,334	6,404	1,472	3,955	3,293
31.12.76	99,968	37,200	41,140	2,836	6,532	2,853	4,304	5,103
31.12.77	148,340	61,321	61,139	5,481	6,266	4,133	5,431	4,569
31.12.78	187,532	73,668	82,037	6,154	6,466	4,853	6,245	8,109

(Source: Excise & Taxation Deptt. Govt. of Sind)

Fig. II-2-1 Diagram of Karachi Goods Movement in 1969/70

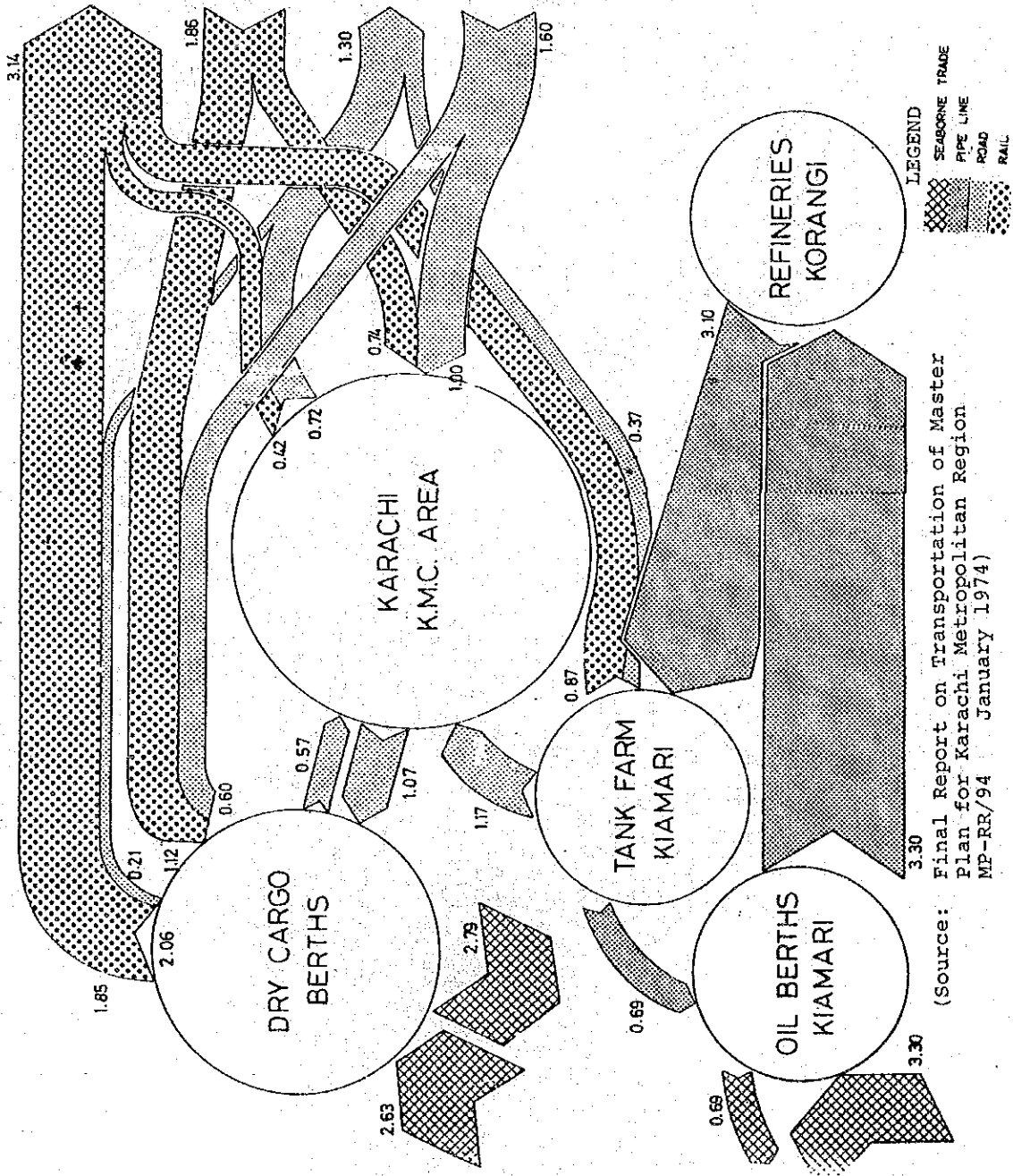


Fig. II-2-2 KDA Road Improvement Project (1974-85)

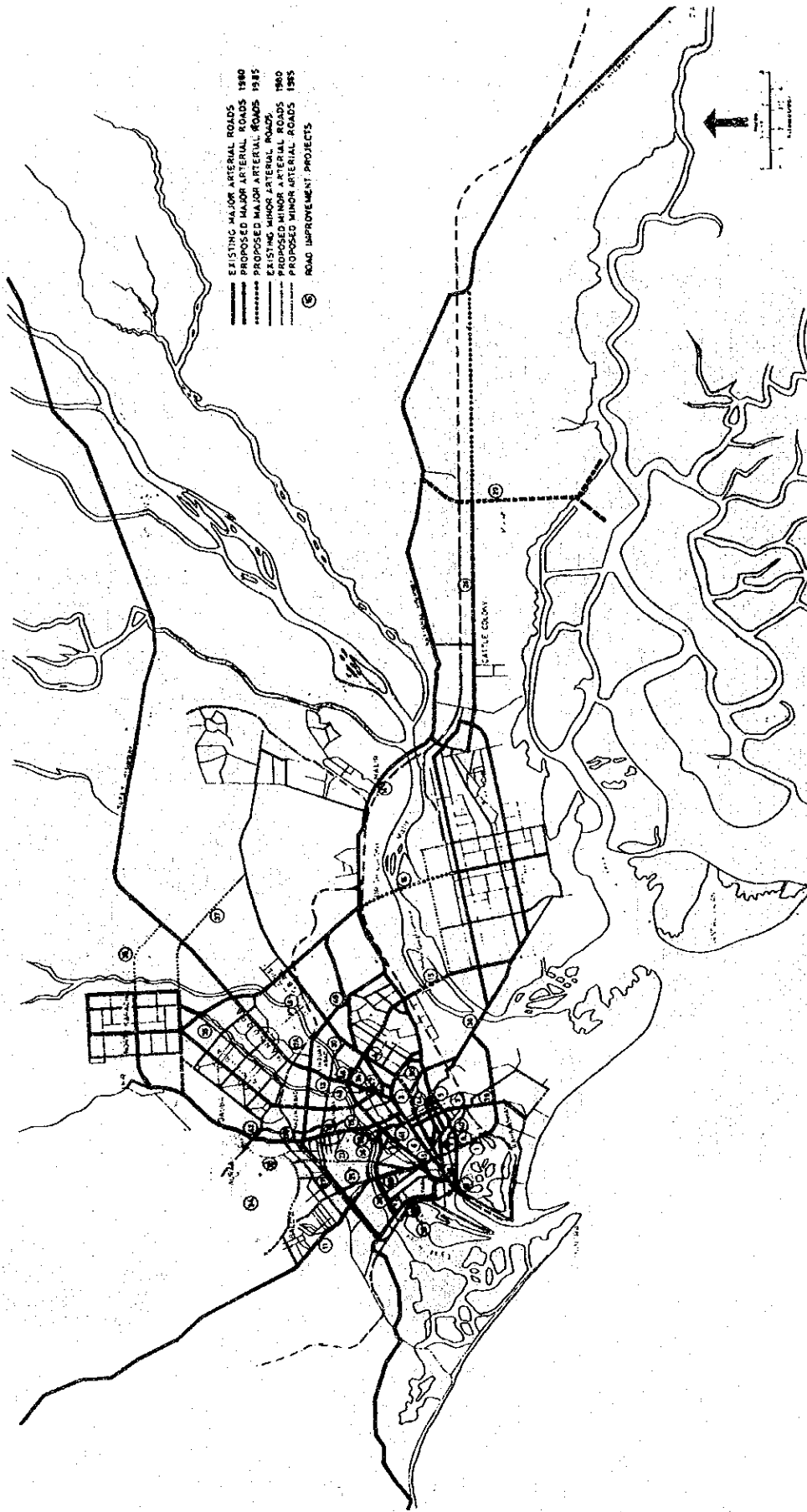


Fig. II-2-3 Traffic Volume in 1985

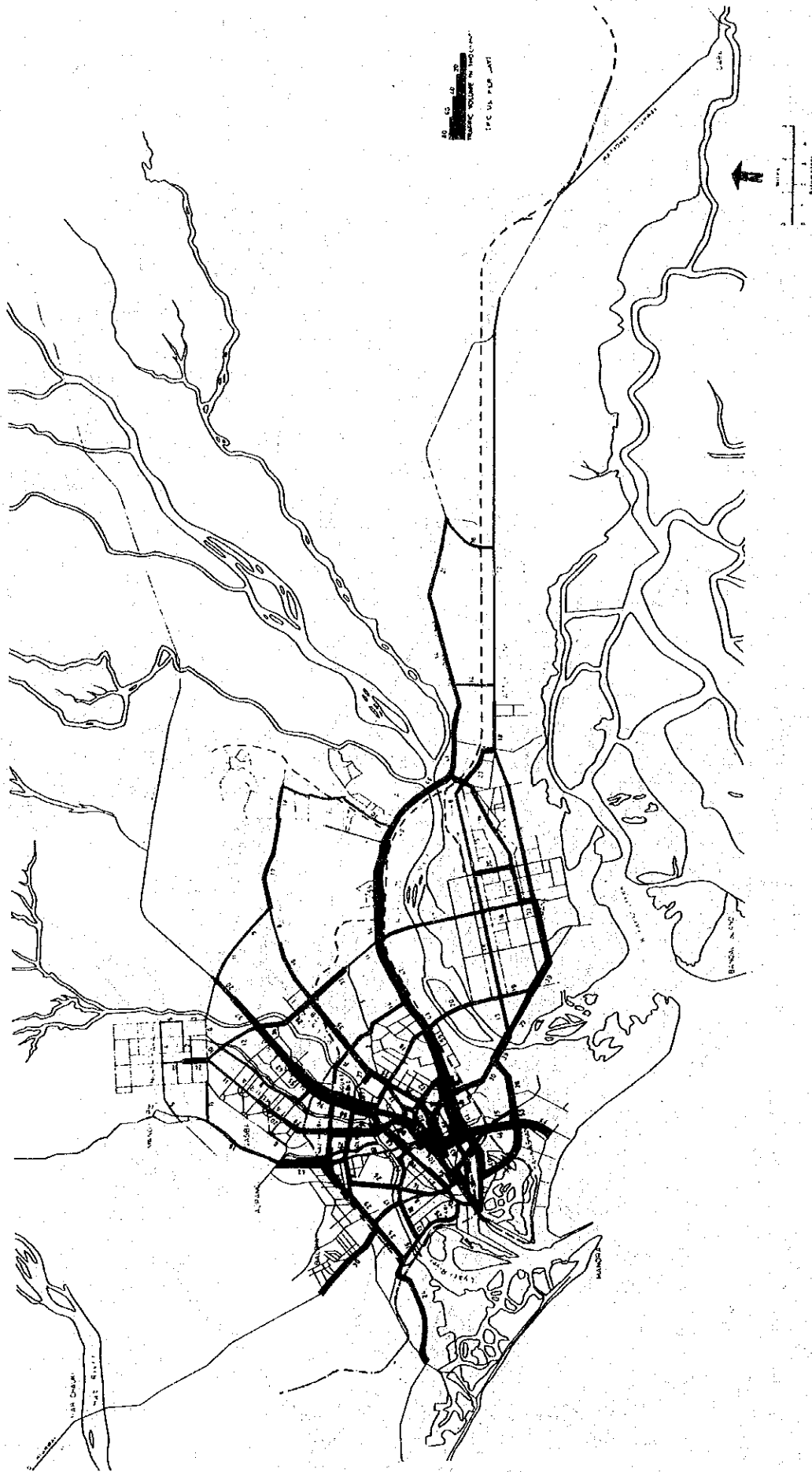


Fig. II-2-4 Railway Network in Karachi

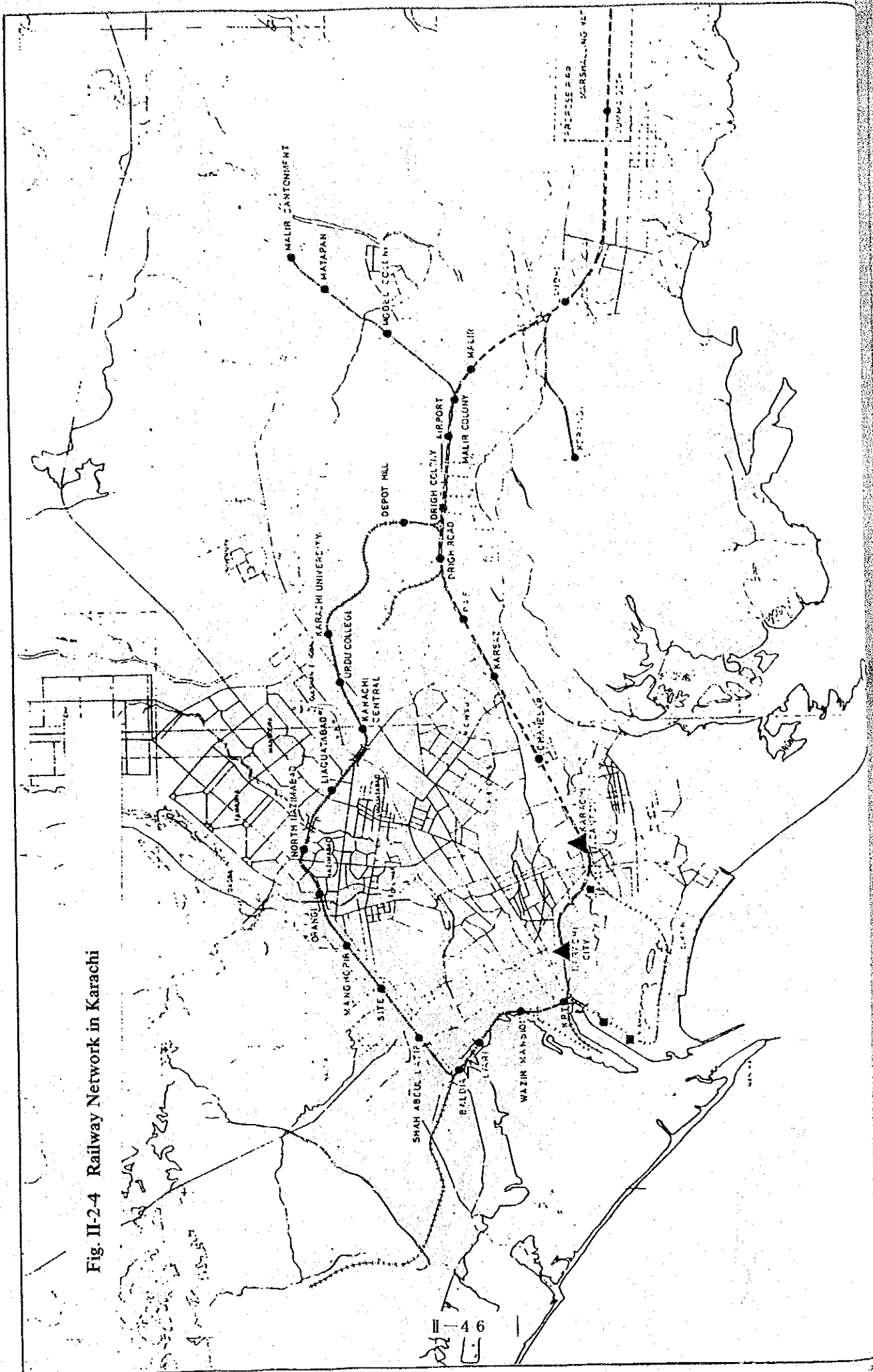
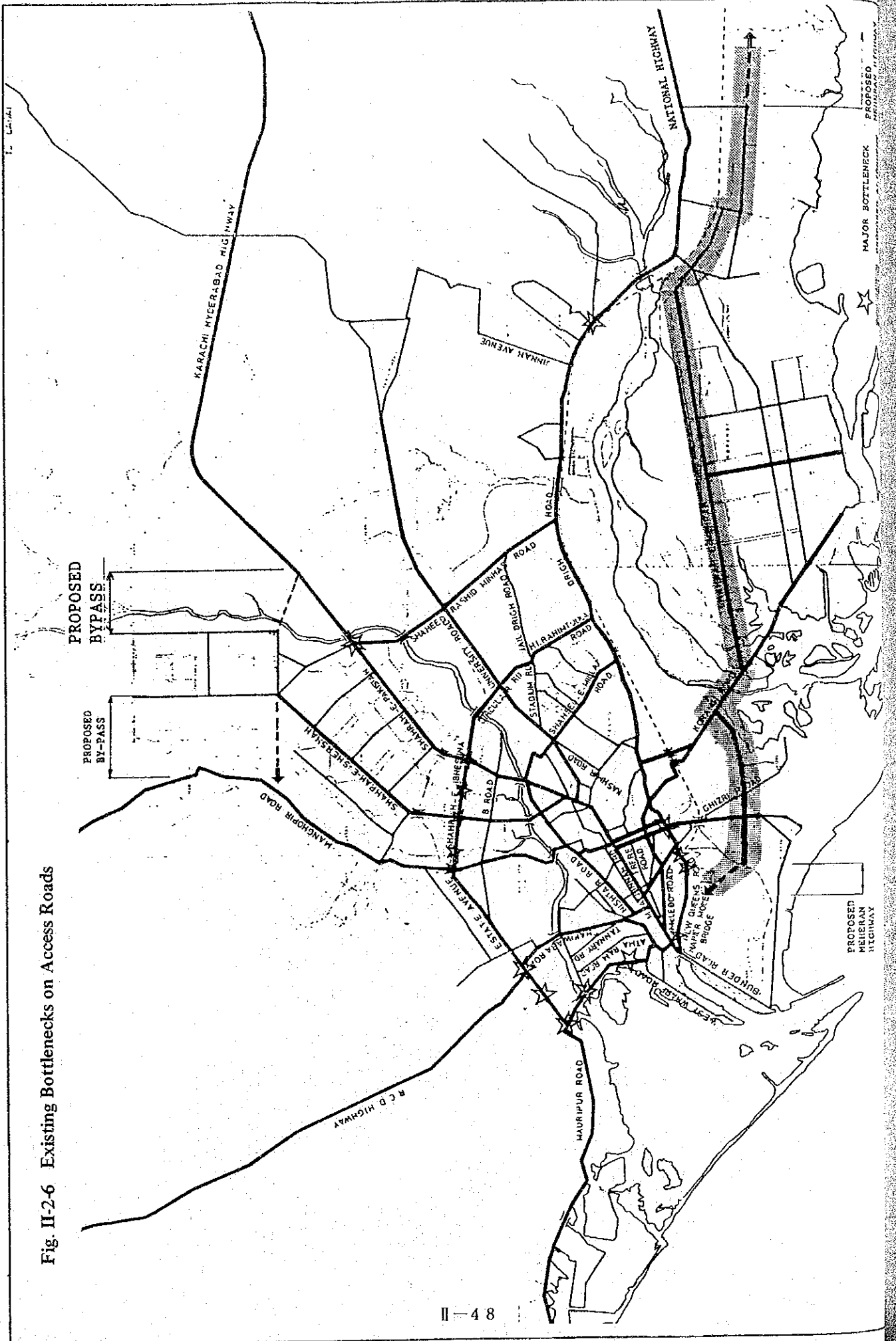


Fig. II-2-6 Existing Bottlenecks on Access Roads



CHAPTER 3. TRAFFIC FLOW OF IMPORT AND EXPORT CARGOES IN PAKISTAN

3-1 Introduction

Karachi Port is the sole commercial port dealing with seaborne international traffic. In 1979/80, Karachi Port handled 16 million tonnes of export and import cargoes in which about 25% was containerizable commodities. Out of the containerizable import commodities in which 60% were carried to up-country by roads and railways.

Pakistan Railways is also dealing with the international traffic destined to/from Afghanistan passing through Karachi Port as well as some trade goods between Pakistan and Iran. The tonnage of Afghanistan goods in transit was 221,480 tonnes in 1978/79. Traffic between Pakistan and Iran is very limited due to the absence of a railway link between Zahidan and Iranian Railway. Fresh fruit is the major commodity on this line from Pakistan to Iran.

As far as the domestic movement of containerized cargo is concerned, 60 containers were carried from Europe through USSR and Afghanistan to Chaman per month by means of Transsiberian Land Bridge and line haul trucks in Afghanistan.

Approximately, 200 Bedford type trucks are carrying international cargoes between Pakistan and Afghanistan per day through Peshawar.

International Railway and Highway Networks are shown in Fig. II-3-1.

3-2 Determination of the present distribution pattern of containerizable seaborne cargo

3-2-1 Zoning

In order to determine the inland seaborne traffic distribution pattern, this study has delineated 27 zones in Pakistan and 3 zones for Afghanistan, Iran and India as shown in Fig. II-3-2.

The country is divided into 27 zones on the basis of districts' boundaries. The zones and the districts are also listed up in List of Zone in Table II-3-1.

Existing provinces, divisions and districts of Pakistan are shown in Fig. II-3-3. The Tribal Territories of Mohmand, Khyber, Kurram, North and South Waziristan are directly administered by the Central Government. And there are small tribal areas administered by the District Government. They are located in the districts of Dera Ismati Khan and Dera Ghazi Khan. Gilgit Agency in the northern part of Pakistan is also centrally administered by the Government of Pakistan.

3-2-2 Important economic indicators by zone

(1) Population

It is said that by the end of 1980 the population in Pakistan will be over 80 million. The latest population census was carried out in 1972. Since 1972, there are no reliable census in Pakistan. Number of population by zone in 1961 and 1972 are shown in Table II-3-2.

(2) Urban population

Urban growth and the distribution of urban areas are other indicators of progressive development associated with the expansion of the secondary and tertiary sectors of the economy.

Fig. II-3-4 shows the location of urban centers with the population of more than 10,000 in 1972.

Table III-3-3 shows the number of urban population (exceeding 50,000 people) by zone in 1961 and 1972.

(3) Manufacturing industry

Industrial development in Pakistan depends mainly on the increase in agricultural products.

The processing industries covers such field as cotton ginneries, sugar mills, rice mills, and leather tanneries. Among them the most predominant field is the cotton textile industry which would be able to earn more foreign currency than the raw cotton export.

Another group of industries in Pakistan is using imported raw or semi-processed materials such as the factories of vehicle assembly, electric appliance, steel fabricating, etc.

Manufacturing industry's share of GDP is much more than its share of the economically active population. It provides 13.25% of employment compared with 54.3% in agriculture.

In the development of foreign trade, the contribution of industry sector of Pakistan has become increasingly important.

Fig. II-3-5 shows distribution of manufacturing industry in 1976, while value of production by zone is shown in Table II-3-4.

(4) Exportable crops and cropping patterns

Crop production and its distribution depend mainly on the availability of water particularly with appropriate timing. There are two cropping seasons: the so-called Rabi and Kharif.

Fig. II-3-6 shows distribution of the area cultivated for exportable crops of sugar cane, cotton and rice. Fig. II-3-7 shows seasonal cropping pattern in 1974/75.

i) Rice

The rice production is mainly concentrated in the District of Gujranwala and its neighbour districts in the Punjab Province. The procurement of rice for export in 1979/80 was 1.25 million tonnes of which Basmati, the high quality and highly valued product of the Punjab, made up 28 percent.

Basmati is grown mainly in the Lahore Division in Punjab. It is found that 44% of Basmati was produced in the zone of Gujranwala in 1978. Table II-3-5 shows rice production by zone and type in 1977/78.

ii) Cotton

Cotton is the most important cash crop in Pakistan because of its role in providing fibre for direct and manufactured exports.

The main cotton belt area in Punjab is extending from Sargodha, Jang, Faisalabad, Sahiwar, Vihari, Multan to the three districts of Bahawalpur Division. Table II-3-6 presents the production of cotton by zone in 1978.

iii) Sugar cane

Sugar cane is widely produced in canal irrigated area and in northern part of Pakistan. The production by zone is shown in Table II-3-6.

At the moment the output has not reached yet to the level at which surplus can be expected, however, it is expected to begin export in the near future.

3-2-3 Seaborne cargo traffic handled at Karachi Port in 1979/80

Tonnages of seaborne cargo traffic handled at Karachi Port in 1979/80 are mentioned in monthly Statistical Bulletin Vol. 28 August 1980 No. 8'. Those figures are adopted to be the control total tonnages of import and export cargoes.

In this year 15.9 million tonnes are handled at Karachi Port of which 12,362,000 tonnes (77%) are shared by import cargo. Those figures are shown in Table II-3-7 by month. Commodity-wise data are not available from the Monthly Statistical Bulletin.

In order to obtain the composite share of containerizable cargo both export and import, the team has compiled the commodity wise data from KPT Monthly Statistic in January 1980, which was found to be the monthly average of the year.

Modal split in the inland transportation behind the port is shown in Tables II-3-8 and II-3-9. The table indicates that 82% of import cargo and 57% of export cargo are carried by trucks in 1979/80.

3-2-4 Traffic data

There have been conducted a number of transportation study which in some cases was accompanied by the origin and destination survey. The latest survey was in the period of 1968 – 70, more than ten years ago.

In order to facilitate the transport of wheat and fertilizer which have been imported in urgent necessity, the country established "National Logistic Cell" in 1978. The Cell owns more than 1,000 trucks, being able to transport commodities more than one million tonnes a year. There has been no heavy congestion of traffic around Karachi Port since the commencement of the Cell. However, it is said that the modal distribution of traffic in 1980 is far different from that in 1978.

The updated data associated with the origin and destination of traffic were forwarded to the study team by the Pakistani Government. They are summarized as follows:

(1) Origin and destination of railway cargo

The Pakistan Railways presents the movement of cargo traffic among the stations in January 1980. The movement is shown by origin stations and destination stations, by commodity classification, by weight, by revenue, and by number of wagons as well. The analysis follows with tables of origin and destination in terms of tonnes of classified commodities for export and import respectively.

The commodities are then classified into the containerizable cargo group and non-containerizable one for each export and import movement. The results are shown in Tables II-3-10 and II-3-11.

i) Import cargo movement through the railways

The number of wagons carrying the import cargo which was determined through the analysis of the O-D data in January 1980 was approximately equal to those reported in the Monthly Statistical Bulletin of August 1980. It has indicated that the railways carried into the up-country 14% of the total of the import cargo and 57% of those classified as containerizable were military supplies. No adjustment is conducted as for the volumes in the O-D data.

ii) Majority of the export cargo were agricultural products having a seasonal variation. The number of wagons carrying the export cargo obtained through the O-D data of January 1980 was less than those in the Bulletin. The volumes presented in the O-D data increased by a certain ratio to the approximately equal volumes to the total of figures in the latter.

(2) Origin and destination of truck cargo

The National Transport Research Center conducted an extensive scale of roadside interviewing of O-D for vehicles for 24 hours at 110 stations in February 1980. The vehicles were classified into seven types and commodity type and tonnage were enquired for trucks. At the same time the volume counting was also conducted. At the following locations in the vicinity of Karachi, the O-D interviewing was conducted.

- o Thatta Karachi road, (National highways, February 25)
- o Karachi Kotri road, (Super highway, February 26)
- o Karachi Bela road, (R.C.D. highway, February 28)

It is to be noted that as these locations are on the border of Karachi District, the interviewing could not cover the movements within the District, e.g. those between the port and somewhere in the city. The interviewing discloses the traffic distribution between the port and the up-country. The total trucks in ADT were 3937.

Commodity-wise origin and destination tables are determined in terms of tonnage by adjusting the interviewed trucks to the total of trucks in the traffic counting at the same station. The commodities are then classified into the containerizable, the others, and the empty. The distribution of trucks and the tonnages of containerizable cargo is shown in Table II-3-12.

3-2-5 Determination of the distribution of import containerizable cargo by mode in January 1980

(1) Studied cases

According to the statistical data of the railway system, 57% of the containerizable cargo was for military uses. In order to determine the magnitude of the planned facility of the inland container freight station, it is necessary to take into account the influence of the military cargo.

- Case 1 : the military materials are included in the flow of the assumed containerized cargo.
- Case 2 : the military materials are excluded in flow of the assumed containerized cargo. In this case the containerized military materials are assumed to be forwarded directly into the cantonment.

(2) The steps of determination

The overall steps of the determination are shown in Fig. II-3-8. Supplementary notes are stated in the following paragraphs.

i) Commodities imported through Karachi Port.

The total tonnage was 916,000 in January 1980, which was classified into the containerizable dry cargo, other dry cargo and liquid cargo. Table II-3-14 presents this classification with the distribution in the up-country areas.

ii) Adjustment to the control total

The total of the import commodities was 1,150,000 tonnes in January 1980, which is set as the control total. Since the figures in Table II-3-13 have the total of 916,000 tonnes, the ratio of $1,150/960 = 1.255$ was multiplied to each figure in Table II-3-13.

iii) Modal split

The total volume and distribution of the containerizable dry cargo, other dry cargo and liquid cargo were identified in the previous paragraph 3-2-3). Also the tonnage distribution via the railways was determined in the former subsection 3-2-4,(1). Accordingly the balance between these two figures is the volume transported by the trucks on the road.

iv) Distribution of import containerizable cargo

While the distribution through the railways is identified, that through the trucks on roads is not yet figured out since the O-D interviewing in February 1980. Therefore it was not able to find the movement within Karachi city. The interviewing was to clarify the interurban movement of cargo. It is generally said that the volumes of generation and arrival of commodity are closely associated with the magnitude of Urban Population. This relationship was confirmed by the result of TRACO study conducted in 1969. Since the percent share of the population of Karachi in the total of the country is 30%, this percent is applied to determine the percent of the import containerizable cargo which is destined to within the Karachi urban area by trucks. The remaining 70% is assumed to move directly into the Up-country and applied to determine the quantitative distribution by truck hauling. This 70% might be said to be larger than the actual movement, however, it is considered within the reasonable range to decide the scale of the facility of the inland container freight station which is the subject of the study. The resultant volumes are shown in Table II-3-14.

Desire line of containerizable import cargo is show in Fig. II-3-9.

3-2-6 Determination of the distribution of exported containerizable cargo by mode in January 1980

(1) The volume of export cargo

The steps of this study are shown in block chart of Fig. II-3-10. The volume of cargo export through Karachi Port was given in the KPT Monthly Statistics (January 1980). The cargo is divided into the containerizable cargo and the other. The other cargo includes wheat and liquid cargo where the wheat is likely to remain as bulky and non-containerizable cargo. (Refer to the Text Part I.) The total tonnage was 208,000 of which 117,000 tonnes were classified as containerizable.

(2) Adjustment to the control total

The control total of 301,000 tonnes was quoted from the Monthly Statistical Bulletin to which the components of the export cargo with the total of 208,000 tonnes were adjusted by multiplying $301/208 = 1.447$.

(3) Modal split

The movement on the railway system was registered in the statistical data of railways. The balance between the total and the railways was designated to be transported by road.

(4) Another adjustment by changing the volume of export rice

As shown in Text Part I, the rice "Basmati" share 25% of the total export volume. The total of Basmati was classified as containerizable. Rice export corporation had planned to purchase Basmati upto 28% of the total purchase in 1979/80. However, it is registered that the total rice export was 68,000 tonnes in January 1980.

Conventionally it is assumed that 28% of the export rice should be Basmati and the classified tonnages of containerizable cargo and the other cargo is changed as shown in Fig. II-3-10.

(5) Modal split

Consequently, it is found that the railways transported 20,000 tonnes and the trucks 99,000 tonnes, totaling 119,000 tonnes.

(6) Distribution of containerizable export cargo

The railways transported 20,000 tonnes, of which the up-country distribution can be identified as shown in Table II-3-11. The figures in the Table are composed of general cargo, rice and cotton.

– General cargo

It is assumed the zonal distribution of general cargo in Table II-3-15 was the same in proportion as that of the output of the manufacturing sector. The balances between the total and the railways were carried by trucks.

– Rice and cotton

Zonal distribution of export Basmati was assumed to be the same as that of the production of Basmati. The balance between the total and the railway were carried by trucks. The distribution of export cotton was processed similarly with that of the rice. The determined figures are shown in Tables II-3-16 and II-3-17.

Distribution of export containerizable cargo by zone in January 1980 is summarized in Table II-3-18.

3-3 Estimate of future container traffic distribution in 1987/88 and 1999/2000 by all modes

3-3-1 Import container cargo

According to the Text Part I, it is forecasted that the containerized cargo will be 857,000 tonnes in 1987/88 and 3,221,000 tonnes in 1999/2000. The distribution in the total models of containerized cargo is estimated for the Case 1 and Case 2, respectively. These estimates are shown in Table II-3-19.

3-3-2 Export container cargo

According to the Text Part I, it is forecasted that the total containerized cargo in 1987/88 and 1999/2000 will be as follows in terms of thousand tonnes.

	1987/88	1999/2000
General cargo	495	1,721
Rice	190	528
Cotton	123	244
Sugar	82	890
Total	890	2,655

It is to be noted that the distribution of export sugar may change in the future, however, the study team could not confirm the plan of construction of new factories in Pakistan. The forecast is based on the existing distribution at present. The result of the forecast of export containerized cargo is shown in Table II-3-20.

Export and import container traffic distribution in 1987/88 and 1999/2000 are summarized in Table II-3-21.

Table II-3-1 List of Zone

New Zone No.		Old Zone
		<u>300</u>
		<u>Sindo</u>
001	KARACHI	Karachi
002	HYDERABAD	Hyderabad
		Tnatta
003	THARPAKAR	Tharpakar
		Badin
004	NAWABASHA	Nawabsha
		Khairpur
		Shanghar
005	SUKKUR	Jacobabad
		Sukkur
		Sheikhupura
006	LARKANA	Lakana
		Dadu
		<u>200</u>
		<u>Punjab</u>
007	BAHAWALPUR	Bahawalpur
		Bahawalnagr
		Rahimyar Khan
008	MULTAN	Mulatan
009	MUZAFFARGHAR	Muzaffarghar
010	D.G. KAHAN	D.G. Khan
011	SAHIWAL	Sahiwal
		Vehari
012	LAHORE	Lahore
		Sheikhupura
		Kasur
013	FAISALABAD	Faisalabad
		Jhang
014	SARGODHA	Sargodha
		Mianwali
015	GUJRANWALA	Gujrat
		Gujranwala
		Sialkot
016	RAWALPINDI	Attock
		Rawalpindi
		Jhelum
		Mirpur
		Rawalakot
		Kotli

New Zone No.		Old Zone
	100	<u>Nwfp</u>
017 HAZARA	121	Abbotabad
	122	Mansehra
	123	Kohistan
	501	Muzaffarabad
018 MALAKAND	141	Dir
	142	Chitral
	143	Swat
	144	Malakand
	501	Gilgit
	502	Skardu
	503	Diامر
019 PESHAWAR	111	Mardan
	112	Peshawar
	113	Kohat
	712	Khyber
	713	Khurram
	744	Bajaur and Mohmand
020 D.I. KHAN	131	D.I. Khan
	132	Bannu
	731	South Waziristan
	732	North Waziristan
	400	<u>Baluchistan</u>
021 LASBELA	423	Lasbela
022 GAWADAR	422	Kharan
	441	Panjgur
	442	Turbat
	443	Gawadar
	421	Kalat
023 KALAT	435	Khuzdar
	415	Chagai
024 CHAGAI	431	Naseerabad
	432	Sibi
	433	Kachhi
	434	Koholu
025 SIBI	411	Quetta
	412	Bishin
026 QUETTA	413	Loralai
	414	Zhob
027 LORALAI	801	Afganistan
028	802	India
029	803	Iran
030		

Table II-3-2 Number of Population by Zone in 1961 and 1972

Unit: 1,000 Persons

Zone	Name	1961	1972	Growth Rate (%)
1	Karachi	2,044	3,560	5.17
2	Hyderabad	1,648	2,882	5.21
3	Tharpakar	1,728	1,001	2.94
4	Nawabasha	1,603	2,739	4.99
5	Sukkur	1,255	2,058	4.60
6	Larkana	1,089	1,725	4.27
	Sind Total	(8,367)	(13,965)	(4.77)
7	Bahawalpur	2,574	3,531	2.92
8	Multan	2,702	4,010	3.65
9	Muzaffargarh	990	1,548	4.15
10	D.G. Khan	777	1,128	3.45
11	Sahiwal	2,134	2,809	2.53
12	Lahore	3,560	5,324	3.73
13	Faisalabad	3,763	5,787	3.99
14	Sargodha	2,215	3,200	3.40
15	Gujranwala	4,214	6,250	3.65
16	Rawalpindi	2,653	4,022	3.86
	Punjab Total	(25,582)	(37,609)	(3.57)
17	Hazara	1,385	2,025	3.51
18	Malakand	1,256	1,812	3.39
19	Peshawar	3,731	5,315	3.27
20	D.I. Khan	1,206	1,757	3.48
	NWFP Total	(7,578)	(10,909)	(3.37)
21	Lasbela	91	135	3.65
22	Gawadar	189	377	6.48
23	Kalat	156	320	6.75
24	Chagai	41	65	4.28
25	Sibi	410	672	4.59
26	Quetta	267	495	5.77
27	Morala	199	345	5.13
	Bulchistan Total	(1,353)	(2,409)	(5.38)
	Pakistan Total	42,880	64,892	3.84
	Total (%)			

Source: 1961 & 1972 Census

Table II-3-3 Number of Urban Population by Zone in 1961 and 1972

Unit: Person

Zone	Name	1961	1972	Growth Rate (%)
1	Karachi	1,912,598	3,498,634	5.64
2	Hyderabad	434,537	628,310	3.41
3	Tharpakar	60,861	81,617	2.70
4	Nawabasha	45,651	80,779	5.33
5	Sukkur	192,404	286,469	3.68
6	Larkana	48,008	71,943	3.75
	Sind Total	(2,694,059)	(4,647,752)	(5.08)
7	Bahawalpur	127,925	208,363	4.53
8	Multan	441,531	666,706	3.82
9	Muzaffargarh	—	—	—
10	D.G. Khan	47,105	71,429	3.86
11	Sahiwal	143,479	208,004	3.43
12	Lahore	1,412,658	2,349,986	4.74
13	Faisalabad	602,566	1,079,109	5.44
14	Sargodha	129,291	201,407	4.11
15	Gujranwala	479,808	776,331	4.47
16	Rawalpindi	429,795	786,716	5.65
	Punjab Total	(3,814,158)	(6,348,051)	(4.74)
17	Hazara	31,036	47,011	3.85
18	Malakand	—	—	—
19	Peshawar	427,632	549,946	2.31
20	D.I. Khan	77,763	103,687	2.65
	NWFP Total	(536,431)	(700,644)	(2.46)
21	Isabela	—	—	—
22	Gawadar	—	—	—
23	Kalat	—	—	—
24	Chagai	—	—	—
25	Sibi	—	—	—
26	Quetta	106,633	155,627	3.50
27	Loralai	—	—	—
	Bulchistan Total	(106,633)	(155,627)	(3.50)
	Pakistan Total	7,151,281	11,852,074	4.70
	(%)	100.00	100.00	

Source: 1961 & 1972 Census

Table II-3-4 Value of Production by Zone in 1977/78

Unit: '000. Rs

Zone	Name	All Industries %	Food Manufacturing %	Textiles %
1	Karachi	12,464,666	1,339,840	2,664,368
2	Hyderabad	1,137,482	328,323	386,557
3	Tharpakar	50,635		
4	Nawabasha	396,884	293,221	73,848
5	Sukkur	195,453	86,824	4,340
6	Larkana	649,802	586	409,938
	Sind Total	(14,894,922)	(2,048,794)	(3,539,051)
7	Bahawalpur	1,061,038	6,757	1,194
8	Multan	941,147	311,862	407,739
9	Muzaffargarh	399,824		305,494
10	D.G. Khan	48,491	649,143	112
11	Sahiwal	503,963	150,556	93,113
12	Lahore	3,618,019	517,188	425,617
13	Faisalabad	2,231,051	1,120,666	955,682
14	Sargodha	886,054	223,460	241,874
15	Gujranwala	998,289	225,359	99,613
16	Rawalpindi	2,461,296	144,285	239,116
	Punjab Total	(13,149,172)	(3,349,276)	(2,769,554)
17	Hazara	288,989		
18	Malakand	81,652		
19	Peshawar	1,888,843		
20	D.I. Khan	134,399		
	NWFP Total	(2,393,883)	(946,517)	(584,908)
21	Lasbela			
22	Gawadar			
23	Kalat			
24	Chagai			
25	Sibi			
26	Quetta			
27	Loralai			
	Bulchistan Total	(59,410)	(2,579)	(12,510)
	Pakistan Total	30,497,387	6,347,166	6,906,023
	Total (%)	100.00%	20.81%	22.64%

Source: Agricultural Statistics of Pakistan 1979

Table II-3-5 Rice Production by Zone in 1977/78

Unit: '000 Tonnes

Zone	Name	Basmati Tonne	%	Irri Pak Tonne	%	Others Tonne	%	Total Tonne	Total %
1	Karachi	—	—	122.5	7.33	74.0	10.30	196.5	6.66
2	Hyderabad	—	—	194.2	11.62	32.1	4.47	236.3	7.67
3	Tharpakar	—	—	30.8	1.84	5.8	0.81	36.6	1.24
4	Nawabasha	—	—	398.2	23.83	88.3	12.29	486.5	16.49
5	Sukkur	—	—	315.4	18.87	54.0	7.52	369.4	12.52
6	Larkana	—	—	(1,061.1)	63.49	(254.2)	35.39	(1,315.3)	44.59
Sind Total									
7	Bahawalpur	16.7	2.98	30.3	1.81	27.4	3.81	74.4	2.52
8	Multan	11.6	2.01	13.4	0.80	11.9	1.66	36.9	1.25
9	Muzaffargarh	6.3	1.12	6.2	0.37	6.0	0.84	18.5	0.63
10	D.G. Khan	10.6	1.89	11.2	0.67	13.4	1.87	35.2	1.19
11	Sahiwal	68.0	12.20	66.9	4.01	51.0	7.10	185.9	6.30
12	Lahore	127.9	22.84	137.9	8.25	83.5	11.62	349.3	11.84
13	Faisalabad	39.6	7.07	30.0	1.80	11.9	1.66	81.5	2.76
14	Sargodha	24.0	4.28	26.8	1.60	15.0	2.09	65.8	2.23
15	Gujranwala	247.1	44.12	256.0	15.32	156.1	21.73	659.2	22.35
16	Rawalpindi	—	—	0.5	0.03	0.6	0.08	1.1	—
Punjab Total		(551.8)	98.52	(579.2)	34.66	(376.8)	52.46	(1,507.8)	51.12
17	Hazara	—	—	—	—	8.3	1.16	8.3	0.28
18	Malakand	7.3	1.30	5.0	0.30	45.4	6.32	57.7	1.96
19	Peshawar	0.7	0.12	1.9	0.11	7.0	0.97	9.6	0.33
20	D.I. Khan	0.1	0.02	9.3	0.56	2.6	0.36	12.0	0.41
NWFP Total		(8.1)	1.45	(16.2)	0.97	(63.3)	8.81	(87.6)	2.97
21	Lasbela	—	—	—	—	—	—	—	—
22	Gawadar	—	—	0.6	0.04	0.1	0.01	0.7	0.23
23	Kalat	—	—	—	—	0.3	0.04	0.3	0.01
24	Chagai	—	—	—	—	—	—	—	—
25	Sibi	0.2	0.04	14.1	0.84	23.6	3.29	37.9	1.28
26	Quetta	—	—	—	—	—	—	—	—
27	Loralai	—	—	—	—	—	—	—	—
Bulchistan Total		(0.2)	0.04	(14.7)	0.88	(24.0)	3.34	(38.9)	1.32
Pakistan Total		560.1	100.00	1,671.2	100.00	718.3	100.00	2,949.6	100.00
(%)		(18.99%)		(56.66%)		(24.35%)		(100%)	

Source: Agricultural Statistics of Pakistan 1979

Table II-3-6 Cotton and Sugarcane Production by Zone in 1977/78

	Cotton		Sugarcane		Sugar Factory Ton/Day
	Bales	%	Tonne	%	
1 Karachi	0.1	—	962.8	3.20	
2 Hyderabad	172.3	5.34	1,412.4	4.70	
3 Tharpakar	309.7	9.59	1,446.0	4.81	
4 Nawabasha	571.0	17.68	232.7	0.77	
5 Sukkur	147.8	4.58	206.5	0.69	
6 Larkana	7.3	0.23	(4,260.4)	14.17	
Sind Total	(1,208.2)	37.42			
7 Bahawalpur	682.7	21.14	3,592.8	11.95	200
8 Multan	215.0	6.66	1,238.6	4.12	
9 Muzaffargarh	69.7	2.16	1,173.9	3.90	2,000
10 D.G. Khan	34.6	1.07	157.7	0.53	2,000
11 Sahiwal	713.0	22.08	3,031.7	10.08	2,000
12 Lahore	40.2	1.24	2,332.0	7.76	2,000
13 Faisalabad	190.0	5.88	5,893.2	19.59	6,000
14 Sargodha	54.0	1.67	2,473.0	8.22	5,500
15 Gujranwala	19.2	0.59	2,193.7	7.29	2,700
16 Rawalpindi	—	—	9.1	0.03	
Punjab Total	(2,018.4)	62.49	(22,095.7)	73.46	
17 Hazara	—	—	5.2	0.02	
18 Malakand	—	—	214.6	0.71	
19 Peshawar	0.5	0.02	3,237.0	10.76	
20 D.I. Khan	2.3	0.07	262.0	0.87	
NWFP Total	(2.8)	0.09	(3,718.8)	12.36	
21 Lasbela	—	—	—	—	
22 Gawadar	—	—	—	—	
23 Kalat	—	—	0.1	—	
24 Chagai	—	—	—	—	
25 Sibi	—	—	1.6	0.01	
26 Quetta	—	—	—	—	
27 Loralai	0.1	—	(1.7)	0.01	
Bulchistan Total	(0.1)	—			
Pakistan Total	3,229.5	100.00	30,076.6	100.00	

Source: Agricultural Statistics of Pakistan 1979

Table II-3-7 Cargo Handled at Karachi Port in 1979/80

(Unit: ,000 tonnes)

	Import	Export	Total
1979			
Jul.	820	228	1,048
Aug.	1,664	457	2,121
Sep.	1,055	923	1,348
Oct.	1,082	273	1,355
Nov.	949	300	1,249
Dec.	1,188	265	1,453
1980			
Jan.	1,150	301	1,451
Feb.	891	399	1,290
Mar.	894	380	1,274
Apr.	911	265	1,176
May	931	251	1,182
Jun.	827	225	1,052
Total	12,362	3,637	15,999
Monthly average	1,030	303	1,333

Expansion factor $12,362/1,150 = 10,748$
 $3,637/301 = 12,083$

Source: Monthly Statistical Bulletin Vol. 28 August 1980 No. 8

Table II-3-8 Modal Split of Import Cargo in 1979/80

	Total Export Tonnage at Karachi Port	--	Tonnage Handled by Railway %	=	Tonnage Handled by Truck %
1979					
Jul.	820,000	--	420,820 (51)	=	399,180 (49)
Aug.	1,664,000	--	340,160 (20)	=	1,323,840 (80)
Sep.	1,055,000	--	413,860 (39)	=	641,140 (61)
Oct.	1,082,000	--	473,160 (44)	=	608,840 (56)
Nov.	949,000	--	450,800 (47)	=	498,200 (53)
Dec.	1,188,000	--	501,020 (42)	=	686,980 (58)
1980					
Jan.	1,150,000	--	457,260 (40)	=	692,740 (60)
Feb.	891,000	--	453,680 (51)	=	437,320 (49)
Mar.	894,000	--	467,360 (52)	=	426,640 (48)
Apr.	911,000	--	442,980 (49)	=	468,020 (51)
May	931,000	--	441,900 (47)	=	489,100 (53)
Jun.	827,000	--	*397,520 (48)	=	429,480 (52)
Total	12,362,000	--	5,260,520 (43)	=	7,101,480 (57)

Note: *Estimated figure

Giving assumption to the average loaded of one railway wagon of 20 tonnes.

Table II-3-9 Modal Split of Export Cargo in 1979/80

	Total Export Tonnage at Karachi Port	—	Tonnage Handled by Railway %	=	Tonnage Handled by Truck %
1979					
Jul.	228,000	—	21,660 (9)	=	206,340 (91)
Aug.	457,000	—	44,480 (10)	=	412,520 (90)
Sep.	293,000	—	50,900 (5)	=	242,100 (83)
Oct.	273,000	—	35,140 (13)	=	237,860 (87)
Nov.	300,000	—	33,780 (11)	=	266,220 (89)
Dec.	265,000	—	78,660 (30)	=	286,340 (70)
1980					
Jan.	301,000	—	54,180 (18)	=	246,820 (82)
Feb.	399,000	—	73,140 (18)	=	325,860 (82)
Mar.	380,000	—	102,100 (27)	=	277,900 (73)
Apr.	265,000	—	72,460 (27)	=	192,540 (73)
May	251,000	—	41,520 (17)	=	209,480 (83)
Jun.	225,000	—	*58,800 (26)	=	166,500 (74)
Total	3,637,000	—	666,520 (18)	=	2,970,480 (82)

Note: *Estimated figure

Table II-3-10 Railway Traffic Distribution from Port to
Up-country in January 1980

Unit: tonne

Name of Zone	General Cargo		Containerizable Cargo			Oil	Wheat	Fertilizer	Other	TOTAL	%
	%	Total	%	Military	Total						
1. Karachi	18	0.07	464	1.30	482	9,859	-	-	-	10,341	2.29
2. Hyderabad	46	0.17	61	0.17	107	1,792	-	2,214	-	4,113	0.91
3. Tharpakar	231	0.84	-	-	231	-	-	-	209	8,091	0.05
4. Nawabasha	-	-	-	-	-	7,882	-	-	47	10,396	1.79
5. Sukkur	19	0.07	30	0.08	49	10,080	220	-	-	19	2.30
6. Larkana	-	-	-	-	-	19	-	-	-	-	-
Sind Total	314	1.15	555	1.55	869	29,632	220	2,214	256	33,191	7.34
7. Bahawalpur	36	0.13	565	1.58	601	11,629	-	-	-	12,230	2.71
8. Multan	210	0.77	1,148	3.21	1,358	49,234	-	685	10,727	62,004	13.72
9. Muzaffargarh	-	-	-	-	-	19	-	-	-	19	-
10. D.G. Khan	-	-	4,105	11.50	4,150	1,128	-	-	-	5,389	1.19
11. Sahiwal	45	0.17	3,766	10.55	10,882	69,393	6,093	157	2,035	88,560	19.59
12. Lahore	7,116	26.15	7,499	21.55	14,615	36,717	11,492	192	7,826	63,726	14.10
13. Faisalabad	7,499	27.55	5,540	15.51	6,635	15,614	4,070	352	4	26,675	5.90
14. Sargodha	1,095	4.02	4,407	12.34	4,656	13,564	1,516	506	-	20,242	4.48
15. Gujranwala	249	0.91	10,392	29.10	12,873	18,927	27,729	972	172	60,673	13.42
16. Rawalpindi	2,481	9.12	29,923	83.79	48,654	216,225	50,900	2,469	21,270	339,518	75.11
Punjab Total	18,731	68.82	90	0.25	177	548	-	-	-	725	0.16
17. Hazara	87	0.32	-	-	-	-	-	-	-	-	-
18. Malakand	-	-	414	1.16	7,321	12,035	27,119	1,791	357	48,623	10.36
19. Peshawar	6,907	25.38	277	0.78	516	154	-	-	-	470	0.15
20. D.I. Khan	239	0.88	-	-	-	-	-	-	-	-	-
NWFP Total	7,233	26.58	781	2.19	8,014	12,737	27,119	1,791	357	50,018	11.07
21. Lasbela	-	-	-	-	-	-	-	-	-	-	-
22. Gawadar	-	-	-	-	-	-	-	-	-	-	-
23. Karat	-	-	-	-	-	-	-	-	-	-	-
24. Chagai	-	-	-	-	-	-	-	-	-	-	-
25. Sibi	-	-	-	-	-	2,129	2,684	-	-	4,813	1.07
26. Quetta	940	3.45	4,455	12.47	5,395	7,617	11,318	-	125	24,455	5.41
27. Loralai	-	-	-	-	-	-	-	-	-	-	-
Baluchistan Total	940	3.45	4,455	12.47	5,395	9,746	14,002	-	125	29,268	6.48
Pakistan Total	27,218	100.00	35,714	100.00	62,932	268,340	92,241	6,474	22,008	451,995	100.00
		43.2		56.8		100.0					

Source: Railway O-D January 1980

Table II-3-11 Railway Traffic Distribution from Up-country to
Port in January 1980

Zone	Name	General Cargo		Cotton		Rice		Total	
		Tonne	%	Tonne	%	Tonne	%	Tonne	%
1	Karachi	—	—	—	—	—	—	—	—
2	Hyderabad	—	—	—	—	—	—	—	—
3	Tharpakar	—	—	—	—	—	—	—	—
4	Nawabasha	—	—	—	—	—	—	—	—
5	Sukkur	—	—	—	—	1,537	4.61	1,537	3.89
6	Larkana	—	—	—	—	4,870	14.61	4,870	12.31
	Sind Total	—	—	—	—	6,407	19.22	6,407	16.20
7	Bahawalpur	—	—	—	—	192	0.58	192	0.49
8	Multan	6	0.24	3,356	91.82	264	0.79	3,626	9.17
9	Muzaffargarh	—	—	—	—	—	—	—	—
10	D.G. Khan	—	—	—	—	—	—	—	—
11	Sahiwal	108	4.23	—	—	1,079	3.24	1,187	3.00
12	Lahore	619	24.25	—	—	3,088	9.26	3,707	9.37
13	Faisalabad	807	31.62	—	—	360	1.08	1,167	2.95
14	Sargodha	15	0.59	—	—	1,413	4.24	1,428	3.61
15	Gujranwala	—	—	—	—	19,313	57.92	19,313	48.83
16	Rawalpindi	657	25.74	—	—	—	—	657	1.66
	Punjab Total	2,212	86.67	3,356	91.82	25,709	77.10	31,277	79.08
17	Hazara	—	—	—	—	—	—	—	—
18	Malakand	—	—	—	—	—	—	—	—
19	Peshawar	332	13.01	—	—	—	—	332	0.84
20	D.I. Khan	—	—	—	—	—	—	—	—
	NWFP Total	332	13.01	—	—	—	—	332	0.84
21	Iasbela	—	—	—	—	—	—	—	—
22	Gawadar	—	—	—	—	—	—	—	—
23	Kalat	—	—	—	—	—	—	—	—
24	Chagai	—	—	—	—	—	—	—	—
25	Sibi	—	—	—	—	—	—	—	—
26	Quetta	8	0.32	299	8.18	1,084	3.25	1,084	2.74
27	Loralai	—	—	—	—	144	0.43	144	0.37
	Baluchistan Total	8	0.32	299	8.18	1,228	3.68	1,535	3.88
	Pakistan Total	2,552	100.00	3,655	100.00	33,344	100.00	39,551	100.00
	Total (%)	(3,226)		(4,621)		(42,153)		50,000	
									Control Total

Source: Railway O-D January 1980

Table II-3-12 Daily Truck Traffic Distribution from Karachi to Up-country in February 1980

Zone	Name	Daily Truck Traffic Volume from Karachi			Total	Containerizable Cargo Volume	
		Containerizable Cargo	Empty	Non-Containerizable Cargo		Tonne	%
1	Karachi	—	—	—	—	—	—
2	Hyderabad	189	1,445	349	1,983	1,118	17.11
3	Tharpakar	11	79	56	146	99	1.52
4	Navabasha	18	54	52	124	142	2.17
5	Sukkur	54	16	175	245	416	6.37
6	Larkana	34	54	45	133	299	4.57
	Sind Total	306	1,648	677	2,631	2,074	31.74
7	Bahawalpur	—	23	29	52	146	2.23
8	Multan	47	7	50	104	405	6.20
9	Muzaffargarh	9	—	—	9	45	0.69
10	D.G. Khan	—	—	—	—	—	—
11	Sahiwal	20	—	16	36	63	0.96
12	Lahore	203	2	169	374	1,834	28.06
13	Faisalabad	50	—	18	68	464	7.10
14	Sargodha	16	—	47	63	79	1.21
15	Gujranwala	34	—	11	45	281	4.30
16	Rawalpindi	52	11	25	88	369	5.65
	Punjab Total	431	43	365	839	3,686	56.40
17	Hazara	2	—	2	4	20	0.31
18	Malakand	2	—	—	2	16	0.24
19	Peshawar	20	2	108	130	171	2.62
20	D.I. Khan	4	2	2	8	45	0.69
	NWFP Total	28	4	112	144	252	3.86
21	Lasbela	56	52	113	221	259	3.96
22	Gawadar	14	—	4	18	113	1.73
23	Kalat	—	—	—	—	—	—
24	Chagai	—	—	—	—	—	—
25	Sibi	—	—	2	2	—	—
26	Quetta	27	—	77	104	151	2.31
27	Loralai	—	—	—	—	—	—
	Bulchistan Total	97	52	196	345	523	8.00
	Pakistan Total	862	1,747	1,334	3,959	6,535	

Source: NTRC Road Side O-D Interview at Karachi Boundary

**Table II-3-13 Commodity-wise Cargo Handled at
Karachi Port in January 1980**

(Unit: tonne)

	Carto Items	Import	Export	Total	
Dry Cargo	1. General Cargo*	145,016	50,084	195,100	
	2. Container	10,379	13,184	23,563	
	3. Steel	25,833	—	25,833	
	4. Plant	4,421	—	4,421	
	5. Cotton	—	6,113	6,113	
	6. Rice	—	47,398	47,398	
	Containerizable Cargo Total		185,649	116,779	302,428
	7. Wheat	87,130	18,700	87,130	
	8. Cement	98,291	—	98,291	
	9. Fertilizer	88,353	—	88,353	
	10. Coke	9,443	—	9,443	
	11. Scrap	6,867	—	6,867	
	12. Vehicles	6,903	—	6,903	
	13. Vacuators	57,508	—	57,508	
14. Exp	5	—	5		
Non-containerizable Cargo Total		354,500	18,700	354,500	
Dry Cargo Total		540,149	135,479	656,928	
Liquid Cargo Total		375,777	73,000	448,777	
Total Cargo Handled		915,926	208,479	1,105,705	

Note: *including military traffic

Source: KPT Monthly Statistics in January 1980

Table II-3-14 Distribution of Imports Containerizable Cargo
by Zone in January 1980

Zone	Name	Railway Traffic		Estimated Road Traffic		Total		Railway Traffic		Estimated Road Traffic		Total		Military Traffic by Railway	
		%	Tonne	%	Tonne	%	Tonne	%	Tonne	%	Tonne	%	Tonne	%	Tonne
1	Karachi	0.76	479	*	51,000	22.09	51,479	0.07	19	*	51,000	25.90	51,019	464	1.30
2	Hyderabad	0.17	107	17.11	20,361	8.78	20,468	0.17	46	17.11	20,362	10.36	20,408	61	0.17
3	Tharpakar	0.37	233	1.52	1,809	0.88	2,042	0.84	227	1.52	1,809	1.03	2,036	—	—
4	Nawabasha	—	—	2.17	2,582	1.11	2,582	—	—	2.17	2,582	1.31	2,582	—	—
5	Sukkur	0.08	50	6.37	7,580	3.28	7,630	0.07	19	6.37	7,580	3.86	7,599	30	0.08
6	Larkana	—	—	4.57	5,438	2.33	5,438	—	—	4.57	5,438	2.76	5,438	—	—
Sind Total		1.38	869	31.74	88,770	38.47	89,639	1.15	311	31.74	88,771	45.22	89,082	555	1.55
7	Bahawalpur	0.96	605	2.23	2,654	1.40	3,259	0.13	35	2.23	2,654	1.36	2,689	565	1.58
8	Multan	2.16	1,361	6.20	7,378	3.75	8,739	0.77	208	6.20	7,378	3.85	7,586	1,148	3.21
9	Muzaffargarh	—	—	0.69	821	0.35	821	—	—	0.69	821	0.42	821	—	—
10	D.G. Khan	—	—	—	—	—	—	—	—	—	—	—	—	—	—
11	Sahiwal	6.59	4,151	0.96	1,142	2.27	5,293	0.17	46	0.96	1,142	0.60	1,188	4,105	11.50
12	Lahore	17.29	10,893	28.06	33,391	19.01	44,284	26.15	7,061	28.06	33,391	20.54	40,452	3,766	10.55
13	Faisalabad	11.92	7,510	7.10	8,449	6.85	15,959	27.55	7,438	7.10	8,449	8.06	15,887	—	—
14	Sargodha	10.54	6,640	1.21	1,440	3.47	8,080	4.02	1,085	1.21	1,440	1.28	2,525	5,540	15.51
15	Gujranwala	7.40	4,662	4.30	5,117	4.20	9,779	0.91	246	4.30	5,117	2.72	5,363	4,407	12.34
16	Rawalpindi	20.46	12,890	5.65	6,724	8.41	19,614	9.12	2,462	5.65	6,724	4.66	9,186	10,392	29.10
Punjab Total		77.32	48,712	56.40	67,116	49.71	115,828	68.82	18,581	56.40	67,116	43.49	85,697	29,923	83.79
17	Hazara	0.28	176	0.31	369	0.24	545	0.32	86	0.31	369	0.23	455	90	0.25
18	Malakand	—	—	0.24	285	0.12	285	—	—	0.24	285	0.15	285	—	—
19	Peshawar	11.63	7,327	2.62	3,118	4.48	10,445	25.38	6,853	2.62	3,118	5.06	9,971	414	1.16
20	D.I. Khan	0.82	517	0.69	821	0.58	1,338	0.88	238	0.69	821	0.54	1,059	277	0.78
NWFP Total		12.73	8,020	3.86	4,593	5.42	12,613	26.58	7,177	3.86	4,593	5.98	11,770	781	2.19
21	Lasbela	—	—	3.96	4,712	2.02	4,712	—	—	3.96	4,712	2.39	4,712	—	—
22	Gawadar	—	—	1.73	2,059	0.88	2,059	—	—	1.73	2,059	1.05	2,059	—	—
23	Kalat	—	—	—	—	—	—	—	—	—	—	—	—	—	—
24	Chagai	—	—	—	—	—	—	—	—	—	—	—	—	—	—
25	Sibi	—	—	—	—	—	—	—	—	—	—	—	—	—	—
26	Quetta	8.57	5,399	2.31	2,750	3.50	8,149	3.45	931	2.31	2,749	1.87	3,680	4,455	12.47
27	Loralai	—	—	8.00	9,521	6.40	14,920	3.45	931	8.00	9,520	5.31	10,451	4,455	12.47
Bulchistan Total		8.57	5,399	8.00	9,521	6.40	14,920	3.45	931	8.00	9,520	5.31	10,451	4,455	12.47
Pakistan Total		100.00	63,000	100.00	170,000	100.00	233,000	100.00	27,000	100.00	170,000	100.00	197,000	35,714	100.00
(8)															

Table II-3-15 Distribution of Export General Cargo
by Zone in January 1980

Zone	Name	Value of All Industries Production by Zone		Estimated Export General Cargo Traffic by All Modes	From Railway O-D by Rail	Estimated Export General Cargo Traffic by Road	Unit: Tons/Jan. '80
		'000 Rs 78/79	%				
1	Karachi	12,464,666	40.87	37,192	—	37,192	42.36
2	Hyderabad	1,137,482	3.73	3,394	—	3,394	3.86
3	Tharpakar	50,635	0.17	155	—	155	0.18
4	Nawabasha	396,884	1.30	1,183	—	1,183	1.35
5	Sukkur	195,453	0.64	582	—	582	0.66
6	Larkana	649,802	2.13	1,938	—	1,938	2.21
	Sind Total	14,894,922	48.84	44,444	—	44,444	50.62
7	Bahawalpur	1,061,038	3.48	3,167	—	3,167	3.61
8	Multan	941,147	3.09	2,812	0.24	2,804	3.19
9	Muzaffargarh	399,824	1.31	1,192	—	1,192	1.36
10	D.G. Khan	48,491	0.16	146	—	146	0.17
11	Sahiwal	503,963	1.65	1,502	4.23	1,366	1.56
12	Lahore	3,618,019	11.86	10,793	24.25	10,017	11.41
13	Faisalabad	2,231,051	7.32	6,661	31.62	5,649	6.43
14	Sargodha	886,054	2.91	2,648	0.59	2,629	2.99
15	Gujranwala	998,289	3.27	2,976	—	2,976	3.39
16	Rawalpindi	2,461,296	8.07	7,344	25.74	6,520	7.42
	Punjab Total	13,149,172	43.12	39,239	86.67	36,465	41.53
17	Hazara	288,989	0.95	865	—	865	0.98
18	Malakand	81,652	0.27	246	—	246	0.28
19	Peshawar	1,888,843	6.19	5,633	13.01	5,217	5.94
20	D.I. Khan	134,399	0.44	400	—	400	0.46
	NWFP Total	2,393,883	7.85	7,144	13.01	6,728	7.66
21	Isabela	—	—	—	—	—	—
22	Gawadar	—	—	—	—	—	—
23	Kalat	—	—	—	—	—	—
24	Chagai	—	—	—	—	—	—
25	Sibi	—	—	—	—	—	—
26	Quetta	59,410	0.19	173	0.32	163	0.19
27	Loralai	—	—	—	—	—	—
	Bulchistan Total	59,410	0.19	173	0.32	163	0.19
	Pakistan Total	30,497,387	100.00	91,000	100.00	87,800	100.00

Table II-3-16 Distribution of Export Basmati by Zone
in January 1980

Zone	Name	Basmati Production by Zone		Estimated Export Basmati Traffic by All Modes	Railway O-D by Rail	Estimated Export Basmati Traffic by Road
		'000 Tonne '77/78	₹			
1	Karachi	—	—	—	—	—
2	Hyderabad	—	—	—	—	—
3	Tharpakar	—	—	—	—	—
4	Nawabasha	—	—	—	—	—
5	Sukkur	—	—	—	—	—
6	Larkana	—	—	—	—	—
Sind Total		—	—	—	—	—
7	Bahawalpur	16.7	2.98	566	0.75	556
8	Multan	26.1	4.66	885	1.03	872
9	Muzaffargarh	6.3	1.12	213	—	213
10	D.G. Khan	10.6	1.89	359	—	359
11	Sahiwal	53.5	9.55	1,815	4.20	1,760
12	Lahore	127.9	22.84	4,340	12.01	4,184
13	Faisalabad	39.5	7.07	1,343	1.40	1,325
14	Sargodha	24.0	4.28	813	5.49	742
15	Gujranwala	247.1	44.12	8,383	75.12	7,406
16	Rawalpindi	—	—	—	—	—
Punjab Total		551.8	98.51	18,717	100.00	17,417
17	Hazara	—	—	—	—	—
18	Malakand	7.3	1.31	249	—	249
19	Peshawar	0.7	0.12	23	—	23
20	D.I. Khan	0.1	0.02	4	—	4
NWFP Total		8.1	1.45	276	—	276
21	Isabela	—	—	—	—	—
22	Gawadar	—	—	—	—	—
23	Kalat	—	—	—	—	—
24	Chagai	—	—	—	—	—
25	Sibi	0.2	0.04	7	—	7
26	Quetta	—	—	—	—	—
27	Loralai	—	—	—	—	—
Baluchistan Total		0.2	0.04	7	—	7
Pakistan Total		560.1	100.00	19,000	1,300	17,700
		Agricultural Statistic				

Table II-3-17 Distribution of Export Cotton Row by Zone
in January 1980

Zone	Name	Cotton Production by Zone		Estimated Export Cotton Traffic by All Modes	Railway O-D	Estimated Road O-D
		'000 Tonnes '77/78	\$			
1	Karachi	0.1	—	—	—	—
2	Hyderabad	172.3	5.34	481	—	—
3	Tharpakur	309.7	9.59	863	—	—
4	Nawabasha	571.0	17.68	1,591	—	—
5	Sukkur	147.8	4.58	412	—	—
6	Larkana	7.3	0.23	21	—	—
	Sind Total	1,208.2	37.42	3,368	—	—
7	Bahawalpur	682.7	21.14	1,903	—	—
8	Multan	215.0	6.66	599	4,600	179
9	Muzaffargarh	69.7	2.16	194	—	—
10	D.G. Khan	34.6	1.07	96	—	—
11	Sahiwal	713.0	22.08	1,987	—	—
12	Lahore	40.2	1.24	112	—	—
13	Faisalabad	190.0	5.88	529	—	—
14	Sargodha	54.0	1.67	150	—	844
15	Gujranwala	19.2	0.59	53	—	—
16	Rawalpindi	—	—	—	4,600	1,023
	Punjab Total	2,018.4	62.49	5,623	—	—
17	Hazara	—	—	—	—	—
18	Malakand	—	—	—	—	—
19	Peshawar	0.5	0.02	2	—	2
20	D.I. Khan	2.3	0.07	7	—	7
	NWFP Total	2.8	0.09	9	—	9
21	Lasbela	—	—	—	—	—
22	Gawadar	—	—	—	—	—
23	Kalat	—	—	—	—	—
24	Chagai	—	—	—	—	—
25	Sibi	—	—	—	—	—
26	Quetta	—	—	—	—	—
27	Loralai	0.1	—	—	—	—
	Baluchistan Total	0.1	—	—	—	—
	Pakistan Total	3,229.5	100.00	9,000	4,600	1,032

Table II-3-18 Distribution of Export Containerizable Cargo
by Zone in January 1980

Unit: TONS

Zone	Name	General Cargo	Basmati (Rice)	Cotton	Total
1	Karachi	37,192	—	—	37,192
2	Hyderabad	3,394	—	481	3,875
3	Tharpakar	155	—	863	1,018
4	Nawabasha	1,183	—	1,591	2,774
5	Sukkur	582	—	412	994
6	Larkana	1,938	—	21	1,959
	Sind Total	44,444	—	3,368	47,812
7	Bahawalpur	3,167	566	1,903	5,636
8	Multan	2,812	885	599	4,296
9	Muzaffargarh	1,192	213	194	1,599
10	D.G. Khan	146	359	96	601
11	Sahiwal	1,502	1,815	1,987	5,304
12	Lahore	10,793	4,340	112	15,245
13	Faisalabad	6,661	1,343	529	8,533
14	Sargodha	2,648	813	150	3,611
15	Gujranwala	2,976	8,383	53	11,412
16	Rawalpindi	7,344	—	—	7,344
	Punjab Total	39,239	18,717	5,623	63,579
17	Hazara	865	—	—	865
18	Malakand	246	249	—	495
19	Peshawar	5,633	23	2	5,658
20	D.I. Khan	400	4	7	411
	NWFP Total	7,144	276	9	7,429
21	Isabela	—	—	—	—
22	Gawadar	—	—	—	—
23	Kalat	—	—	—	—
24	Chagai	—	—	—	—
25	Sibi	—	7	—	7
26	Quetta	173	—	—	173
27	Loralai	—	—	—	—
	Bulchistan Total	173	7	—	180
	Pakistan Total	91,000	19,000	9,000	119,000
	Total (%)				

Table II-3-19 Estimates Future Distribution of Import
Container Cargo in 1987/88 and 1999/2000

Zone	Name	Case I: Including Military Traffic		Case II: Excluding Military Traffic		Unit: '000 Tons
		Distribution		Distribution		
		\$	Tonne	\$	Tonne	
		1987/88	1999/00	1987/88	1990/00	
1	Karachi	22.09	711	25.90	834	
2	Hyderabad	8.78	283	10.36	334	
3	Tharpakar	0.88	8	1.03	9	
4	Nawabasha	1.11	36	1.31	42	
5	Sukkur	3.28	106	3.86	124	
6	Larkana	2.33	75	2.76	89	
	Sind Total	38.47	1,239	45.22	1,456	
7	Bahawalpur	1.40	45	1.36	44	
8	Multan	3.75	121	3.85	124	
9	Muzaffargarh	0.35	11	0.42	14	
10	D.G. Khan	—	—	—	—	
11	Sahiwal	2.27	73	0.60	19	
12	Lahore	19.01	612	20.54	662	
13	Faisalabad	6.85	221	8.06	260	
14	Sargodha	3.47	112	1.28	41	
15	Gujranwala	4.20	135	2.72	88	
16	Rawalpindi	8.41	271	4.66	150	
	Punjab Total	49.71	1,601	43.49	1,402	
17	Hazara	0.24	8	0.23	7	
18	Malakand	0.12	4	0.15	5	
19	Peshawar	4.48	144	5.06	163	
20	D.I. Khan	0.58	19	0.54	17	
	NWFP Total	5.42	175	5.98	192	
21	Lasbela	2.02	65	2.39	77	
22	Gawadar	0.88	28	1.05	34	
23	Kalat	—	—	—	—	
24	Chagai	—	—	—	—	
25	Sibi	—	—	—	—	
26	Quetta	3.50	113	1.87	60	
27	Loralai	6.40	206	5.31	171	
	Bulchistan Total	100.00	3,221	100.00	3,221	
	Pakistan Total	100.00	3,221	100.00	3,221	

Table II-3-20 Estimates Future Distribution of Export
Container Cargo in 1987/88 and 1999/00

	Name of Zone	Dry Cargo		Rice		Cotton		Sugar		Total		
		%	1987/88	1999/00	%	1987/88	1999/00	%	1987/88	1999/00	%	1987/88
1	Karachi	40.87	202	704	-	-	-	-	-	-	202	704
2	Hyderabad	3.73	18	64	-	7	5.34	3.20	3	5	28	82
3	Tharpakar	0.17	1	3	-	12	9.59	4.70	4	8	17	34
4	Nawabasha	1.30	6	22	-	22	17.68	4.81	4	8	32	73
5	Sukkur	0.64	3	11	-	6	4.58	0.77	1	1	10	23
6	Larkana	2.13	11	37	-	-	0.23	0.69	1	1	12	39
	Sind Total	48.84	242	841	-	46	37.42	14.17	13	23	301	955
7	Bahawalpur	3.48	17	60	16	26	21.14	11.95	10	19	59	147
8	Multan	3.09	15	53	25	8	6.66	4.12	3	7	35	101
9	Muzaffargarh	1.31	7	23	6	3	2.16	3.90	3	6	15	40
10	D.G. Khan	0.16	1	3	10	1	1.07	0.53	-	1	6	17
11	Sahiwal	1.65	8	28	18	27	22.08	10.08	8	16	61	148
12	Lahore	11.86	59	204	43	2	1.24	7.76	6	13	110	340
13	Faisalabad	7.32	36	126	13	7	5.88	19.59	15	32	71	210
14	Sargodha	2.91	14	50	8	2	1.67	8.22	7	13	31	90
15	Gujranwala	3.27	16	56	84	1	0.59	7.29	6	12	107	302
16	Rawalpindi	8.07	40	139	-	-	-	0.03	-	-	40	139
	Punjab Total	43.12	213	742	520	77	62.49	73.46	58	119	535	1,534
17	Hazara	0.95	5	16	-	-	-	0.02	-	-	5	16
18	Malakand	0.27	1	5	7	-	-	0.71	1	1	4	13
19	Peshawar	6.19	31	106	1	-	0.02	10.76	9	17	41	124
20	D.I. Khan	0.44	2	8	-	-	0.07	0.87	1	2	3	10
	NWFP Total	7.85	39	135	8	-	0.09	12.36	11	20	53	163
21	Iasbela	-	-	-	-	-	-	-	-	-	-	-
22	Gawadar	-	-	-	-	-	-	-	-	-	-	-
23	Kalat	-	-	-	-	-	-	-	-	-	-	-
24	Chagai	-	-	-	-	-	-	-	-	-	-	-
25	Sibi	-	-	-	-	-	-	0.01	-	-	-	-
26	Quetta	0.19	1	3	-	-	-	-	-	-	1	3
27	Loralai	-	-	-	-	-	-	-	-	-	-	-
	Bulchistan Total	0.19	-	3	-	-	-	0.01	-	-	1	3
	Pakistan Total	100.00	495	1,721	528	123	100.00	100.00	82	162	890	2,655

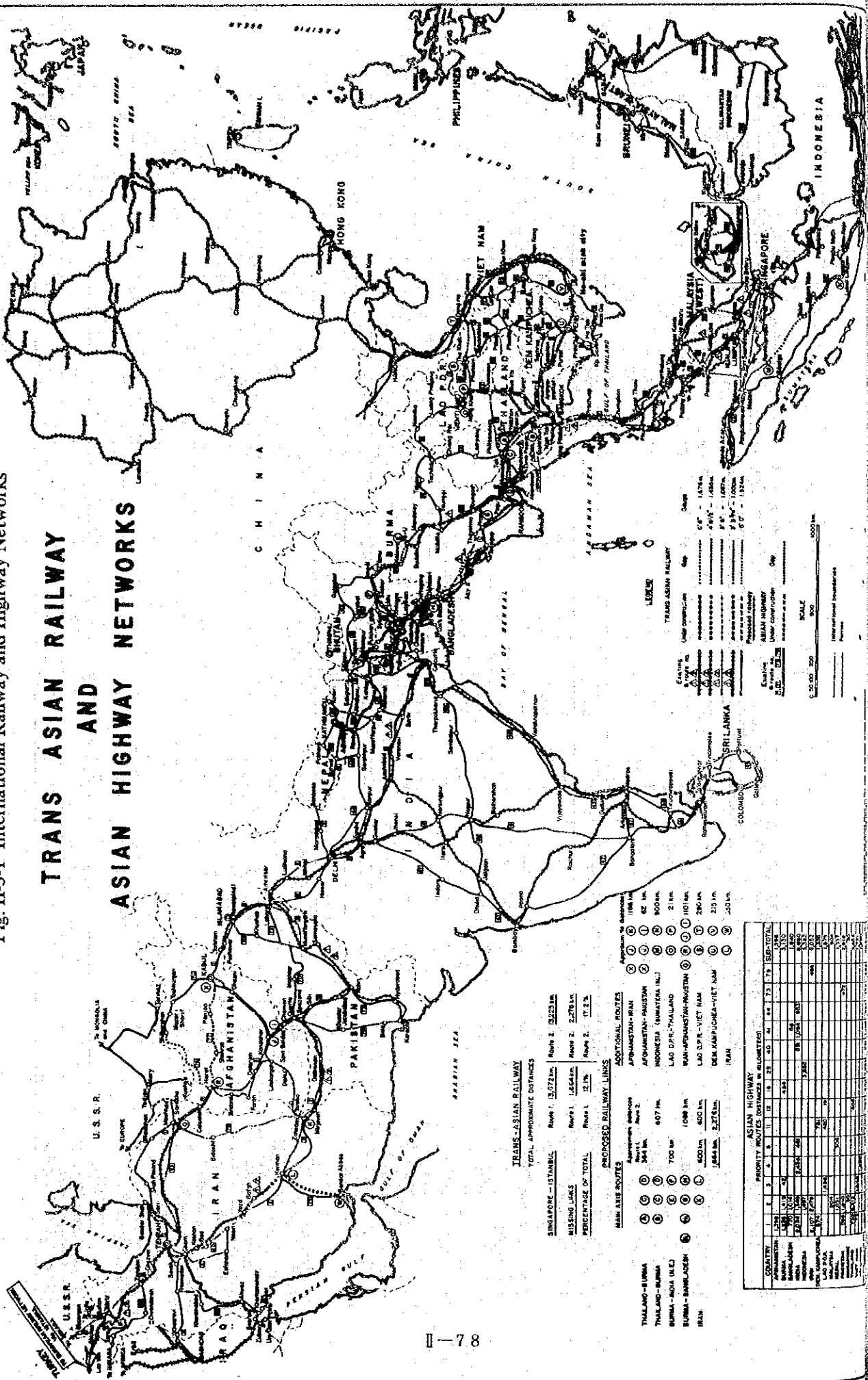
Table II-3-21 Summary Table of Future Container Traffic Distribution in 1987/88 and 1999/2000

(Unit: '000 tonne)

Name of Zone	Case I: Including Military Traffic				Case II: Excluding Military Traffic							
	1967/88		1999/2000		1987/88		1999/2000					
	Import	Export	Total	Import	Export	Total	Import	Export	Total			
1. Karachi	189	202	391	711	704	1,415	222	202	424	834	704	1,538
2. Hyderabad	75	28	103	283	82	365	89	28	117	334	82	416
3. Tharpakar	8	17	25	28	34	62	9	17	26	33	34	67
4. Nawabasha	10	32	42	36	73	109	11	32	43	42	73	115
5. Sukkur	28	10	38	106	23	129	33	10	43	124	23	147
6. Larkana	20	12	32	75	39	114	24	12	36	89	39	128
SIND TOTAL	330	301	631	1,239	955	2,194	388	301	689	1,456	955	2,411
7. Bahawalpur	12	59	71	45	147	192	12	59	71	44	147	191
8. Multan	32	35	67	121	101	222	33	35	68	124	101	225
9. Muzaffargarh	3	15	18	11	40	51	4	15	19	14	40	54
10. D. G. Khan	-	6	6	-	17	17	-	6	6	-	17	17
11. Sahiwal	19	61	80	73	148	221	5	61	66	19	148	167
12. Lahore	163	110	273	612	340	952	176	110	286	662	340	1,002
13. Faisalabad	59	71	130	221	210	431	69	71	140	260	210	470
14. Sargodha	30	31	61	112	90	202	11	31	42	41	90	131
15. Gujranwala	36	107	143	135	302	437	23	107	130	88	302	390
16. Rawalpindi	72	40	112	271	139	410	40	40	80	150	139	289
PUNJAB TOTAL	426	535	961	1,601	1,534	3,135	373	535	908	1,402	1,534	2,936
17. Hazara	2	5	7	8	16	24	2	5	7	7	16	23
18. Malakand	1	4	5	4	13	17	1	4	5	5	13	18
19. Peshawar	38	41	79	144	124	268	44	41	85	163	124	287
20. D. I. Khan	5	3	8	19	10	29	4	3	7	17	10	27
NWFP TOTAL	46	53	99	175	163	338	51	53	104	192	163	355
21. Lasbela	17	-	17	65	-	65	20	-	20	77	-	77
22. Gawadar	8	-	8	28	-	28	9	-	9	34	-	34
23. Kalat	-	-	-	-	-	-	-	-	-	-	-	-
24. Chagai	-	-	-	-	-	-	-	-	-	-	-	-
25. Sibi	-	-	-	-	-	-	-	-	-	-	-	-
26. Quetta	30	1	31	113	3	116	16	1	17	60	3	63
27. Loralai	-	-	-	-	-	-	-	-	-	-	-	-
BULCHISTAN TOTAL	55	1	56	206	3	209	45	1	46	171	3	174
PAKISTAN TOTAL	857	890	1,747	3,221	2,655	5,876	857	890	1,747	3,221	2,655	5,876

Fig. II-3-1 International Railway and Highway Networks

TRANS ASIAN RAILWAY AND ASIAN HIGHWAY NETWORKS



TRANS-ASIAN RAILWAY
TOTAL APPROXIMATE DISTANCES

SINGAPORE - ISTANBUL: Route 1, 13,725 km; Route 2, 13,225 km
MISSING LINKS: Route 1, 1,624 km; Route 2, 2,278 km
PERCENTAGE OF TOTAL: Route 1, 12.1%; Route 2, 17.2%

PROPOSED RAILWAY LINKS

MAIN LINE ROUTES	Approximate Distance	Approximate No. of Stations
THAILAND-BURMA	700 km	10
THAILAND-BURMA	807 km	12
BURMA-NON (K.C.)	1,000 km	15
BURMA-BANGLADESH	400 km	5
IRAN	2,278 km	30

ADDITIONAL ROUTES

ADDITIONAL ROUTES	Approximate Distance	Approximate No. of Stations
AFGHANISTAN-IRAN	1,100 km	15
AFGHANISTAN-PAKISTAN	62 km	8
INDONESIA (SUMATRA I.S.)	800 km	10
LAO D.P.R.-THAILAND	2 km	2
NON-AFGHANISTAN-IRAN	1,101 km	15
LAO D.P.R.-VIET NAM	280 km	4
DEM. KAMPUCHEA-VIET NAM	215 km	3
IRAN	20 km	2

ASIAN HIGHWAY NETWORKS

COUNTRY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175	176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191	192	193	194	195	196	197	198	199	200
AFGHANISTAN	120	121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175	176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207	208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239	240	241	242	243	244	245	246	247	248	249	250	251	252	253	254	255	256	257	258	259	260	261	262	263	264	265	266	267	268	269	270	271	272	273	274	275	276	277	278	279	280	281	282	283	284	285	286	287	288	289	290	291	292	293	294	295	296	297	298	299	300																			

LEGEND

Existing: Under Construction: Proposed: Asian Highway: Under Construction: Proposed

Scale: 0 100 200 500 1000 km

Fig. II-3-2 Map of Zone

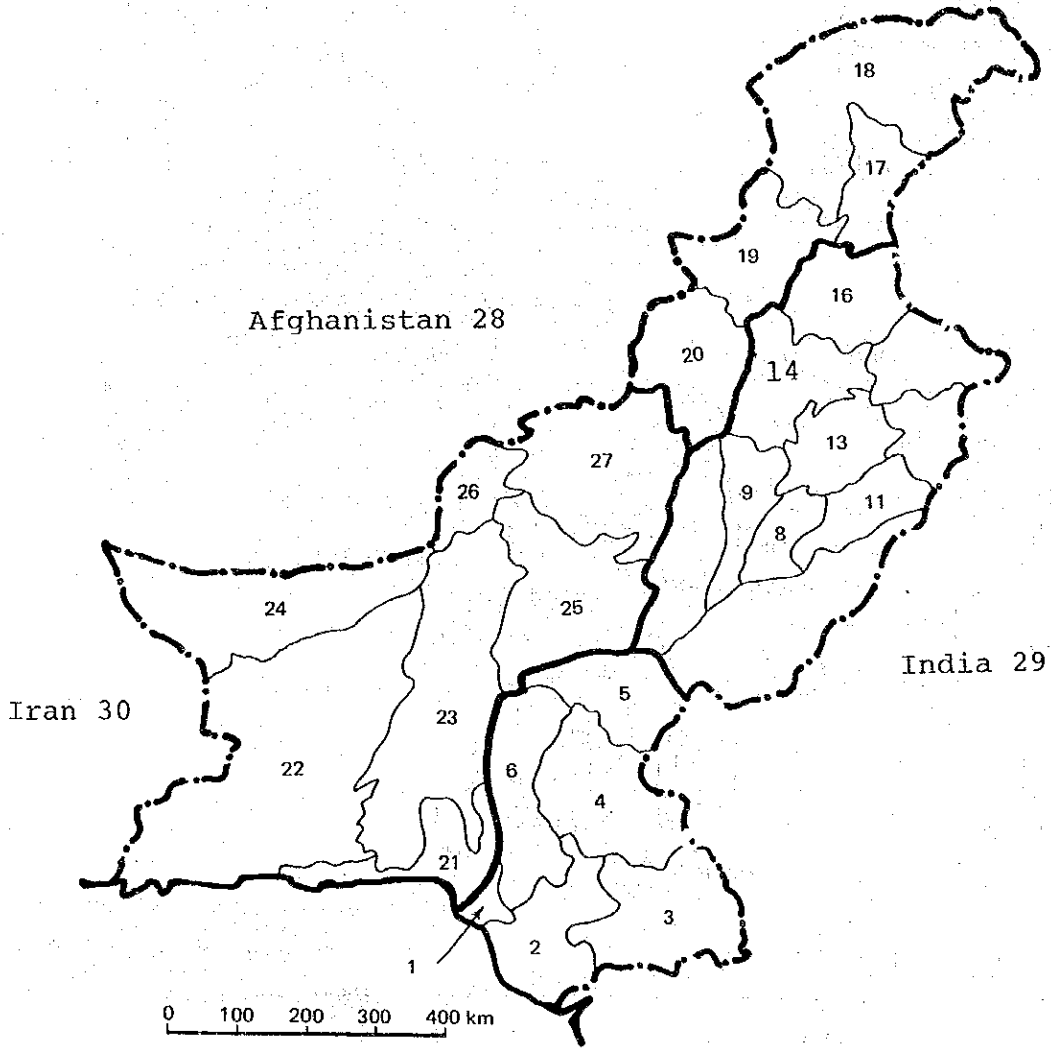
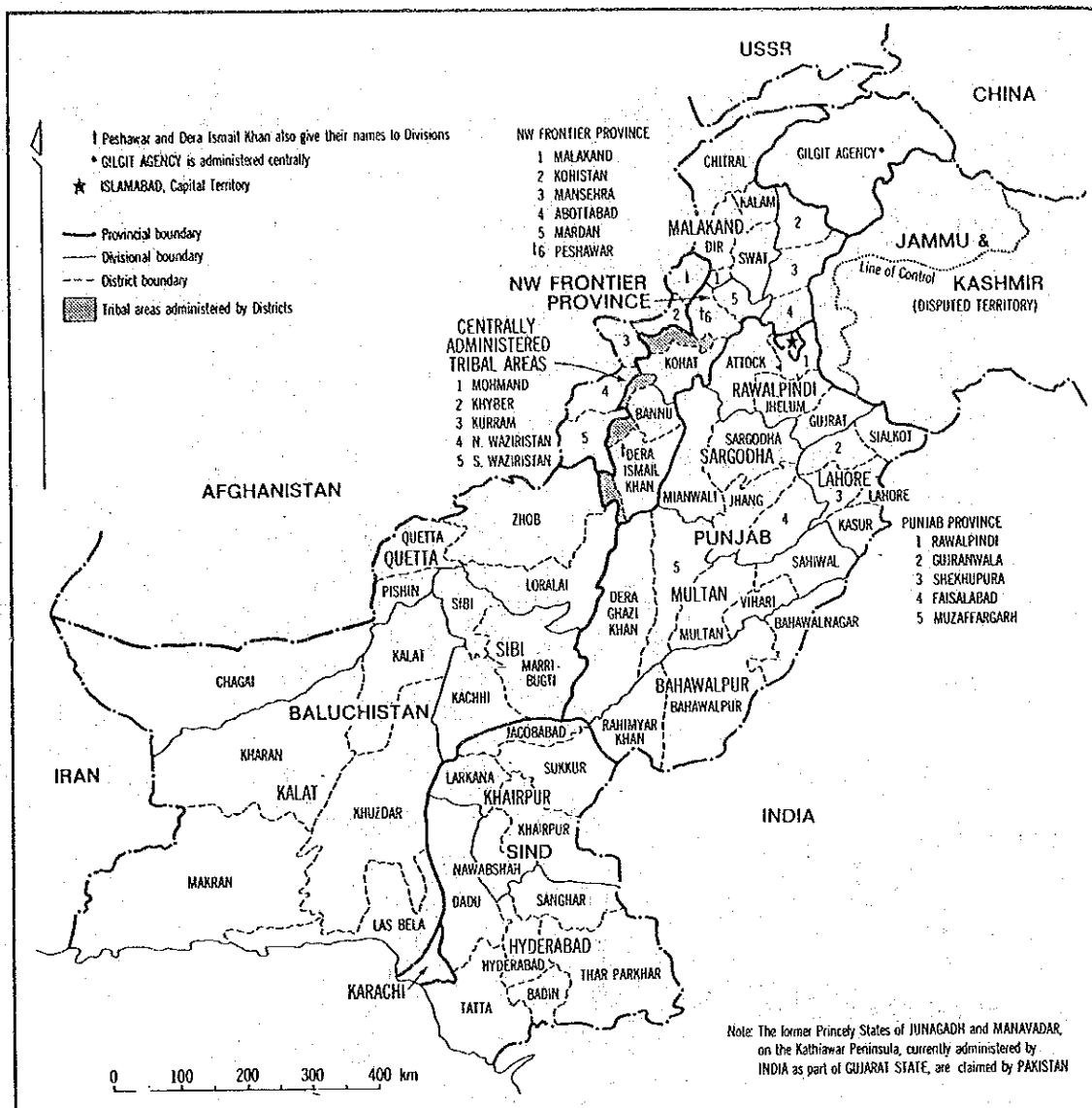


Fig. II-3-3 Map of Administrative Areas



(Source: Pakistan by B.L.C. Johnson)

Fig. II-3-4 Major Towns with Population Exceeding 100,000 in 1972

Unit: Thousands

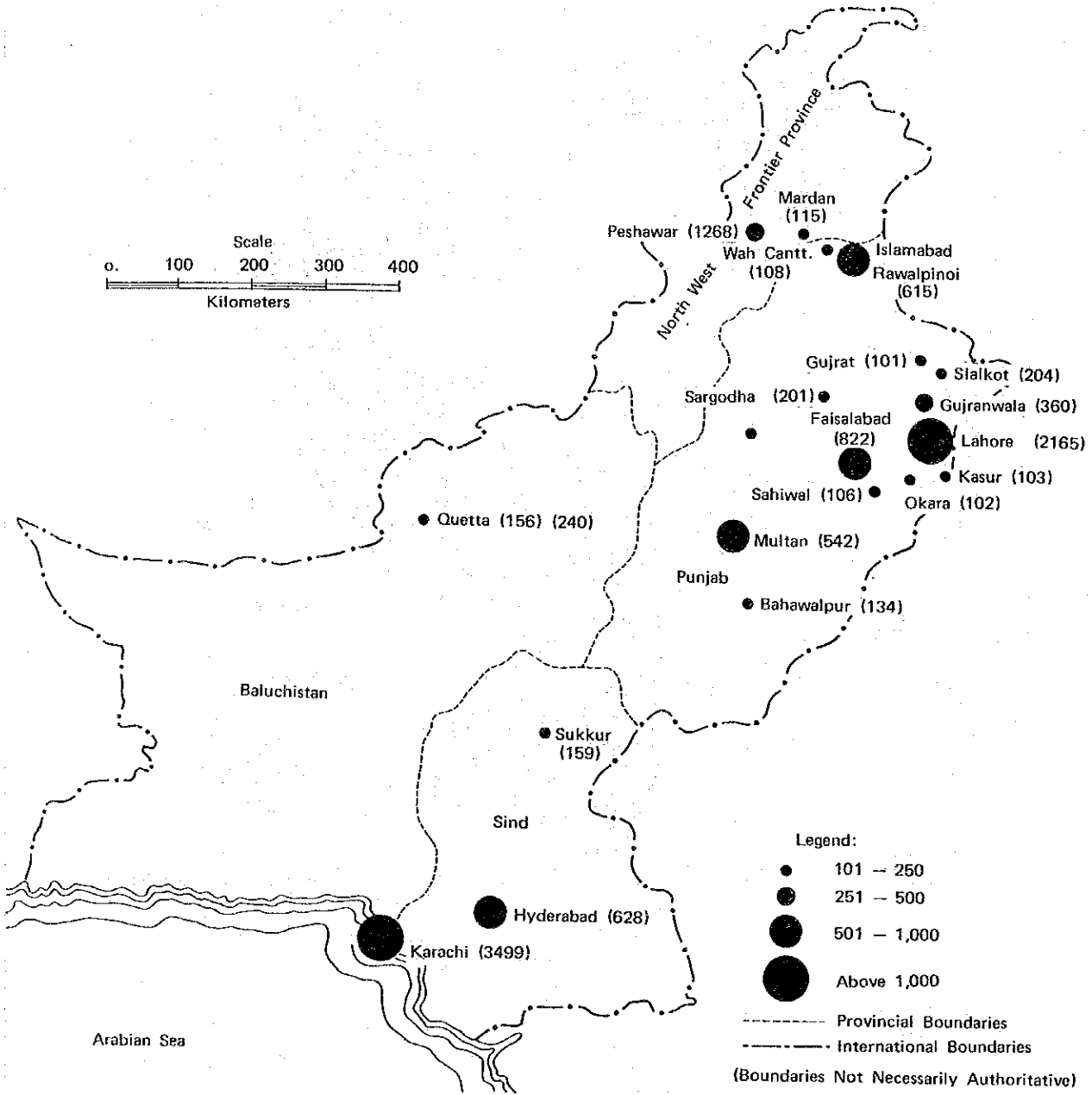
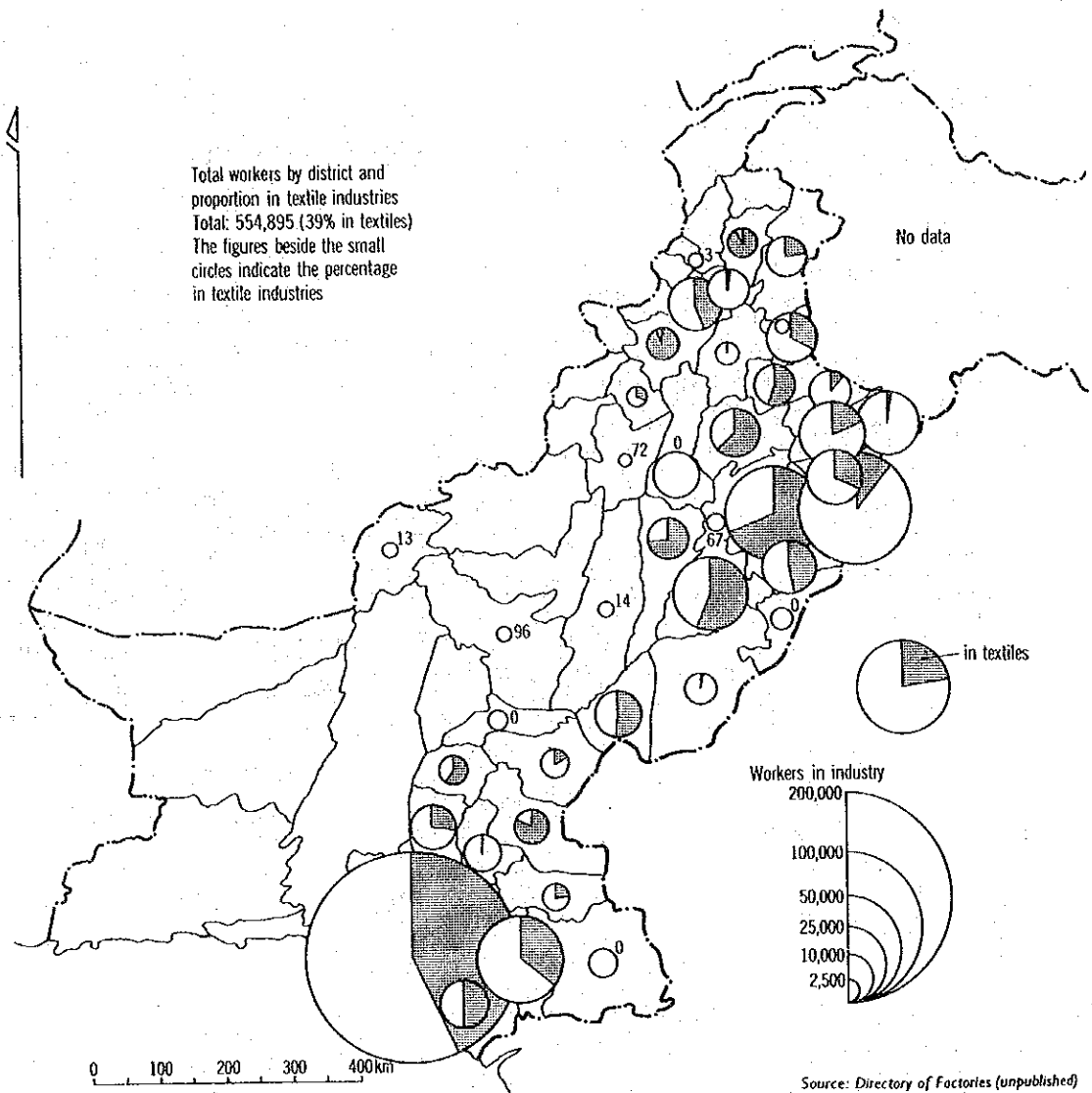
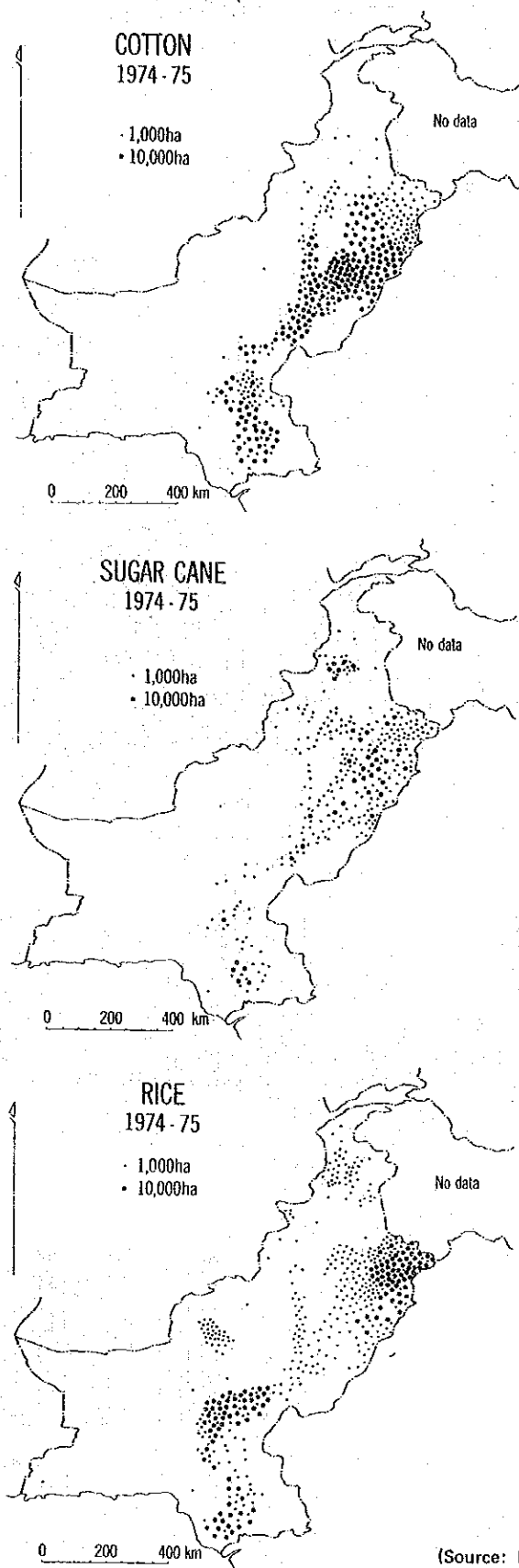


Fig. II-3-5 Distribution of Manufacturing Industry 1976



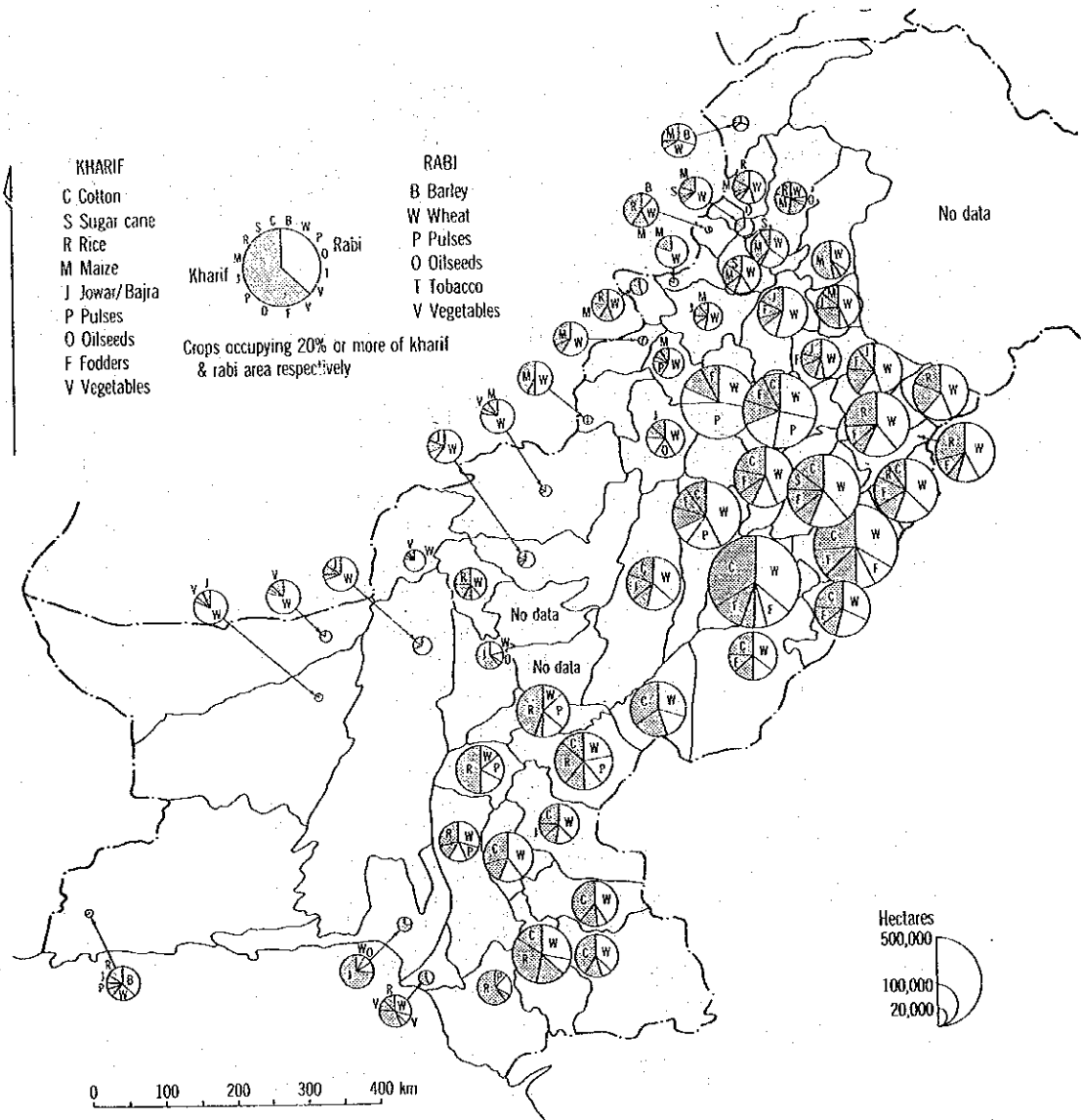
(Source: Pakistan by B.L.C. Johnson)

Fig. II-3-6 Distribution Map of Cotton, Sugar Cane and Rice



(Source: Pakistan by B.L.C. Johnson)

Fig. II-3-7 Seasonal Cropping Pattern 1974-75



(Source: Pakistan by B.L.C. Johnson)

Fig. II-3-8 Estimation Method of Import Cargo Flow in January 1980

(Unit: ,000 tonnes)

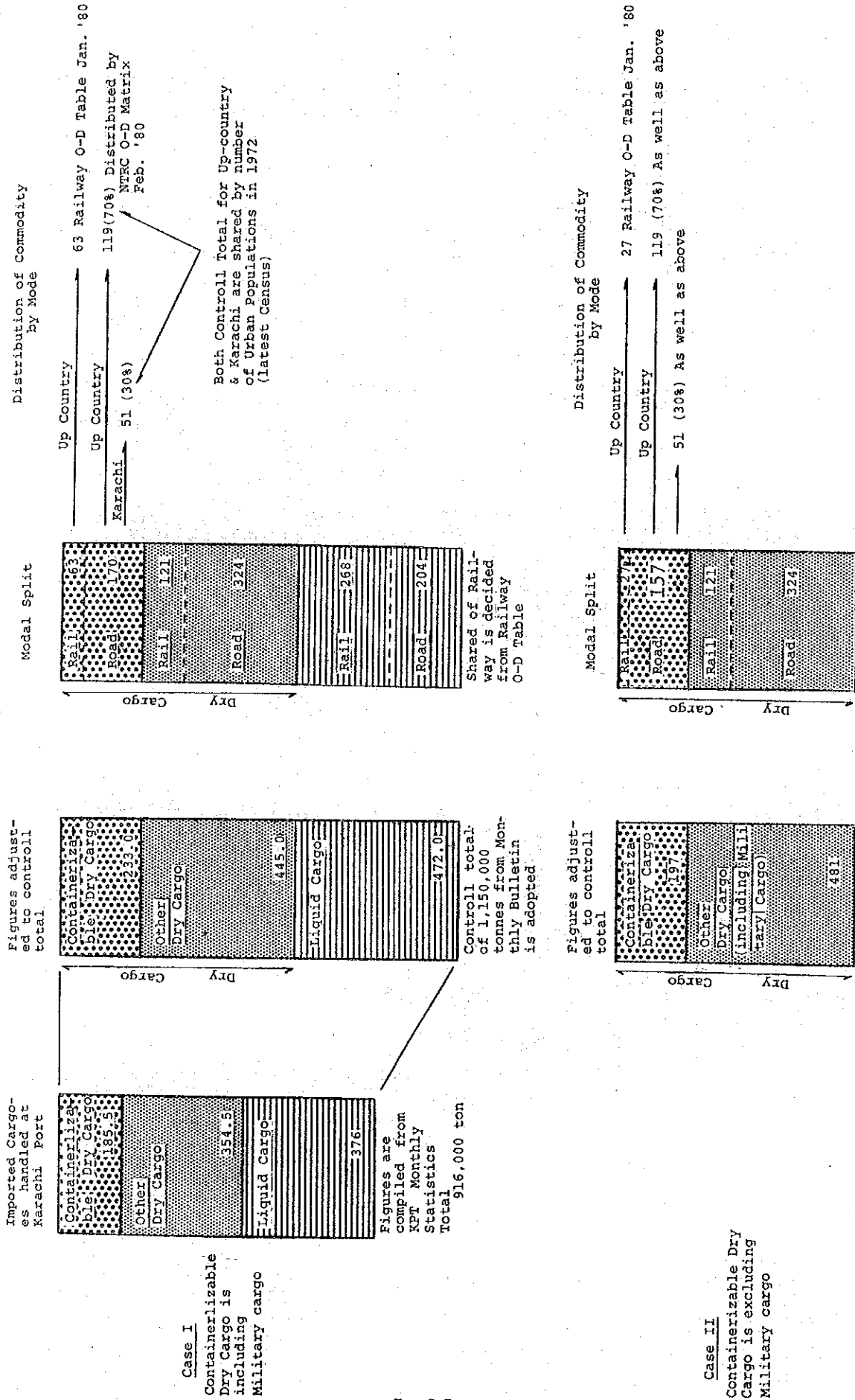


Fig. II-3-9 Desire Line of Import Containerizable Cargo in January 1980. (Excluding Military Traffic)

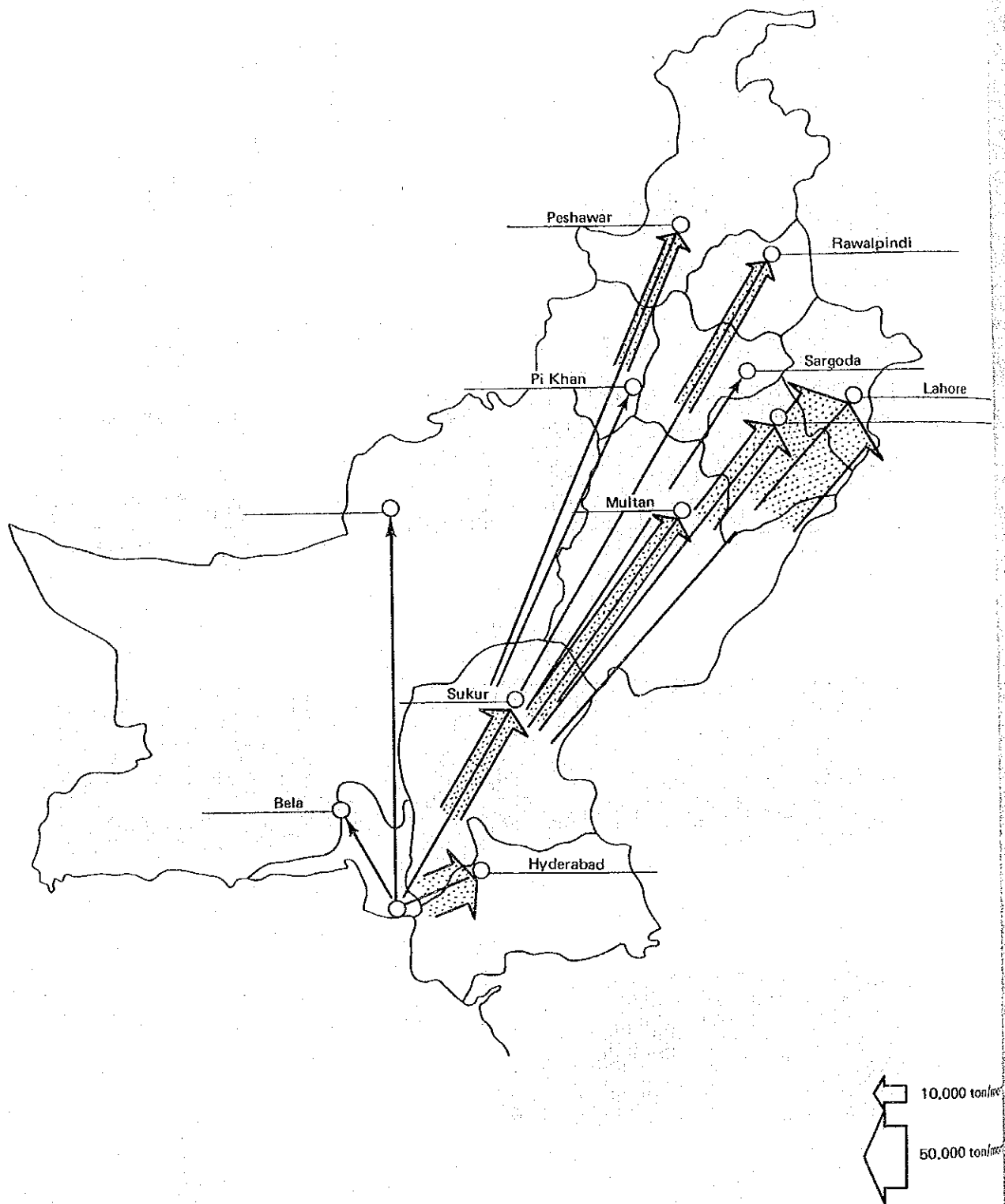
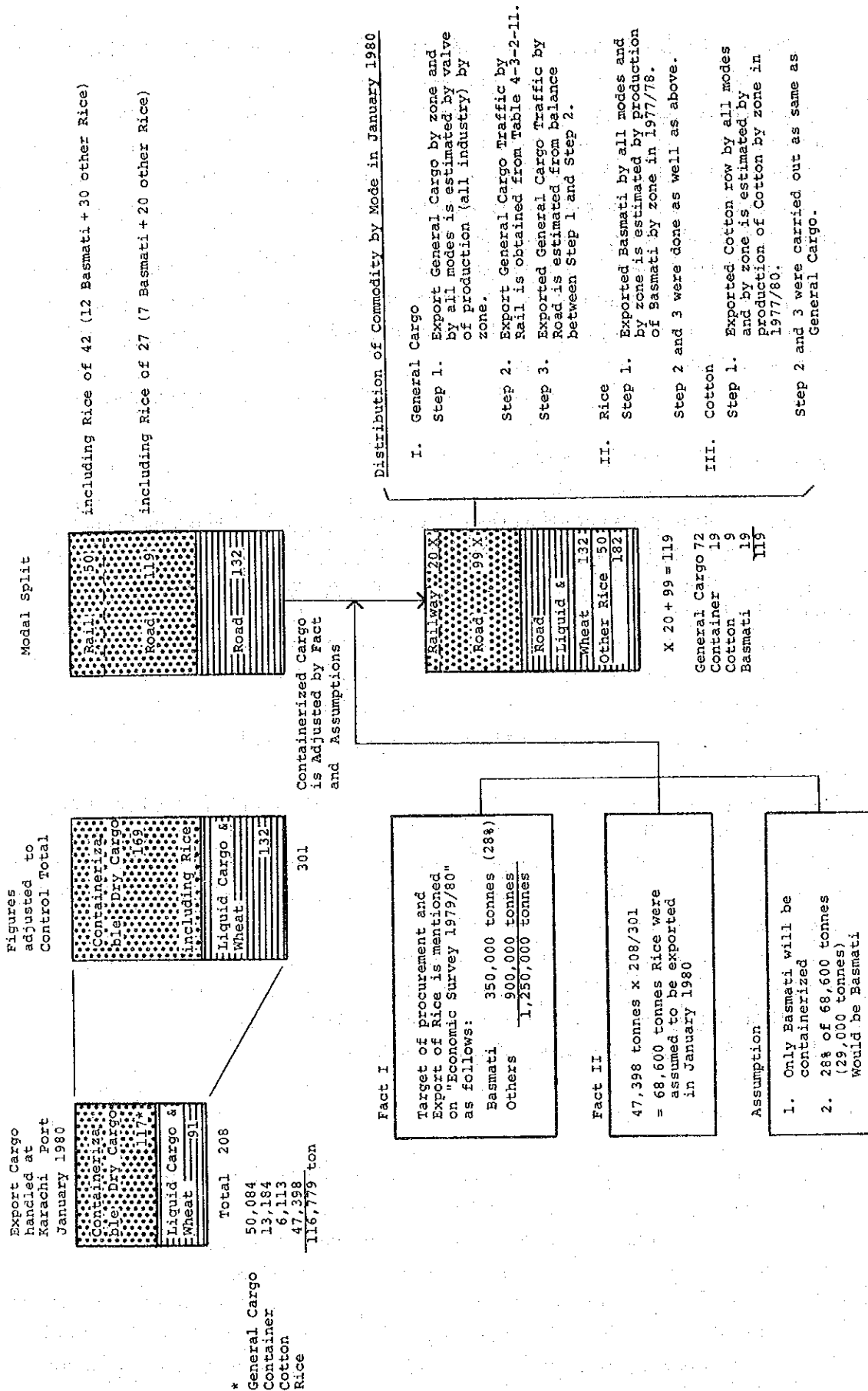


Fig. II-3-10 Estimation Method of Export Cargo Flow by Mode in January 1980



CHAPTER 4. SELECTION OF INLAND CONTAINER TRANSPORT SYSTEM

The main consumer centres in Pakistan besides Karachi and Hyderabad are located in the Punjab province and these populated towns are existed close to Lahore, some 1,200 km away from Karachi Port.

New Inland Container Transport System has to be established in order to transport containers safely, economically and quickly over such the long distance.

In this chapter, the following two alternatives of inland transport system are envisaged and compared from the national economic point of view. These economic expenses during the project life of 20 years are estimated by alternative and the present values are calculated including the social discount rate of 12% p.a.

The first year in which costs will be incurred is 1987/88 when the urgent project is completed.

Alternative 1. Multimodal Transport System

The demand of export container cargoes and import container cargoes in the northern region including Lahore are balanced and the total of these is about 60% of the volume handled at the new port terminal. In order to reduce the volume of customs clearance at the port, therefore, an inland CFS will be set up in Lahore.

As the mode of inland transportation, unit train system will be introduced for the section between port and Lahore because of the convenience of the railway for long-distance mass transportation. As for feeder transportation between the inland CFS and the consumer centers, road transportation is more convenient for transporting distances less than 500 km at the present level of freight rates (see Fig. II-4-1).

Regarding container transport between the new port terminal and areas other than the northern region including Lahore, the present modes of transportation will continue to be used in the future because of the great difference between the volume of export cargoes and the volume of import, (see Table II-4-1). Therefore, the customs clearance of container cargoes for these areas will be done at the new port terminal.

The northern region namely consists of Zone No. 12 Lahore, Zone No. 13 Faisalabad, Zone No. 14 Sargoda, Zone No. 15 Gujranwala, Zone No. 16 Rawalpindi, Zone No. 17 Hazara, Zone No. 18 Malakand, Zone No. 19 Peshawar and Zone No. 20 D.I. Khan.

The cost flow for Alternative 1 is shown in Table II-4-2.

Alternative 2 Road Transport System

In case that the direct road transportation will be introduced for inland container transport between the new port terminal and the inland consumer centers.

Therefore, establishment of an inland CFS is not required but an extra investment for CFS will have to be made in the new port terminal instead of inland CFS.

In comparing the above two alternatives, the costs of civil engineering and building as common cost to the two alternatives is eliminated from the cost items. And it is assumed that the volume of cargoes during the economic service life of 20 years are unchanged for the convenience of comparing the systems.

The traffic demand used for this comparison is the volume of which handled by the new port terminal in 1987/88 to/from the northern zones including Lahore.

Fig. II-4-2 shows the two alternatives schematically and Fig. II-4-3 shows the truck transport plans for each alternative.

The present economic value of the two alternatives in 1987 value obtained by discounting the economic costs during the economic service life of 20 years by an annual discount rate of 12% are as below.

	PV ('000 US\$)
Multimodal transport system	211,612
Road transport	387,897
NPV in 1987	176,285

The present value of the multimodal transport system in 1987 value is only about a half that of the road transport system and the net present value in 1987 value is 176,285,000 dollars.

The study team, therefore, proposes introduction of the multimodal transport system as the system of inland transportation of containers from the national economic point of view.

Details of equipment and costs required by the two alternatives are shown in Appendix-II.

Table II-4-1 Generated Container Traffic by Area in 1987/88 and 1999/2000

Year: 1987/88

(Unit: ,000 tonnes)

Area	Case I: Including Military Traffic			
	Import	Export	Total	Priority
1. Karachi	330	301	631	Karachi Port
2. Multan	66	176	242	2
3. Lahore	360	359	719	1
4. Peshawar	46	53	99	3
5. Quetta	55	1	56	4
Total	857	890	1,747	

Year: 1999/2000

(Unit: ,000 tonnes)

Area	Case I: Including Military Traffic			
	Import	Export	Total	Priority
1. Karachi	1,239	955	2,194	Karachi Port
2. Multan	250	453	703	2
3. Lahore	1,351	1,081	2,432	1
4. Peshawar	175	163	338	3
5. Quetta	206	3	209	4
Total	3,221	2,655	5,876	

Table II-4-2 Cost Flow of Multimodal Transport System

Year	Railway Transport Cost (1220 km)			Terminal Cost			Road Transport Cost (150 km) FCL + LCL			Railway Cost	Road Cost (150 Km)	Total Cost	Discarded at 12% p.a.
	Capital	W.E	S.Total	Capital	W.E	S.Total	Capital	W.E	S.Total				
0	22,400	12,500	34,900	7,086	407	7,493	12,250	1,274	13,524	4,850	4,049	8,899	68,256
1	-	12,500	12,500	-	407	407	-	1,274	1,274	-	4,049	4,049	18,364
2	-	12,500	12,500	-	407	407	-	1,274	1,274	-	4,049	4,049	14,640
3	-	12,500	12,500	-	407	407	94	1,274	1,368	-	4,049	4,049	13,138
4	-	12,500	12,500	-	407	407	-	1,274	1,274	-	4,049	4,049	11,671
5	-	12,500	12,500	-	407	407	-	1,274	1,274	-	4,049	4,049	10,420
6	-	12,500	12,500	-	407	407	94	1,274	1,368	-	4,049	4,049	9,351
7	-	12,500	12,500	400	407	807	1,491	1,274	2,765	4,850	4,049	8,899	25,105
8	-	12,500	12,500	-	407	407	-	1,274	1,274	-	4,049	4,049	18,364
9	-	12,500	12,500	-	407	407	94	1,274	1,368	-	4,049	4,049	18,458
10	-	12,500	12,500	-	407	407	48	1,274	1,322	-	4,049	4,049	20,358
11	-	12,500	12,500	-	407	407	-	1,274	1,274	-	4,049	4,049	18,364
12	-	12,500	12,500	6,666	407	7,073	10,568	1,274	11,842	-	4,049	4,049	35,598
13	-	12,500	12,500	-	407	407	-	1,274	1,274	-	4,049	4,049	18,364
14	-	12,500	12,500	400	407	807	1,491	1,274	2,765	4,850	4,049	8,899	25,105
15	-	12,500	12,500	-	407	407	94	1,274	1,368	-	4,049	4,049	18,458
16	-	12,500	12,500	-	407	407	-	1,274	1,274	-	4,049	4,049	18,364
17	-	12,500	12,500	-	407	407	-	1,274	1,274	-	4,049	4,049	18,364
18	-	12,500	12,500	-	407	487	94	1,274	1,368	-	4,049	4,049	18,458
19	-6,840	12,500	5,660	-2,262	407	-1,855	-3,821	1,274	2,547	-693	4,049	3,356	4,748
													Total
													211,612

E.E; Working Expense

Table II-4-3 Cost Flow of Road Transport System

	Year	Terminal Cost			Road Transport Cost			Road Cost	Total Cost	Discounted at 12% p.a.	
		Port Terminal		S.Total	(1360 Km) FCL + ICL						
		Capital	W.E		Capital	W.E	S.Total				
0	1987/8	5,164	869	6,033	37,300	33,997	71,297	18,224	95,554	95,554	
1	8	-	869	869	-	33,997	33,997	577	35,443	31,646	
2	9	-	869	869	-	33,997	33,997	577	35,443	28,255	
3	1990	94	869	963	-	33,997	33,997	577	35,537	25,295	
4	1	-	869	869	-	33,997	33,997	577	35,443	22,527	
5	2	-	869	869	-	33,997	33,997	577	35,443	20,111	
6	3	94	869	963	-	33,997	33,997	577	35,537	18,004	
7	4	1,091	869	1,960	37,300	33,997	71,297	577	73,834	33,399	
8	5	-	869	869	-	33,997	33,997	577	35,443	14,315	
9	6	94	869	963	-	33,997	33,997	577	35,537	12,815	
10	7	28	869	897	-	33,997	33,997	18,224	53,118	17,103	
11	8	-	869	869	-	33,997	33,997	577	35,443	10,189	
12	9	3,808	869	4,677	-	33,997	33,997	577	39,251	10,075	
13	2000/1	-	869	869	-	33,997	33,997	577	35,443	8,123	
14	1	1,091	869	1,960	37,300	33,997	71,297	577	73,834	15,108	
15	2	94	869	963	-	33,997	33,997	577	35,537	6,492	
16	3	-	869	869	-	33,997	33,997	577	35,443	5,782	
17	4	-	869	869	-	33,997	33,997	577	35,443	5,162	
18	5	94	869	963	-	33,997	33,997	577	35,537	4,621	
19	2006/7	1,511	869	642	-5,329	33,997	28,668	577	28,603	3,321	
									Total	387,897	

WE; Working Expense

Fig. II-4-1 Intermodal Freight Charges

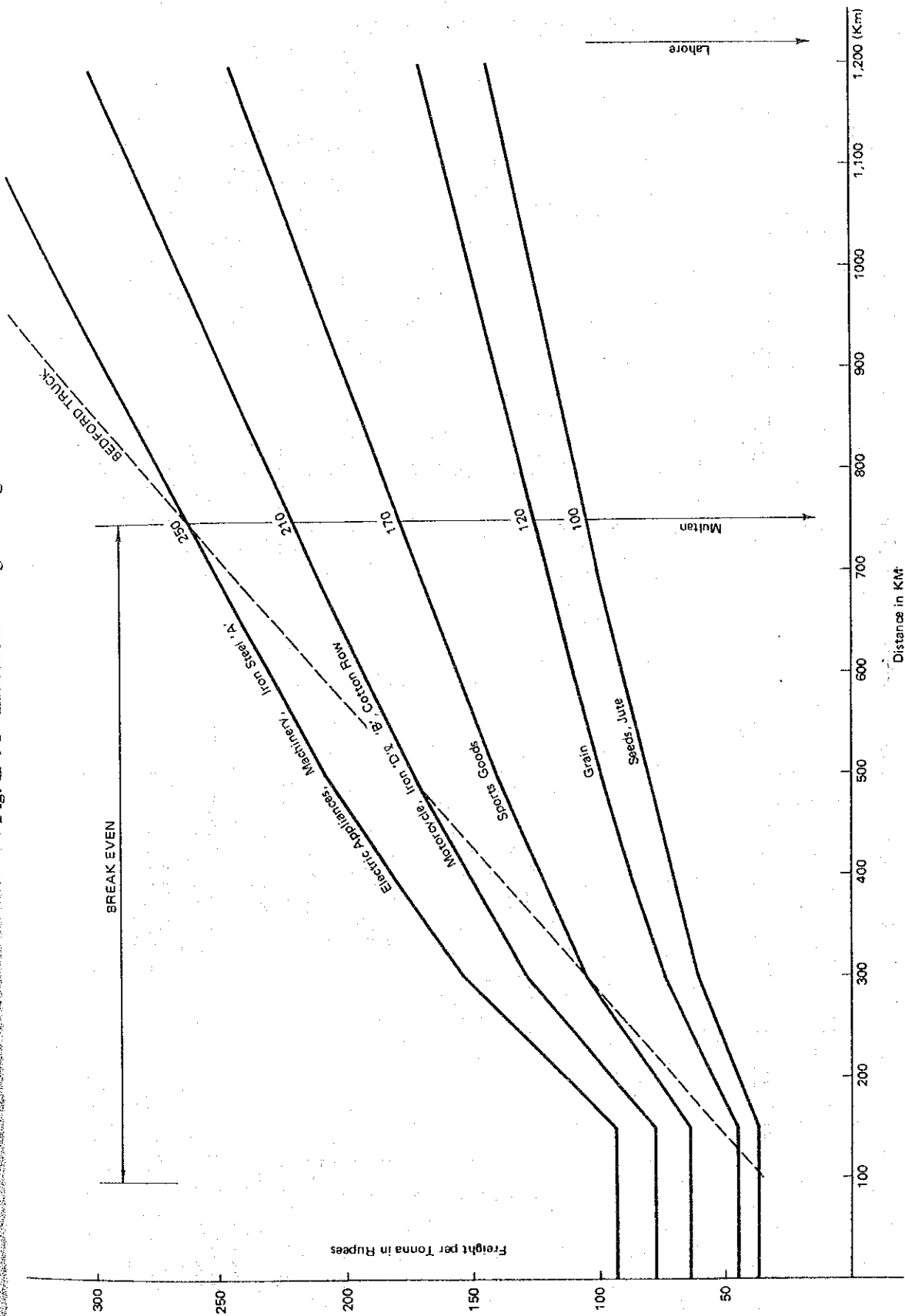


Fig. II-4-2 Comparison of Inland Transportation System

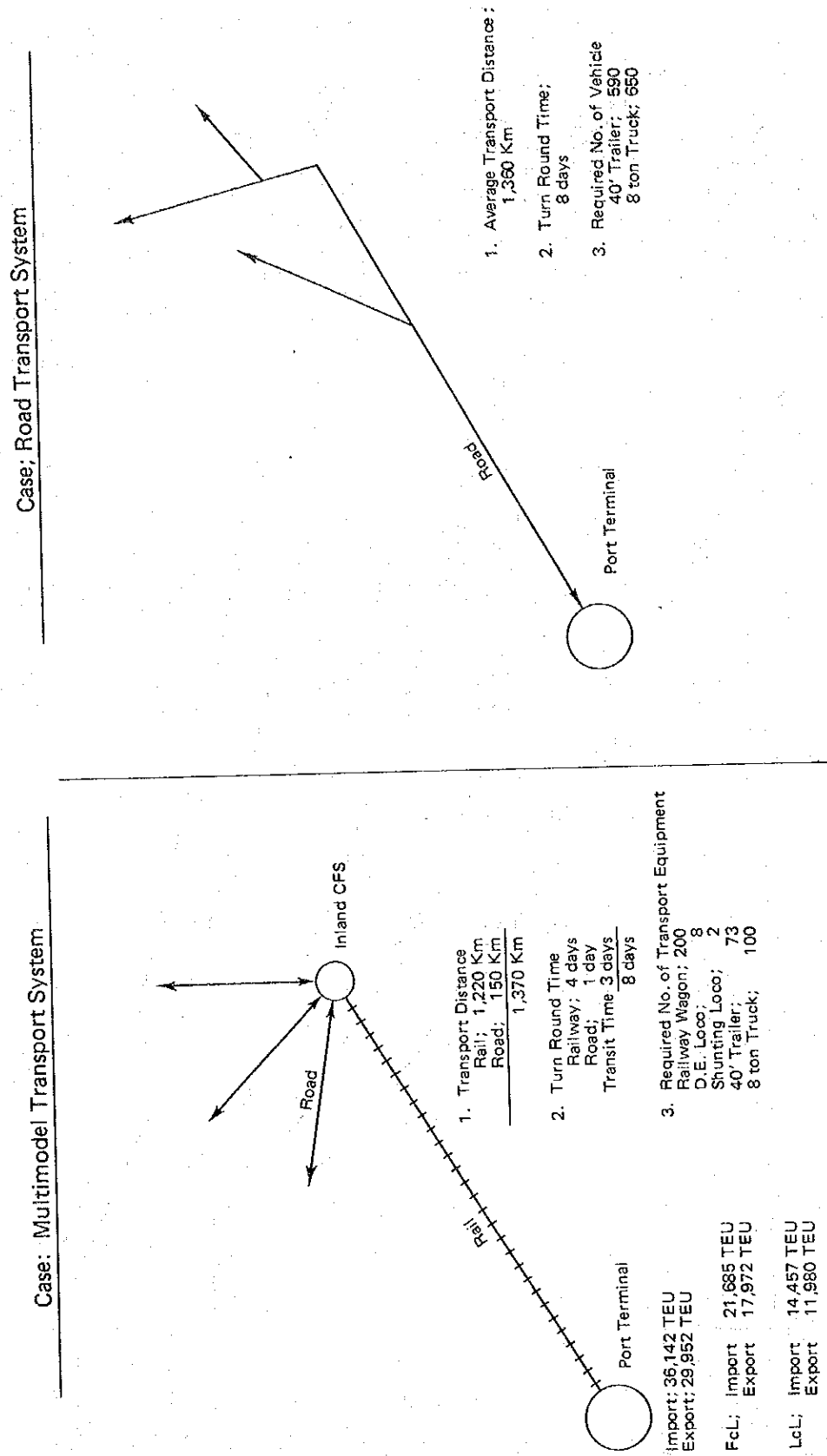
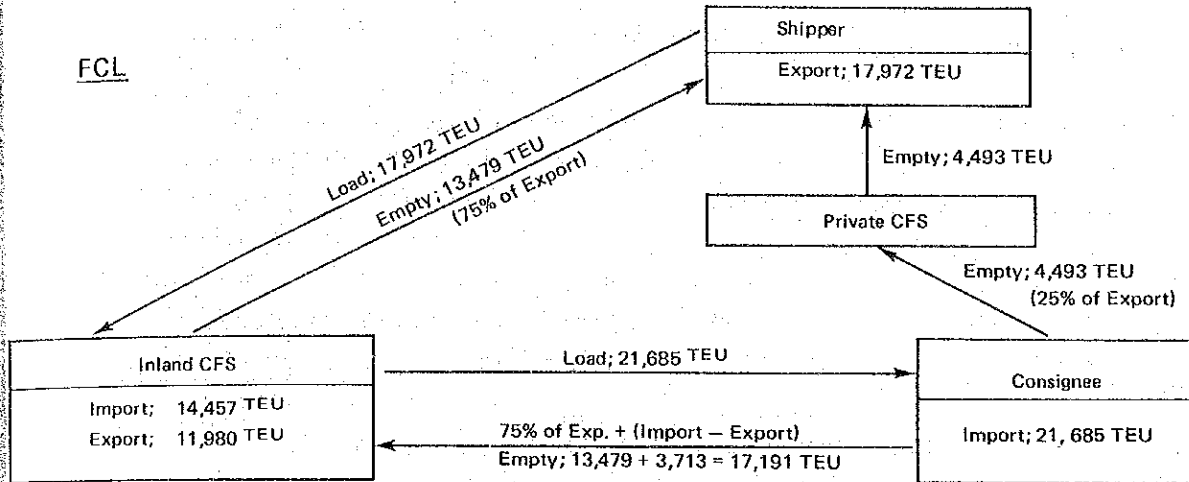


Fig. II-4-3 (1) Truck Operation Plan

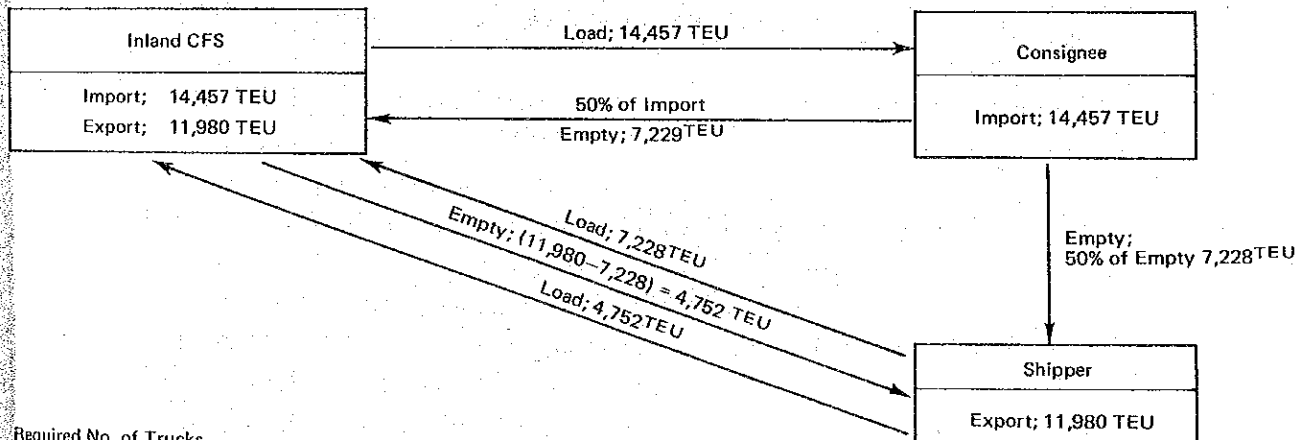
Multimodal Transport

Round Time; 1 day
Distance; 150 Km

FCL



LCL



Required No. of Trucks

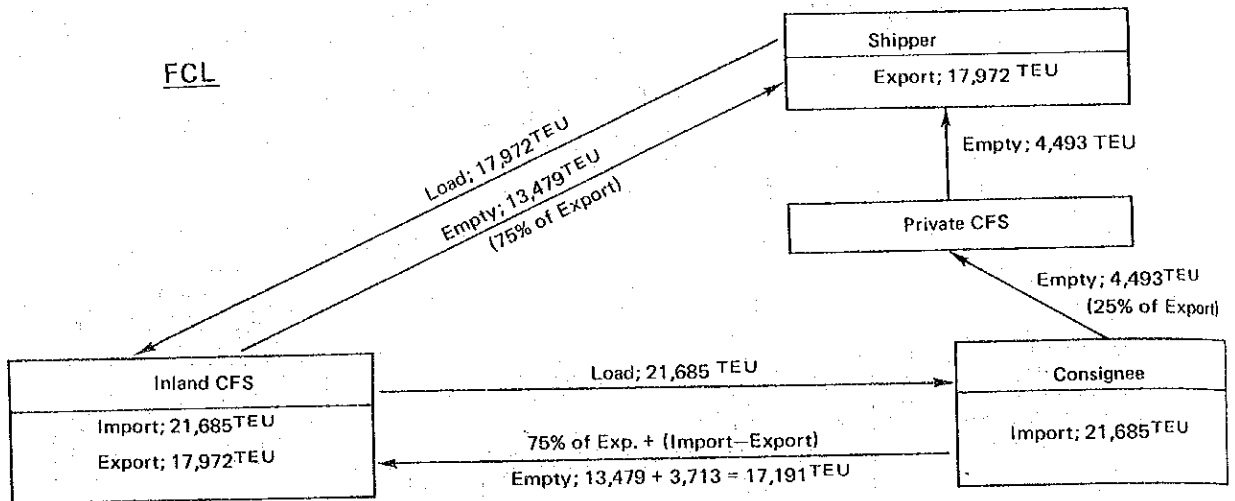
$$\text{FCL: } (13,479 \text{ TEU} + 21,685 \text{ TEU}) \div 300 \text{ day} \times 1.25 \text{ peak} \times \frac{1}{2} = 73 \text{ (40' Trailer)}$$

$$\text{LCL: } (14,457 \text{ TEU} + 4,752 \text{ TEU}) \div 300 \text{ day} \times 1.25 \text{ peak} \times \frac{10 \text{ ton}}{8} = 100 \text{ (8 ton Truck)}$$

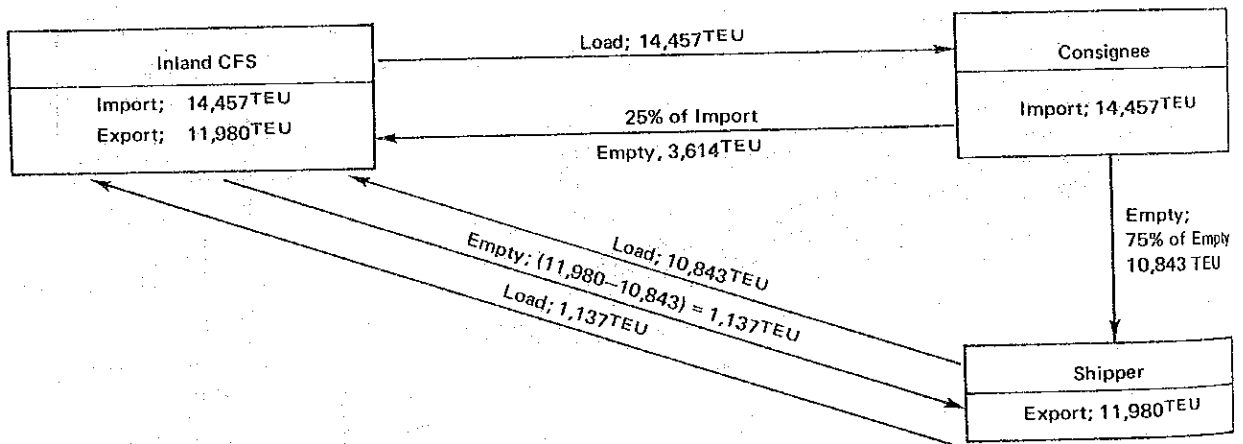
Fig. II-4-3 (2) Truck Operation Plan

Road Transport

Round Time ; 8 days
Distance; 1,360 Km



LCL



Required No. of Trucks

$$\text{FCL; } (13,479 \text{ TEU} + 21,685 \text{ TEU}) \div 300 \text{ days} \times 1.25 \text{ peak} \times \frac{1}{2} \times 8 \text{ days} = 590 \text{ (40 Trailer)}$$

$$\text{LCL; } (14,457 \text{ TEU} + 1,137 \text{ TEU}) \div 300 \times 1.25 \times \frac{10}{8} \times 8 = 650 \text{ (8 ton truck)}$$

CHAPTER 5. PROPOSAL ON IMPROVEMENT OF ACCESS INFRASTRUCTURE AND INTRODUCTION OF TRANSPORT EQUIPMENT

5-1 Generated traffic from the new container port terminal

Generated traffic volume from the new container port terminal in 1987/88 and 1999/2000 are schematically shown in Fig. II-5-1.

Generated truck traffic volume from the terminal in 1987/88 is shown in Table II-5-1 in terms of TEU by destination.

The daily assigned traffic flow in terms of passenger car unit is shown in Fig. II-5-2 for two cases; the case where the terminal is constructed in Karachi and the case where the terminal is constructed in Qasim. And generated truck traffic is assigned on the basis of the Land Use Plan in 1985 by KDA Master Plan.

Following assumptions are given in the above estimations.

1. 1 TEU is assumed to be 1 truck equivalent to 3 PCU
2. Related vehicle against 1 truck will be 1 truck
3. Loaded truck ratio will be 0.6
4. 100% of related vehicles for Multan/Quetta and 50% of related vehicles for SITE and Korangi; directions will move between Karachi Centre and the new port terminal.

Fig. II-5-2 indicates the assignment of the generated traffic in 1987/88 to/from the bulk terminal of Qasim Port.

Above figures were estimated from Graph 4.1; vehicle Movement and Table 3-2; Road/Rail Cargo Allocation in the Port Qasim Development Planning Draft Final Report.

The assigned traffic volume in Karachi city in 1985 is shown in Fig. II-2-3.

5-2 Proposal on improvement and construction of access roads

Proposal on improvement and construction of access roads were already made in the following KDA reports;

- 1) Final Report of Transportation MP-PR/94 Jan. 1974
- 2) Project Identification Report on Transport MP-PR/91 Feb. 1974
- 3) Improvement & Construction of Major Road Communication Net-Work Connecting the Port Area with the UP-Country MP-PR/146 March 1980
- 4) Widening and Improvement of National and Super Highway – Proposed of Mehran Highway (Southern By-Pass) MP-PR/147 Sept. 1980
- 5) Karachi Transportation Immediate & Long Term Plans by S. Naeen Ahmed

Therefore, the proposals contained in the above-mentioned reports were classified according to urgency into the urgent plan in 1987/88 and the master plan in 1999/2000. Later, as indicated in Table II-5-1, the proposals were rearranged by the case where the new port container terminal will be constructed at Karachi Port and the case where it will be constructed at Qasim.

5-3 Proposal on construction of access railway

If the container terminal is constructed at Karachi Port, a single-track line will be constructed to KBX along with the existing KCR by 1987. The length of the line is 3 km.

If the container terminal is constructed at Qasim Port, a passing line of about 1 km will be constructed under the master plan because the access railway capacity will become insufficient by 1999.

The cost of constructing the access railway will be entirely the responsibility of the new port container terminal project.

5-4 Cost shared by the project for access roads and rail

Generated traffic volume in 1987/88 from the terminal is estimated by direction as shown in Fig. II-5-2. And assigned future traffic volume on future road network in Karachi City in 1985 is indicated in Fig. II-2-3 from the KDA Master Plan. Generated traffic volume from the bulk terminal of Qasim Port is also assigned as in Fig. II-5-2.

The shared costs on proposed improvement and construction costs are estimated by the proportion of the generated traffic volume by direction against the assigned traffic volume in 1985.

The results are shown in Table II-5-2.

5-5 Proposal on introduction of container inland transport equipment

In the study of container inland transport system in Chapter 4, the multimodal transport system was selected from national economic point of view as the system of container transport for the area between the new port container terminal and northwards from Lahore.

Inland CFS will be, therefore, constructed in Lahore which is central to inland transportation, containers will be transported by unit trains between the new port container terminal and the Lahore CFS and after that they will be transported by trucks between the Lahore CFS and the consumer centre.

However, the Pakistan Railways does not have enough container flat-cars at present. In addition, Pakistan Railways suffers from an acute shortage of locomotives. It is, therefore, proposed that eight railway locomotives, two shunting locomotives and 200 container flat-cars be procured by 1987/88 as in Table II-5-3.

The number of trucks in service for container inland transport in 1987 will be about 320 trailers equivalent to 40-ft-container for FCLs and about 800 units 8-ton trucks for LCLs. General goods is mostly handled by private truckers in Pakistan. The most of general cargoes are presently transported by trucks between Karachi and Lahore but, in the future, they will mostly be diverted to rail as container cargoes. In this project, truck procurement is not included.

**Table II-5-1 General Container Road Traffic to/from
New Port Terminal**

Year: 1987/88

(Unit: TEU/Year)

		Import	Export	Total
FCL	Karachi	17,606	13,115	30,721
	Multan & Ouetta	—	—	—
	FCL Total	17,606	13,115	30,721
LCL	Karachi	11,675	8,763	20,438
	Multan & Ouetta	6,015	9,343	15,358
	LCL Total	17,690	18,106	35,796
	G. Total	35,296	31,221	66,517

Year: 1999/2000

		Import	Export	Total
FCL	Karachi	70,305	44,276	114,581
	Multan & Ouetta	—	—	—
	FCL Total	70,305	44,276	114,581
LCL	Karachi	46,919	29,475	76,394
	Multan & Ouetta	24,063	25,618	49,681
	LCL Total	70,982	55,093	126,075
	G. Total	141,287	99,369	240,656

Table II-5-1 (1) Proposed Access Improvement and Cost

Case: Karachi Port

Unit: 1,000 US\$

Road	Proposed Access Improvement by 1987/88		Proposed Access Improvement by 1999/2000		Cost Shared for Master Plan
	Share of the Generalized Traffic (%)	Cost Shared for Urgent Plan	Share of the Generalized Traffic (%)	Cost Shared by 1999	
<u>Mauripur Road</u>		252.0		169.2	
1) Widening of existing 2-lane bridges on Mauripur Road Length; 350 m Lane ; 6-lane divided	7.2%		1) Widening of 6-lane Mauripur Road Length; 4.8 km (Bridge; 350 m) Lane ; 6-lane⇒8-lane divided	8.7% for 2.45km	63.9
*Mauripur Road will be widened by KPT and KDA by 1984.					
<u>Estate Avenue and Shahrāh-e-Ibne Seena</u>				4.4	
2) Removal of obstruction on Estate Avenue near sherehah Length; 1 km Lane ; 2-lane⇒4-lane	4.6%	13.8	2) Improvement of Khayaban-e-chishty junction	1.0% for 2.5 km	7.5
3) Improvement of the roundabouts on shahrāh-e-Ibne Seena as a signalized junction No of round about; 3	1.4%	4.0	3) Widening and improvement of Manghopir Road from Estate Avenue up to Road 2000 Length; 7 km Lane ; 6-lane divided	2.5% for 4.5 km	67.5
<u>Shahrāh-e-Pakistan</u>			4) Improvement, widening and extension of Road 2000 from Manghopir Road Length; 5.2 km Lane ; 6-lane divided	3.6%	112.3
4) Removal of garages and encroachments located near junction with Rashid Minbas Road Length; 500 m Lane ; 2-lane⇒4-lane divided	2.0%	3.0	5) Construction of the new road from Super Highway up to Road 2000 Length; 2 km (Bridge; 150 m) Lane ; 6-lane divided	6.6%	267.3
<u>Mulvi Tamizuddin Khan Road</u>			6) Construction of the clover-leaf junction on Super Highway near scheme No.33	6.6%	314.3
5) Widening of remaining portion of Mulvi Tamizuddin Khan Road Length; 1.6 km Lane ; 2-lane⇒4-lane divided	1.9%	9.1	<u>Southern Bypass</u>		
6) Widening of the bridge over railway near Dawood Centre Length; 100 m Lane ; 2-lane⇒4-lane divided	1.9%	9.5	7) Construction of the new road from Moulvi Tamizuddin Khan Road to cliffon through China Creek Length; 2.4 km Lane ; 4-lane divided	2.1%	30.2
<u>Other</u>			8) Construction of the service road along with Sunset Boulevard Road Length; 4.4 km Lane ; 1 lane each side	2.7%	23.8
7) Improvement of the junction near Qamar House	10.9%	10.4	9) Construction of two bridges over the Malir River Length; 700 m Lane ; 4-lane divided	2.0%	140.0
<u>Rail</u>					
Construction of new single railway line along with Circular Railway from entrance of New Terminal up to Karachi Bunder Length; 3 km	100.0%	857.1			
Total	Total	1,158.9	Total	Total	1,200.4

Table II-5-1 (2) Proposed Access Improvement and Cost - Cont'd

Case: Qasim Port

Unit: 1,000 US\$

Proposed Access Improvement by 1987/88		Proposed Access Improvement in 1999/2000		Share of the Generated Traffic (%)	Cost Shared in 1990/2000 Master Plan	Cost Shared for Master Plan
Share of the Generated Traffic (%)	Cost Shared for Urgent Plan	Share of the Generated Traffic (%)	Cost Shared in 1990/2000 Master Plan			
<p><u>Road</u></p> <p><u>Southern Bypass</u></p> <p>1) Construction of the connecting road from Port Qasim Access Road up to Road 1600 in Korangi Length; 10.5 km Lane ; 2-lane</p>	6.4%	201.6	<p><u>Port Qasim Access Road</u></p> <p>1) Widening of the 2-lane access road and Construction of clover-leaf junction on National Highway Length; 12 km (Bridge; 20 m) Lane ; 2-lane=>4-lane divided</p> <p><u>Southern Bypass</u></p> <p>2) Widening the connecting road from the Access Road up to Road 1600 Length; 10.5 km Lane ; 2-lane =>4-lane divided</p> <p><u>National Highway-Super Highway</u></p> <p>3) Construction of the new road from National Highway up to Super Highway Length; 13.3 km (Bridge; 700 m) Lane ; 2-lane</p> <p>Construction of passing lane Length; 1,000 m</p>	46.6%	3,943.2	3,943.2
<p><u>Rail</u></p>	Total	201.6	Total	100%	6,483.5	6,685.1

Table II-5-3 Required No. of Equip. and Cost in 1987/88, 1999/2000

(Unit: 1,000 US\$)

Equip.	Unit Price	1987/88		1999/2000	
		No. of Equip.	Cost	No. of Equip.	Cost
Wagon	57	200	11,400	800	45,600
Locomotive	1,200	8	9,600	32	38,400
Shunting Loco	700	2	1,400	2	1,400
		Total	22,400	Total	85,400

Fig. II-5-1 (1) Modal Split at New Container Terminal in 1987/1988

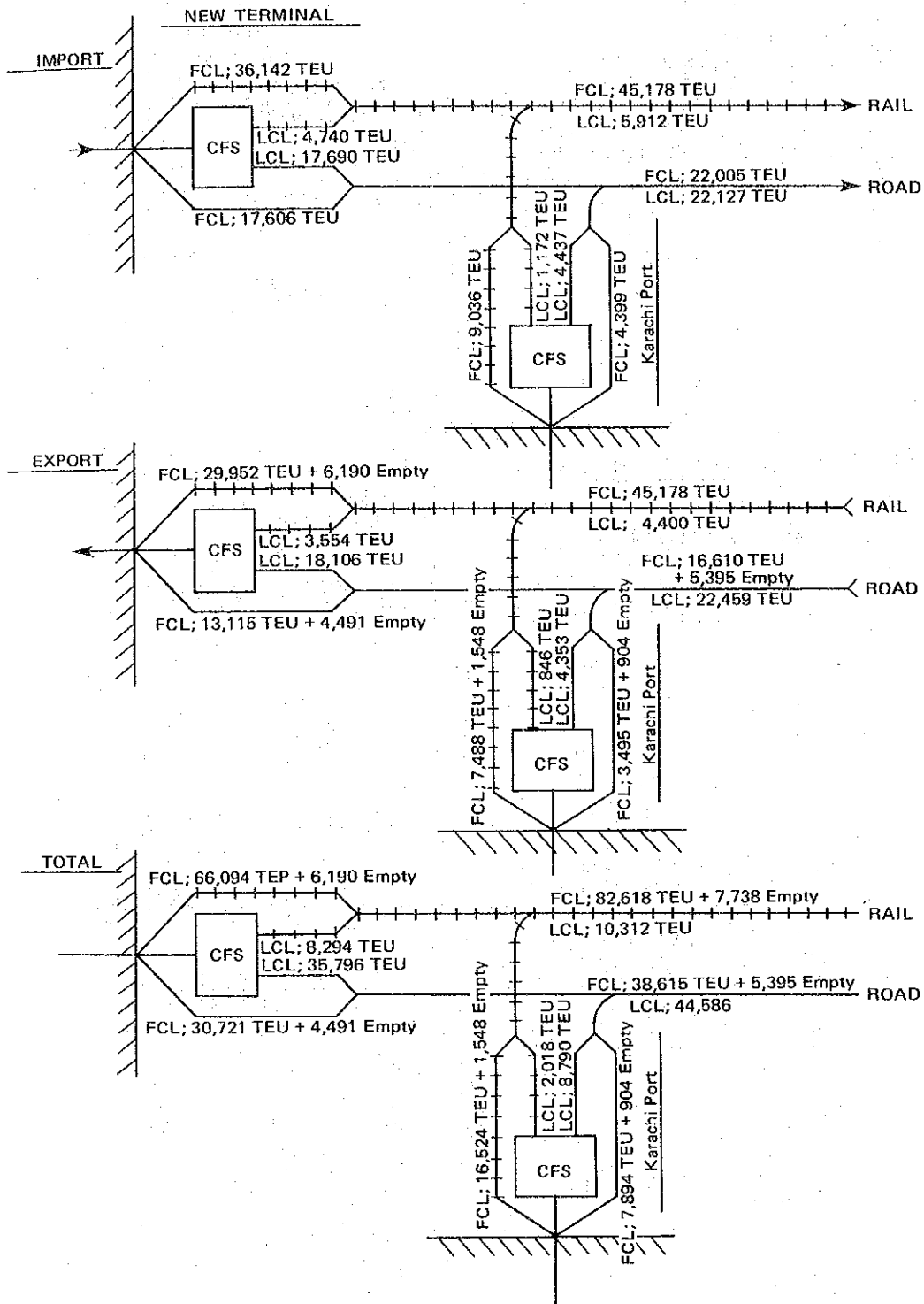


Fig. II-5-1 (2) Modal Split at New Container Terminal in 1999/2000

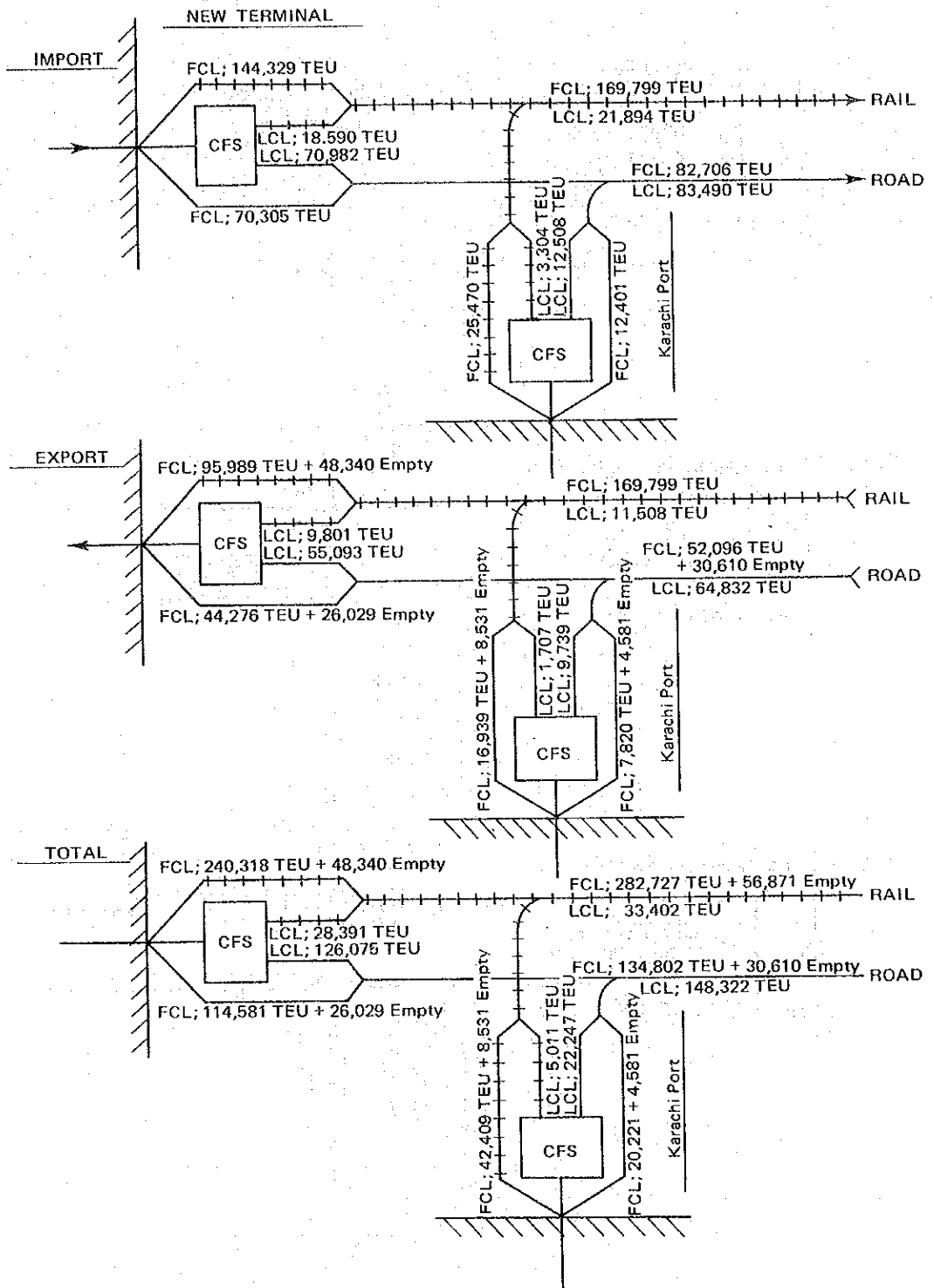
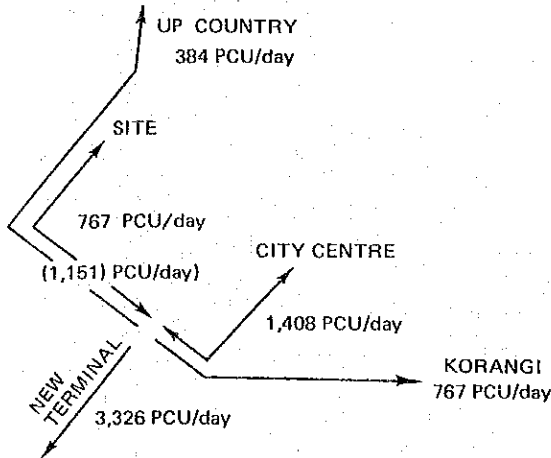


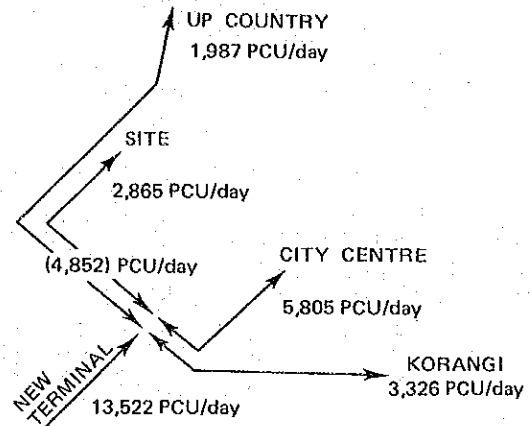
Fig. II-5-2 Generated Road Traffic Flow from New Container Terminal

Case; KARACHI

Generated Traffic in 1987

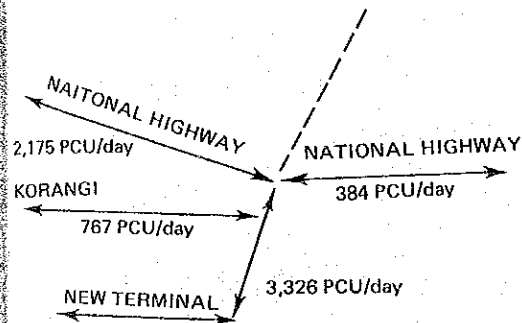


Generated Traffic in 1999

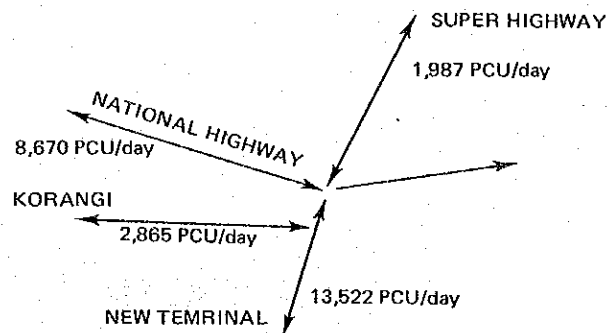


Case; Quasim

Generated Traffic in 1987

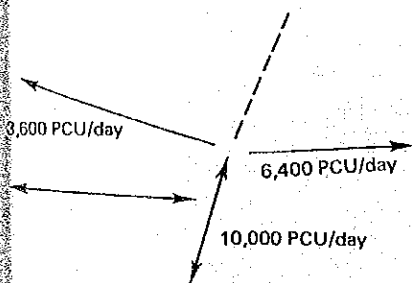


Generated Traffic in 1999

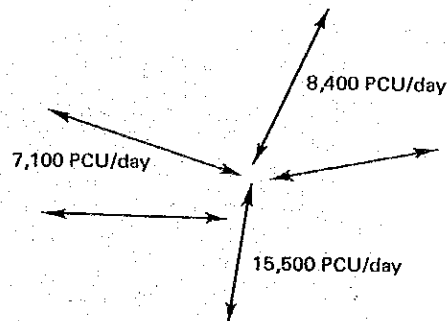


Generated Traffic from Bulk Terminal

1987



2000



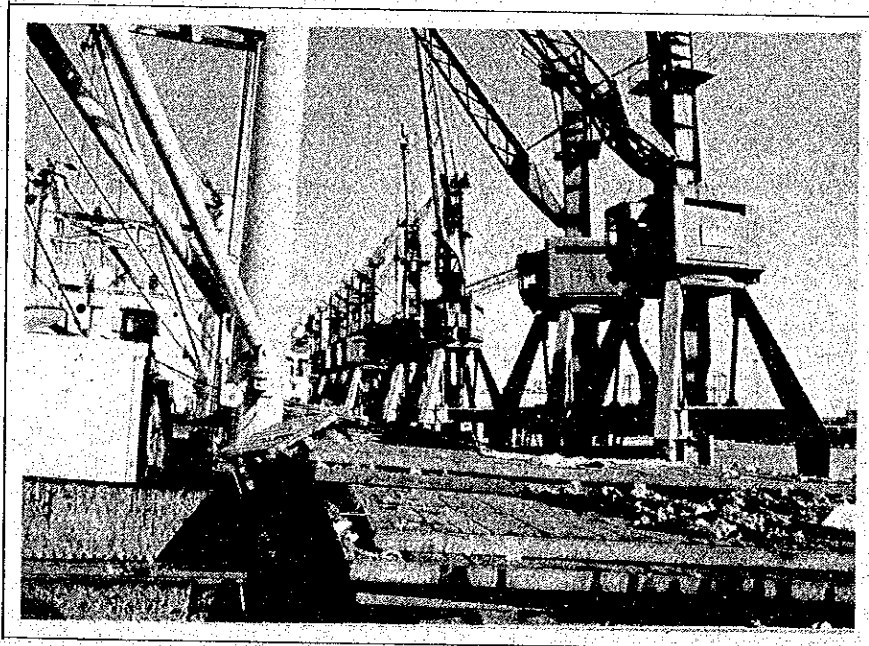
Source; Port Quasim Development Planning

Draft Final Report GRAPH 4.1

Total Daily Inbound Vehicle Movements

PART III. KARACHI PORT

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PART III. KARACHI PORT

CHAPTER 1. INTRODUCTION

Karachi Port has been the one and only port open to international seaborne trade in Pakistan, and is still so in an actual sense although Qasim Port commenced Bulk cargo handling at Iron Ore and Coal Berth in 1980.

The location and plan of Karachi Port are shown in Figs. III-1-1 and III-1-2. Karachi Port is situated on longitude $66^{\circ}-58'-38''$ East and latitude $24^{\circ}-48'-37''$ North. Karachi Port is endowed with well sheltered waters by geographical features, and it has only small scale protective facilities of Manora Breakwater and Keamari Groyne. There are twenty four multipurpose berths in operation and four berths under construction and wet cargoes are handled at four oil piers near the entrance. The cargo volume handled in 1980/81 amounted to the order of 15 million tons.

The modern development of Karachi Port started in 1854 and recently a series of development projects have been carried out to meet an increasing traffic demand. In these projects, container-related facilities are included, in the third project a container storage and marshalling yard was taken up and is under construction and then in the fifth project a full-fledged container berth has been proposed in the Western Backwater Area development scheme.

Fig. III-1-1 Layout of Karachi Port

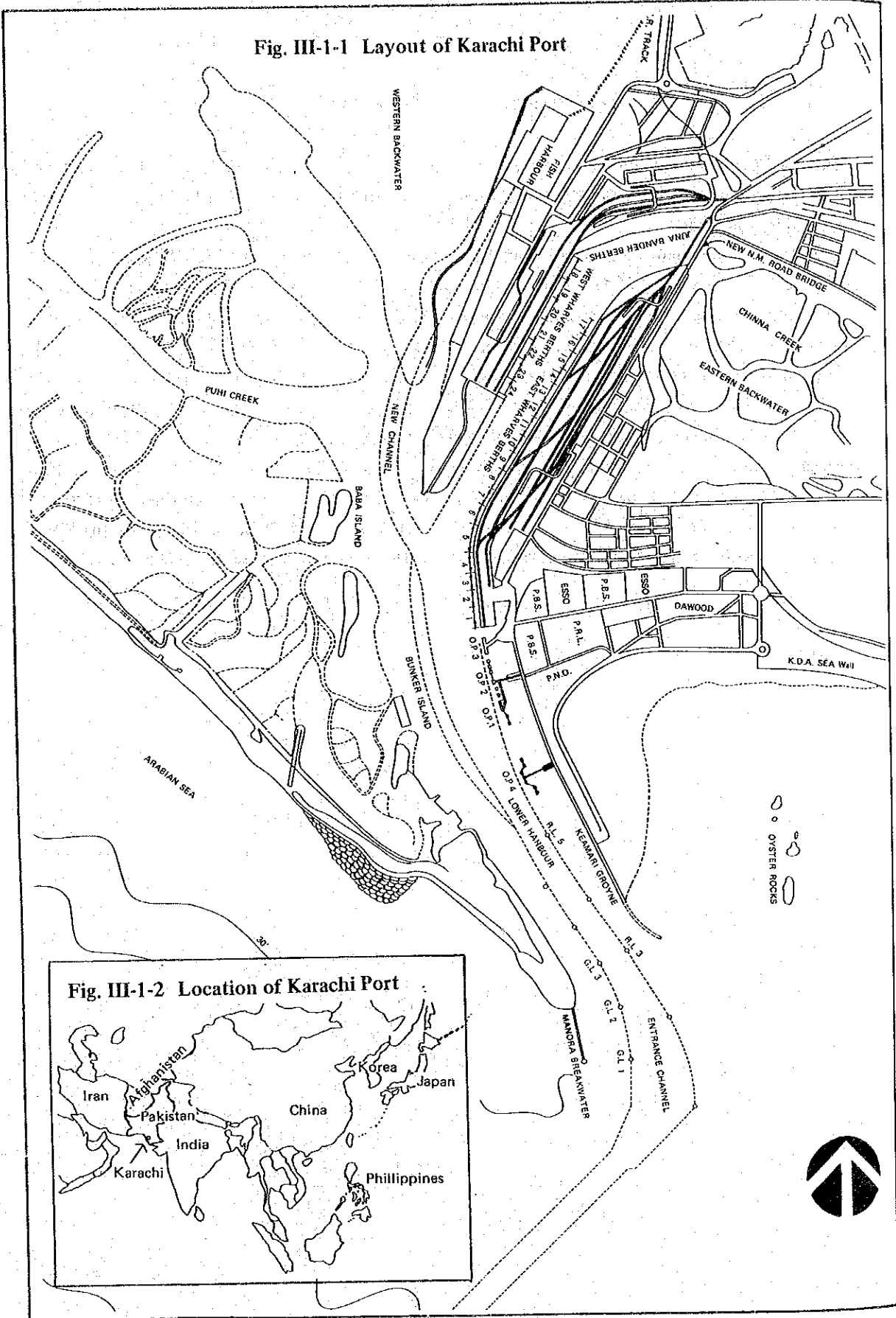


Fig. III-1-2 Location of Karachi Port

