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NATIONAL TRANSPORT RESEARCH CENTRE

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**A COMPARISON OF
PAKISTAN ROAD AND ROAD
TRANSPORT STATISTICS**

NTRC-225

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EXECUTIVE SUMMARY

International Road Federation (IRF) publishes Road Statistics annually. Based on the 1998 publication, a comparison has been made between Pakistan and other countries of the region. The salient findings are as under:

1. Road - kilometerage in Pakistan has been an increasing trend during 1992-96 with the growth rate of 4.23% per year as compared to that of India 0.23% and of other SAARC countries 2.6%.
2. Pakistan is the only SAARC country which has Motorways.
3. Percentages of Motorway viz. total road network in Pakistan is 0.15%, ECO-0.36% and Middle East-1.4% respectively.
4. Percentage of paved roads in Pakistan is 57%, SAARC-36%, ECO-65% and Middle East-51%.
5. Road density in terms of Km per square Km area in Pakistan is 0.27, in SAARC countries 0.71, ECO countries 0.20 and Middle East 0.20.

6. Production of motor vehicles in Pakistan during the last decade showed a decline of 43% whereas SAARC countries showed a positive change of 65%.
7. In Pakistan, except cars, import of other vehicles e.g. trucks and coaches showed a rising trend of 25.4% per year during the last decade against 3.9% in Srilanka and 2.3% in Bangladesh.
8. During the period 1992-96, the rate of import of agricultural vehicles such as tractors has stood at 22.1% per year in Pakistan as compared to 17.1% in Srilanka and negative 35.3% in Bangladesh during the same period.
9. The over-all yearly rate of increase of vehicles in use in Pakistan during the 90s had been 3.7% as compared with 3.26% in SAARC Countries and 3.27% in ECO Countries.
10. Vehicle density in terms of number of vehicles per 1,000 population in Pakistan during 1992-96 has been 6.5 as compared to 5.7 in the SAARC Countries.
11. Vehicle density in Pakistan is found to be lower than that of many other Asian Countries.

I N T R O D U C T I O N

The International Road Federation (IRF) is a non-political organization and is the international point of affiliation for national and regional associations around the world. The main mission of the IRF is the promotion of road development as a key factor in economic and social growth and to provide reliable Road and Road Transport statistics.

This report "A Comparison of Pakistan Road and Road Transport Statistics" is a desk - study and is actually based on IRF's report "World Road Statistics - 1998" published in 1998. Road and Road Transport Statistics of Pakistan has been compared with that of other countries mentioned in the IRF report. All the tables mentioned in the report are derived from the said IRF publication.

ROAD NETWORK IN PAKISTAN:

Pakistan has a road-network of about 224,774 Kms in length. Roads are classified according to type of surface namely high type and low type roads. Although there is no formal relationship between the type of surfaces and the administrative classification, broadly speaking high type roads are National Highways and Major Highways whereas low type roads are secondary and regional roads.

Out of a total of 224,774 Kms roads, 6587 Km consist of National and Major Highways. The length of secondary and regional roads is 117,356 Kms. There exists a Motorway between the Federal Capital Islamabad and Punjab Provincial Capital Lahore which covers a distance of about 334 Kms. Other roads contribute 100,497 Kms to the network as observed in 1996. Paved roads constitute 57 percent of the total road network. Density of total road network is 0.27 Km per square km i.e. each one Km square area contains 0.27 Km of roads. However the road - Km is increasing in the form of construction of new roads. The growth-rate from 1992 to 1996 is 2.8 percent per annum.

Following sections show a comparison between Pakistan and other regional countries in Asia including SAARC and ECO countries.

ROAD NETWORK EXPANSION:

Road-kilometerage in all Asian Developing Countries is an increasing variable. On the basis of road kilometers during 1992-96, growth rates of 14 countries have been calculated in Table-1. The growth rate for Pakistan is 4.23 per cent per year which is higher than that of many other regional Asian countries. For instance, the average growth rate of SAARC countries is 2.47% per year, that of Saudi-Arab and Malaysia is 1.68% and 0.52% respectively and in Iran it is found 3.75% annually.

Table 1

Road Network Growth During 90s

<u>S #</u>	<u>Country</u>	<u>Growth Rate (%)</u>
1.	Pakistan	4.23
2.	India	0.23
3.	Sri Lanka	0.40
4.	Bangladesh	0.54
5.	Bhutan	7.47
6.	Nepal	1.98
7.	Indonesia	5.29
8.	Malaysia	0.52
9.	Combodia	Null
10.	Singapore	0.94
11.	Taiwan	0.21
12.	Saudi Arab	1.68
13.	Iran	3.75
14.	Iraq	2.00

MOTORWAY

Out of a sample of 14 Asian Developing Countries, 8 have been found to have Motorways. In South-East Asia, China, Korea, Taiwan and Malaysia have 24,474 Kms, 1,920 Kms, 447 Kms and 580 Kms of Motorways respectively. Among SAARC countries, only Pakistan has 334 Kms of Motorway. Turkey and Iran who are ECO member countries have 1405 Kms and 470 Kms of Motorways respectively.

The Motorway in Pakistan (334 Kms) constitute only 0.15% of the total road network. Another 155 Km from Islamabad to Peshawar is being constructed. It is a 3 year project and started in late 1997. The percentages of Motorway in the total network of roads in respect of various countries is as under:-

Table-2

PERCENTAGAE OF MOTORWAYS

C O U N T R Y	% OF MOTORWAYS
Pakistan	0.15
Other SAARC Countries	--
ECO Countries (Iran, Turkey, Kyrgystan)	0.36
Far East Asia (China, Korea, Malaysia, Singapore, Taiwan)	2.35
Middle East (Oman, Syria, Isreal)	1.40

Among 10 ECO member countries only Iran, Turkey, Pakistan and Kyrgyztan have Motorways constituting 2.9%, 0.4%, 0.15% and 0.75% of

their total road network respectively.

Among Far-East and South-East Countries, China, Japan, Korea, Malaysia, Taiwan and Singapore have Motorways which are 1.6%, 5.2%, 2.3%, 6.1%, 2.2% and 5.0% of their total network, respectively. Oman and Syria are the only 2 Arab countries having 1.6% and 2.1% motorways respectively.

MAIN HIGHWAYS AND PAVED ROADS:

According to 1996 data out of the total length of 224,774 Kms road network in Pakistan, 6,587 Kms are Secondary Roads and 57% are paved road. Table-3 given below reflects the percentages of main highways and paved roads in Asia.

Table 3
PERCENTAGE OF MAIN & PAVED ROADS

C O U N T R Y	% OF MAIN HIGHWAYS	% OF PAVED ROADS
Pakistan	2.9	57
India	1.7	50
Other SAARC Countries (Ave)	0.2	36
China	10.2	N.A.
Korea	14.7	76
Malaysia	16.2	75
Taiwan	21.6	87
Iran	14.1	50
Oman	7.5	30
Saudi Arab	14.1	43
Syria	72.2	23

Contd...

U.A.E.	38.0	100
Japan	5.1	74
South Korea	--	79
Hong Kong	--	100
Macau	--	100
Singapore	--	97

It is interesting to note that only a few small countries such as Hong Kong, UAE, Macau and Singapore have greater percentage of paved roads. This is due to either their small size or non-agricultural/rural nature of the countries. Japan and South Korea have not all roads paved. In Europe this percentage varies between 60% to 90% and in Northern America between 35% to 55%.

ROAD DENSITY:

Road Density figures in terms of Kms for one square Km area are obtained by dividing the total road length by the total area of that country. The comparison is as under:-

Table 4

ROAD DENSITY

C O U N T R Y	ROAD DENSITY (KM/KM ²)
Pakistan	0.27
India	0.62
Other SAARC Countries	0.80
ECO Countries	0.20
China	0.16

Korea	0.76
Japan	3.04
Malaysia	0.28
Iran	0.10
Saudi Arabia	0.07
Syria	0.22
U.A.E.	0.06
Indonesia	0.19
Singapore	4.71

In most of the Asian Countries this figure is below 0.5 and in Europe just above 1.0. In the USA and Canada it is 0.64 and 0.09, respectively. Again this figure is found higher in small and non-agricultural/rural characteristics countries.

PRODUCTION OF VEHICLES:

Production of motor vehicles like cars, buses, coaches, tractor and motorcycles has been a decreasing variable during 90s. In Pakistan, against the production of 28911 cars in 1992 it had been only 16500 in 1996 showing a fall of 43%. Production of motorcycles which had been some what revolutionary during 70s also showed a fall of 84% during 90s. However, tractor is the only category in which a positive percentage change (25%) was observed.

On the other hand SAARC countries like India and Bangladesh and other Asian countries kept on going with positive percentage changes. Among Asian countries, South Korea stood on the top in making progress though in quantitative terms she is behind Japan. In American countries, USA, Canada, Brazil and Argentina are leading the continent in this regard while South Africa and Nigeria doing the same in their respective continents. Table-5 given below shows the picture:

Table 5

PRODUCTION OF VEHICLES - 1996

S#	COUNTRY	CARS	BUSES	TRUCKS	TRAILERS	M.CYCLES
1.	Pakistan	16500	-	2350	-	13609
2.	India	346547	259131	-	191149	2829429
3.	Bangladesh	364	226	527	169	10681
4.	Japan	7090000	-	2560000	-	2240205
5.	S. Korea	2264709	236516	311489	3534	348335
6.	USA	6083227	27583	5688095	-	287000
7.	Canada	1823668	-	363465	-	-
8.	Brazil	1302742	-	332799	-	-
9.	Argentina	269439	3419	40294	-	-

IMPORT OF VEHICLES:

Like many developing countries, Pakistan has been importing motor vehicles for a long time. It mainly includes passenger cars, buses, coaches, trucks, van and tractors. Table-6 reflects the position:

Table 6

IMPORT OF MOTOR VEHICLES

COUNTRY	YEAR	CARS	BUSES, COACHES, TRUCKS	TRACTORS
PAKISTAN	1992	42532	1282	509
	1993	44300	2782	732
	1994	46141	1354	955
	1995	12639	4816	1389
	1996	2700	5020	1690
INDIA	1992-96	Nil	Nil	Nil
MALAYSIA	1992-96	Nil	Nil	Nil
SINGAPORE	1992-96	Nil	Nil	Nil
PHILIPPINES	1996-96	Nil	Nil	Nil
THAILAND	1992-96	Nil	Nil	Nil
BANGLADESH	1992	2436	1066	177
	1993	3519	1430	266
	1994	6214	1173	31
	1995	7840	1330	20
	1996	10200	1220	-
SRILANKA	1992	9346	17614	1182
	1993	7829	15756	1563
	1994	12719	18592	1807
	1995	18867	19859	2328
	1996	24200	22200	2670
S. KOREA	1992	4099	2126	-
	1993	7479	1486	-
	1994	5972	2449	-
	1995	8910	9471	-
	1996	15787	9361	-
	CHINA	1992	27646	43125
	1993	32300	52500	1480

	1994	16000	70600	1910
	1995	13700	82800	2020
	1996	2070	99000	2350

VEHICLES IN USE:

According to the figures mentioned in the IRF report, the number of vehicles in use continuously increased during the past decade all over the continent. The rate of increase of cars, buses, lorries and tractors in Pakistan have been worked out as 3.46%, 4.95%, 3.87% and 4.1% respectively. The over all rate of increase of vehicles in use comes to be 3.7% per year as compared to 3.73% in Bangladesh, 3.92% in India, 3.2% in Bhutan and just 2.2% in Srilanka. The average figure for SAARC Countries excluding Pakistan comes to 3.26%, slightly less than that of Pakistan but exactly equal to that of Turkey and Iran which are important members of ECO. Table-7 shows yearly percentage change of vehicles in use as observed in some important regional / Asian countries.

Table 7

VEHICLES IN USE
YEARLY PERCENTAGE CHANGE IN ASIAN COUNTRIES

COUNTRY	YEARLY PERCENTAGE CHANGE
PAKISTAN	3.70
INDIA	3.92
BANGLADESH	3.77
SRILANKA	2.20

Contd.

BHUTAN	3.20
TURKEY	3.27
IRAQ	1.37
IRAN	3.33
SAUDI ARAB	1.26
MALAYSIA	2.87
INDONESIA	3.92

The figures in Western European Countries have been found to be much lower due to high ratio of vehicle ownership. For instance, in France, the yearly percentage growth of vehicles in use during nineties had been as much as 0.87% whereas in Belgium and Denmark it had been 1.2% & 1.0%, respectively.

VEHICLE DENSITY:

Vehicle density in terms of number of vehicles per 1000 population and number of vehicles per road Km has also been compared in Table-8 given below:

Table 8

VEHICLES IN USE

C O U N T R Y	VEH. PER 1000 POPULATION	VEH. PER KM OF ROAD
PAKISTAN	6.5	3.9
INDIA	6.7	2.8
BANGLADESH	0.9	0.5
BHUTAN	1.9	3.1
SRILANKA	13.5	2.4

Contd..

IRAN	33.5	15.0
TURKEY	65.3	10.8
MALAYSIA	150.3	31.0
INDONESIA	20.4	10.8
SAUDI ARAB	166.3	18.1

The table reveals that there had been about 6.5 vehicles per 1000 population in Pakistan during the last decade as compared to 5.7 in SAARC Countries and about 50 in Iran and Turkey which are ECO Countries. Except for SAARC Countries, vehicle density in Pakistan both in terms of per unit population and per unit road length is lower than that of other Asian countries.

CONCLUSIONS.

A comparison of Pakistan roads and road transport data which is based on the International Road Federation report published in 1998 shows that the growth rate of road-kilometers in Pakistan is 4.23% per year against 0.23% in India and 2.6% in other SAARC countries. The average of 14 countries comes to 2.1% per year.

The motorway in Pakistan (334 K.M) makes only 0.15% of the total road network. No other SAARC country has motorways. Similar percentages of ECO countries, South East and Far East Countries and Middle East Countries are 0.36%, 2.35% and 1.4%, respectively. Singapore is the only developing country which has about 5% motorways, a figure normally observed in developed countries e.g. in Japan the same percentage is noticed. As far as paved roads are concerned, 57% of the network in Pakistan consists of paved roads compared to 50% in India, 36% in other SAARC countries, 87% in Taiwan and 100% in the U.A.E. It is noticed that those countries that are smaller in terms of area and have non-agricultural or rural characteristics have high figures. For instance, Hong Kong, Macau, UAE and Singapore have almost 100% paved roads.

The percentage of Main Highways in total road-network in Pakistan is 2.9%. This figure for India and other SAARC countries is 1.7% and 0.2%, respectively. Syria has a high percentage of 72.2% among developing countries but the road density in this country is just 0.22 Km/Km². Road density in same terms is 0.27 in Pakistan, 0.62 in India and 0.8 in other SAARC countries. ECO countries on average have 0.2 km roads for every square kilometre area. Singapore has the highest density (4.7) among developing countries but again keeping in view the size, population density and non-agricultural nature of the country, the high road density is not surprising.

Production of motor Vehicles e.g. cars, buses, coaches, tractors and motor cycles has been a decreasing variable during the decade showing a fall of 43% from 1992 to 1996. Production of motorcycles which had been somewhat revolutionary during 1970s also showed a fall of 84% during 1990s. However Tractor is the only category which showed a positive change of 25%.

The import of motor vehicles other than tractors rose at the rate of 25.4% per year. This rate of increase in case of agricultural vehicles e.g tractors is 22.1% as compared to 17.7% per year in Srilanka and negative 35.3% in Bangladesh.

The over-all yearly rate of increase of vehicles in use in Pakistan during the decade had been 3.7% as compared with 3.26% in SAARC Countries and 3.27% in ECO Countries. Vehicle density in terms of number of vehicles per 1000 population in Pakistan is worked out as much as 6.5 as compared to 5.7 in the SAARC Countries. Vehicle density in Pakistan is found to be lower than that of many other Asian Countries.

ROAD-NETWORK CHARACTERISTICS OF DIFFERENT COUNTRIES.

COUNTRY	YEAR	TOTAL ROAD NET-WORK (KM)	MOTORWAYS KM/%AGE	MAIN HIGHWAYS KM/%AGE	PAV-ED (%)	ROAD DENSITY KM/KM ²
PAKISTAN	1992	190431	--	6587 (3.5)	53	0.23
	1993	197093	--	6587 (3.4)	54	0.24
	1994	203490	--	6587 (3.2)	56	0.26
	1995	213288	--	6587 (3.1)	57	0.27
	1996	224774	335 (0.15)	6587 (2.9)	57	0.27
INDIA	1992	2040985	--	33666 (1.65)	--	0.62
	1993	1923248	--	34058 (1.8)	48.2	0.59
	1994	1970000	--	34200 (1.7)	49.2	0.60
	1995	2010000	--	34600 (1.7)	50	0.61
	1996	2060000	--	34900 (1.7)	50	0.62
BANGLA-DESH	1992	219782	--	14500 (6.6)	6.6	1.49
	1993	219235	--	15053 (6.9)	6.9	1.49
	1994	168578	--	15669 (9.3)	9.2	1.14
	1995	223391	--	16070 (7.2)	7.2	1.51
	1996	--	--	--	--	--
NEPAL	1992	7120	--	--	39	0.05
	1993	7260	--	--	39.7	0.05
	1994	7400	--	--	40.5	0.05
	1995	7550	--	--	41.4	0.05
	1996	7700	--	--	41.5	0.05
SRILANKA	1992	97667	--	10805 (11.1)	34	1.5
	1993	98775	--	10961 (11.1)	38	1.5
	1994	98775	--	11077 (11.2)	40	1.5
	1995	98775	--	11154 (11.3)	40	1.5
	1996	99200	--	11300	40	1.5
BHUTAN	1992	2462	--	1491 (60.6)	77.1	0.04
	1993	2568	--	1527 (59.5)	74.5	0.05
	1994	3037	--	1527 (50.3)	65.2	0.05
	1995	3108	--	1530 (49.2)	63.7	0.05
	1996	3285	--	1543 (46.9)	60.7	0.05

Contd..

CHINA	1992	1265916	5756 (0.5)	88189 (7.0)	--	0.13
	1993	1321791	7450 (0.6)	101939 (7.7)	--	0.14
	1994	1384273	10198 (0.7)	116546 (8.4)	--	0.14
	1995	1462867	15424 (1.1)	136705 (9.3)	--	0.15
	1996	1526389	24474 (1.6)	156154 (10.2)	--	0.16
KOREA	1992	58905	1600 (2.7)	12079 (20.5)	80.8	0.59
	1993	61296	1602 (2.6)	12057 (19.7)	84.7	0.62
	1994	78833	1650 (2.1)	12046 (15.3)	77.8	0.79
	1995	74235	1824 (2.5)	12052 (16.2)	76.0	0.75
	1996	83400	1920 (2.3)	12100 (14.7)	76.1	0.76
MALAYSIA	1992	92545	574 (6.2)	13983 (15.1)	75	0.28
	1993	93017	574 (6.1)	14455 (15.5)	75	0.28
	1994	93600	580 (6.2)	15000 (16.0)	57	0.28
	1995	94000	580 (6.1)	15400 (16.0)	75	0.28
	1996	94500	580 (6.1)	15900 (16.2)	75	0.28
TAIWAN	1992	19539	382 (1.9)	4177 (21.4)	86.6	0.54
	1993	19531	447 (2.3)	4169 (21.4)	87.2	0.54
	1994	19528	447 (2.3)	4169 (21.4)	87.3	0.54
	1995	19584	447 (2.3)	4169 (21.4)	87.4	0.54
	1996	19701	447 (2.3)	4246 (21.6)	87.5	0.53
IRAN	1992	139800	477 (3.4)	19653 (14.6)	--	0.08
	1993	148000	470 (3.2)	20700 (14.0)	--	0.09
	1994	151920	463 (3.3)	21377 (14.1)	47.2	0.09
	1995	156510	463 (3.1)	22114 (14.2)	50.0	0.09
	1996	162000	470 (2.9)	22900 (14.1)	50.0	0.10
OMAN	1992	26213	926 (1.6)	1994 (7.6)	21.2	0.08
	1993	26753	426 (1.5)	2022 (7.5)	21.5	0.09
	1994	29823	436 (1.3)	2040 (7.4)	19.7	0.10
	1995	30489	510 (1.7)	2114 (7.6)	20.4	0.10
	1996	32800	550 (1.6)	2160 (7.5)	30.0	0.10
SAUDI ARABIA	1992	151532 (14.1)	--	21746	40	0.07
	1993	153932 (14.3)	--	21946	41	0.07
	1994	156084 (14.2)	--	22183	42	0.07
	1995	159000 (14.1)	--	22400	43	0.07
	1996	162000 (14.0)	--	22700	43	0.07

Contd..

SYRIA	1992	36057	850 (2.4)	5665 (15.7)	71	0.19
	1993	36665	850 (2.4)	5682 (15.5)	72	0.20
	1994	35375	850 (2.3)	26142 (73.9)	24	0.18
	1995	37059	850 (2.1)	26919 (72.0)	25	0.19
	1996	40480	866 (2.1)	27799 (72.2)	23	0.22
U.A.E.	1992	4470	--	1720 (38.5)	98	0.06
	1993	4555	--	1753 (38.4)	100	0.06
	1994	4695	--	1753 (38.4)	100	0.06
	1995	4760	--	1780 (37.4)	100	0.06
	1996	4835	--	1833 (38.0)	100	0.06

ROAD STATISTICS OF SOME ASIAN COUNTRIES

S#	COUNTRY	GROWTH RATE %	TOTAL ROAD NETWORK (KM)	MOTORWAY (KM)	MAIN HIGHWAYS	PAVED %	ROAD DENSITY KM/KM ²
1	PAKISTAN	2.81	224774	335 (0.15)	6587 (2.9)	57	0.27
2	INDIA	0.15	2060000	--	34900 (1.7)	50	0.62
3	BANGLADESH	0.33	223391	--	16070 (7.2)	7.2	1.51
4	NEPAL	1.3	7700	--	--	41.5	0.05
5	SRILANKA	0.26	99200	--	11300 (11.4)	40.0	1.50
6	BHOTAN	4.9	3285	--	1543 (46.9)	60.7	0.05
7	CHINA		1526389	24474 (1.6)	156154 (10.2)	--	0.16
8	KOREA		83400	1920 (2.3)	12100 (14.7)	76.1	0.76
9	MALASIA	0.35	94500	580 (6.1)	15900 (16.2)	75.0	0.28
10	TAIWAN	0.14	19701	447 (2.2)	4246 (21.6)	87.5	0.53
11	IRAN	2.4	162000	470 (2.9)	22900 (14.1)	50.0	0.10
12	OMAN		32600	550 (1.6)	2160 (7.5)	30.0	0.10
13	SAUDI ARAB	1.1	162000	--	22700 (14.1)	43.0	0.07
14	SYRIA	-	40480	866 (2.1)	27799 (72.9)	23.0	0.22
15	U.A.E.	-	4835	--	1833 (36.0)	100	0.06